Placer County
Local Hazard Mitigation Plan Update
March 2016

Foster Morrison

U.S. Depa1iment of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

June 13, 2016

Young "Rod" Rodriguez
Senior Emergency Services Specialist
Placer County Office of Emergency Services
2968 Richardson Drive
Auburn, CA 95603

Dear Mr. Rodriguez:

We have completed our final review of the *Placer County Local Hazard Mitigation Plan Update* officially adopted by Placer County, California on May 17, 2016 and found the plan to be in conformance with Title 44 Code of Federal Regulations (CFR) Part 201.6 *Local Mitigation Plans.* A list of the status of your participating jurisdictions is enclosed with this letter. In order to complete the approvals for all participating jurisdictions, any that have not yet submitted adoption documentation should be encouraged to complete their adoption process as soon as possible.

Placer County can be commended for their excellent planning process, and the completeness of this complex multi-jurisdictional plan, making it a usable tool in community planning throughout the county.

The approval of this plan ensures Placer County, and participating jurisdictions who have adopted the Plan, continued eligibility for project grants under FEMA's hazard mitigation assistance programs, including Hazard Mitigation Grant Program, Pre-Disaster Mitigation and Flood Mitigation Assistance grant programs. All requests for funding, however, will be evaluated individually according to the specific eligibility, and other requirements of the particular program under which applications are submitted. Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Additional information regarding the CRS can be found at *www.&ma.gov/businesslnfip/crs.shtm* or through your local floodplain manager.

FEMA's approval of the *Placer County Local Hazard Mitigation Plan Update* is for a period of five years, effective starting the date of this letter. Prior to June 13, 2021, Placer County and all participating jurisdictions are required to review and revise the plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval in order to continue to be eligible for mitigation project grant funding. The enclosed plan review tool provides additional recommendations to incorporate into the plan during the plan maintenance process.

If you have any questions regarding the planning or review processes, please contact JoAnn Scordino, Community Planner at (510) 627-7225, or by email at joann.scordino@lfema.dhs.gov.

Sincerely,

Jeffrey D. Lusk
Division Director
Mitigation Division
FEMA Region IX

Enclosure

cc: Marsha Sully, California State Office of Emergency Services, Hazard Mitigation Officer
Jose Lara, Chief, California State Office of Emergency Services, Hazard Mitigation Planning

Status of Participating Jurisdictions as of June 13, 2016

Jurisdictions – Adopted and Approved

#	Jurisdiction	Date of Adoption
1	Placer County	05/17/2016
2	No. Tahoe Public Utility District	04/12/2016

#	Jurisdiction	Date of Adoption

Jurisdictions - Approvable Pending Adoption

#	Jurisdiction
1	Auburn, City of
2	Colfax, City of
3	Lincoln, City of
4	Loomis, Town of
5	Rocklin, City of
6	Alpine Springs Co. Water District
7	Foresthill Fire Protection District
8	Loomis Fire Protection District
9	Northstar Community Services District
10	Nevada Irrigation District
11	Placer Co. Flood Control & Water Conservation District

#	Jurisdiction
12	Placer Co. Water Agency
13	Placer Hills Fire Protection District
14	Squaw Valley Public Service District
15	Tahoe-Truckee Unified School District
16	Tahoe City Public Utilities District
17	Alta Fire Protection District
18	Loomis Fire Protection District
19	North Tahoe Fire Protection District
20	South Placer Fire Protection District
21	Truckee Fire Department

Executive Summary

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Placer County developed this Local Hazard Mitigation Plan (LHMP) update to make the County and its residents less vulnerable to future hazard events. This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 so that Placer County would be eligible for the Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation and Hazard Mitigation Grant programs.

The County followed a planning process prescribed by FEMA, which began with the formation of a hazard mitigation planning committee (HMPC) comprised of key County representatives, and other regional stakeholders. The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the County, assessed the County's vulnerability to these hazards, and examined the capabilities in place to mitigate them. The County is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Floods, levee failures, wildfires, and severe weather are among the hazards that can have a significant impact on the County.

Based on the risk assessment, the HMPC identified goals and objectives for reducing the County's vulnerability to hazards. The goals and objectives of this multi-hazard mitigation plan are:

Goal 1: Minimize risk and vulnerability of Placer County to the impacts of natural hazards and protect lives and reduce damages and losses to property, economy, public health and safety, and the environment.

- Minimize economic and resource impacts and promote long-term viability and sustainability of County resources
- Minimize impacts to both existing and future development from all hazards (through well-planned communities)
- Minimize impacts to natural and cultural resources
- Minimize impacts from climate change
- Minimize impacts to watersheds/Promote watershed health
- Prevent and reduce wildland fire risk and related losses
- Prevent and reduce flood risk and related damages, with a focus on repetitive loss structures and infrastructure

Goal 2: Provide protection for critical facilities, infrastructure, utilities and services from hazard impacts.

- Provide protection for critical infrastructure from the wildland fires, floods, and severe storms/weather (e.g., repeaters, cell towers, waters tanks, utilities)
- Improve infrastructure/system reliability for critical lifeline utilities, including stormwater systems, roadways (evacuation routes, emergency services and supplies); rail lines, and pipelines.
- Minimize risk of loss of life and injury to At-risk Populations

Goal 3: Improve public awareness, education, and preparedness for all hazards.

- Enhance public outreach, education, and preparedness program to include all hazards of concern (e.g. fire restrictions, water conservation measures, hazardous vegetation, air and water quality issues)
- Increase public knowledge of the risk and vulnerability to identified hazards and their recommended responses to disaster events to reduce losses
- Educate general public on evacuation planning and sheltering options for all hazard types and to encompass all groups (e.g., residents, visitors, second homeowners, vulnerable populations, animals)
- Increase community awareness and participation in hazard mitigation activities to include defensible space, hazardous vegetation abatement projects, and forest management projects and practices to reduce flood risk on private property
- Utilize multiple public outreach avenues such as schools, new technologies, and social media
- Coordination with other regional jurisdictions to facilitate (consistent/coordinated) public information function prior to, during and after an event (e.g., facebook, twitter, everbridge, web, tv, radio)

Goal 4: Increase communities' capabilities to mitigate losses and to be prepared for, respond to, and recover from a disaster event.

- Continued enhancements to Emergency Services capabilities integrating new technologies to reduce losses and save lives
- Improve interagency (local, state, federal) emergency coordination, planning, training, exercising, and communication to ensure effective community preparedness, response and recovery
- Improve interagency coordination with respect to implementation of mitigation activities such as fuels reduction and other multi-jurisdictional wildland fire projects
- Enhance the use of shared resources/Develop a strong mutual aid support system
- Maintain current service levels/provide for enhanced service levels
- Increase first responders awareness of vulnerable populations and other priority needs during a hazard event;(use of technology to pre-identify and communicate)
- Utilize lessons learned (debriefing) to improve response capabilities
- Promote efficient recovery from incidents to minimize impacts to lives, environment, and economy

Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding.

- Continued compliance with the NFIP/enhancement of floodplain management program through participation in the NFIP's Community Rating System (CRS) where feasible.

Actions to support these goals are shown on Table ES-1.

Table ES-1 Placer County Planning Area Mitigation Actions

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Placer County						
Multi-Hazard Actions						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Placer County	New action	X	X		Prevention Public Information
Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness	Placer County and all jurisdictions	New Action	X	X	X	Public Information
Trail System Way Finding and Directional Signage	Placer County	New action	X	X		Emergency Services
Disaster Debris Management Plan	Placer County	New action	X	X	X	Prevention Emergency Services,
Agricultural Actions						
Pest Detection Programs	Placer County	New Action	X	X		Prevention Natural Resource Protection
Noxious Weed Eradication Programs	Placer County	2010 Action	X	X		Prevention Natural Resource Protection
Dam Failure Actions						
Cottonwood Dam Restoration	Placer County	New action	X	X	X	Prevention Natural Resource Protection Structural
Drought Actions						
Retrofit of High Water Use Landscape & Irrigation	Placer County	New action	X	X		Property Protection Natural Resource Protection
Drought Public Education and Outreach	Placer County	New action	X	X		Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Erosion Actions						
Bear Creek Bank Restoration	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Lake Tahoe Basin Environmental Improvement Program (EIP)	Placer County	New action	X	X	X	Prevention Natural Resource Protection
Earthquake Actions						
Fire Station Seismic Upgrade	Placer County	New action	X	X		Emergency Services Property Protection
Dewitt Demolition	Placer County	New action	X	X		Prevention Property Protection
Health Care Facility Seismic Resiliency	Placer County	New action	X	X		Emergency Services Property Protection
Flood Actions						
Community Rating System (CRS) Maintain and Enhance	Placer County	New action	X	X	X	Prevention Public Information
Stream Channel Clearing – Western Placer County	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Van Norden Dam Lowering and Meadow Restoration	Placer County	New action	X	X	X	Structural Natural Resource Protection
Miners Ravine Sewer Pipeline Repair	Placer County	New action	X	X		Prevention Property Protection, Natural Resource Protection Structural
Sewer System Management Plan Updates	Placer County	New action	X	X	X	Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Stormwater Drainage Improvements	Placer County	New action	X	X	X	Prevention Property Protection, Natural Resource Protection Structural
Bridge and Culvert replacement and drainage improvements	Placer County	New action	X	X	X	Property Protection Structural
Urban Level of Flood Protection Mapping	Placer County	New action	X	X	X	Prevention Public Information
Elevate Remaining 95 Homes in the Dry Creek Watershed	Placer County	2010 action	X	X	X	Property Protection
Elevate Repetitive Loss Structures in 100-year Floodplain	Placer County	2010 action	X	X	X	Property Protection
Hazardous Material Actions						
Natural Hazard Minimization Evaluation focusing on top 5 facilities in Placer County producing large quantities of hazardous waste/storage of such hazardous materials	Placer County	New action	X	X		Prevention
Wildfire Actions						
Large Strategic Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Fuel Breaks in the Wildland Urban Interface (WUI)	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Wildfire Public Education	Placer County	New action	X	X		Public Information
Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
North Fork American River Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Defensible Space Programs	Placer County	2010 action	X	X		Prevention Property Protection
Project that focus on Open Space/Defensible Space	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
Annual Multi-Agency Wildland Fire Drill	Placer County	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Vegetation Management – Ongoing Maintenance of Fuel Breaks	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
City of Auburn						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Auburn	New action	X	X		Prevention Public Information
Lincoln Basin (Downtown) Drainage Infrastructure	City of Auburn	2010 Action	X	X	X	Property Protection Structural
Creek and Stream Cleaning and Maintenance Program	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
Implementation of Storm Water Treatment Plan	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Electric Street Diversion Project	City of Auburn	2010 Action	X	X	X	Property Protection Structural
Old Town Auburn Storm Drain System	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
American River Canyon Shaded Fuel Break	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Community Education on Wildfire	City of Auburn	2010 Action	X	X		Public Information
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.	City of Auburn	2010 Action	X	X		Prevention Property Protection Public Information
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection Public Information
City of Colfax						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Colfax	New action	X	X		Prevention Public Information
Continue Annual Weed Abatement Ordinance	City of Colfax	New Action	X	X		Prevention Property Protection Natural Resource Protection
Colfax Schools Evacuation Site Shaded Fuel Break	City of Colfax	New Action	X	X		Prevention Property Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Evaluate the Need and Feasibility of Improving Fire Prevention for the Historic Business District	City of Colfax	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
City of Lincoln						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Lincoln	New action	X	X		Prevention Public Information
Lincoln Boulevard: Auburn Ravine Bridge – Reconstruct Bridge	City of Lincoln	2010 Action	X	X		Structural
McBean Park Drive: Auburn Ravine Bridge – Additional 110' Span	City of Lincoln	2010 Action	X	X		Structural
Lakeview Farms Regional Volumetric Mitigation Facility	City of Lincoln	2010 Action	X	X		Property Protection Structural
Gladding Parkway, Lincoln Boulevard, McCourtney Road – Stream Restoration And Culvert Improvement	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
"O" Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
7th Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
Auburn Ravine at State Route 193 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Auburn Ravine at State Route 65 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Ingram Slough – Orchard Creek Return Channel	City of Lincoln	2010 Action	X	X	X	Property Protection Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Markham Ravine – Updated FEMA Analysis And Mapping	City of Lincoln	2010 Action	X	X	X	Prevention Public Information
Markham Ravine Drainage Improvements – Union Pacific Railroad & State Route 65 Crossings	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
Auburn Ravine Stream Restoration Projects (Analysis and Repairs)	City of Lincoln	2010 Action	X	X	X	Natural Resource Protection
Markham Ravine Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Coon Creek Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Fire Prevention and Fuels Management Plan	City of Lincoln	2010 Action	X	X		Prevention
City of Rocklin						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Rocklin	New action	X	X		Prevention Public Information
Federal Emergency Management Agency (FEMA) Floodplain/Community Rating System (CRS)	City of Rocklin	New action	X	X	X	Prevention Public Information
Creek Channel and Drainage Way Clearing and Maintenance	City of Rocklin	New action	X	X	X	Prevention Natural Resource Protection
High Water Use Landscape and Irrigation Retrofit	City of Rocklin	New action	X	X		Natural Resource Protection
Open Space Fire Prevention & Vegetation Management Prescribed Grazing	City of Rocklin	2010 Action	X	X		Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
GIS Based Mapping of Pertinent Information that can be used by All Agencies in the Development of Plans and During Emergency Incidents	City of Rocklin	2010 Action	X	X	X	Prevention Emergency Services Public Information
Town of Loomis						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Town of Loomis	New action	X	X		Prevention Public Information
Local Bridges Evaluation Program	Town of Loomis	New Action	X	X		Prevention Emergency Services
Address signage for property addresses	Town of Loomis	2010 Action	X	X		Emergency Services
Delmar Avenue Headwall Reconstruction Project	Town of Loomis	2010 Action	X	X	X	Property Protection Structural
Creek Maintenance Secret Ravine & Antelope Creek	Town of Loomis	2010 Action	X	X	X	Property Protection Natural Resource Protection
Reconstruction of Brace Bridge at Secret Ravine	Town of Loomis	2010 Action	X	X	X	Structural
Raise Flood-Prone Houses Along Loomis Creeks	Town of Loomis	2010 Action	X	X	X	Property Protection
Alta Fire Protection District						
Apparatus Water Fill & Drafting Location Improvements	AFPD	New Action	X	X		Emergency Services Property Protection
Evacuation / Reunification Center Improvements	AFPD	New Action	X	X		Emergency Services Structural
Natural Systems Protection / Education and Awareness Programs and Community Fuel Breaks	AFPD	New Action	X	X		Emergency Services Property Protection Natural Resource Protection Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Natural Systems Protection / Education and Awareness Programs	AFPD	New Action	X	X		Emergency Services Natural Resource Protection Public Information
Emergency Communications and Information System Improvements.	AFPD	New Action	X	X		Emergency Services
Alta Fire Protection District CERT Team	AFPD	New Action	X	X		Emergency Services
Reflective Addressing	AFPD	New Action	X	X		Emergency Services Property Protection
Alpine Springs County Water District						
Emergency Electrical Generator Replacement Project	ASCWD	New Action	X	X		Emergency Services
Water Storage Tank Replacement Project	ASCWD	New Action	X	X		Structural
Mineral Springs Soil Bank Stabilization Project	ASCWD	2010 Action	X	X	X	Property Protection Natural Resource Protection
Alpine Meadows Consolidated Defensible Space Continuation Project	ASCWD	2010 Action	X	X		Property Protection Natural Resource Protection
Foresthills Fire Protection District						
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Foresthill Biomass Project	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Assess and Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing and Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's and Maintenance Contracts.	FFPD	2010 Action	X	X		Prevention Public Information
Todd Valley Shaded Fuel Break	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Loomis Fire Protection District						
Identify and inspect ALL bridges in LFPD	Loomis FPD	New Action	X	X		Emergency Services
Vegetation Management for Open Areas	Loomis FPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	Loomis FPD	New Action	X	X		Emergency Services
Adopt 2016 CFC, CBC, and local standards	Loomis FPD	New Action	X	X		Prevention
Nevada Irrigation District						
Combie Phase 1 Replacement	NID	New Action	X	X		Emergency Services Structural
Centennial Water Storage and Power Supply Project	NID	New Action	X	X		Emergency Services Structural
Water Service Auburn Valley CSD	NID	New Action	X	X		Prevention Emergency Services
NID Headquarters Office Generator	NID	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Orr Creek Diversion	NID	New Action	X	X		Property Protection Structural
Reservoir Cleaning	NID	2010 Action	X	X		Property Protection Natural Resource Protection
Canal Culvert Replacement Program	NID	2010 Action	X	X		Property Protection Structural
Northstar Community Services District						
Martis Landing Drainage Swales and Catch Basins	North Star CSD	New Action	X	X	X	Property Protection Natural Resource Protection
Continue Easement Access Road Water Bar Maintenance and Replacement Program	North Star CSD	New Action	X	X		Emergency Services Structural
Fuels Reduction @ Sawmill Reservoir	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Fuels Reduction Program	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Storm Water Drainage Inlet Maintenance	North Star CSD	New Action	X	X	X	Prevention Property Protection Natural Resource Protection
Siphon Line	North Star CSD	New Action	X	X		Natural Resource Protection Structural
Provide Power from Mobile Generator	North Star CSD	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Green Waste Recycling Program	North Star CSD	New Action	X	X		Prevention Public Information
Enhance our current Defensible Space Program by seeking funding to hire a part-time employee to assist the Fire Prevention department in running this program	North Star CSD	New Action	X	X		Property Protection Public Information
District Water Conservation Program	North Star CSD	New Action	X	X		Prevention Property Protection Public Information
North Tahoe Fire Protection District						
FCC P-25 Interoperability Radio Systems	NTFPD	2010 Action	X	X		Emergency Services
District GIS Technology, Equipment, Database and Mapping Improvements	NTFPD	2010 Action	X	X	X	Emergency Service
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements	NTFPD	2010 Action	X	X	X	Emergency Services Structural
Seiche Wave Warning Systems, Signs and Public Education	NTFPD	2010 Action	X	X	X	Emergency Services Public Information
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education	NTFPD	2010 Action	X	X		Property Protection Public Information
Hazardous Wood Roof Replacement Program	NTFPD	2010 Action	X	X		Property Protection Public Information
Regional Water System Fire Protection Upgrades and Interoperability	NTFPD	2010 Action	X	X		Emergency Services Property Protection
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment	NTFPD	2010 Action	X	X		Prevention Emergency Services Property Protection
Hydrant Risers, Replacements and Markers	NTFPD	2010 Action	X	X		Emergency Services Property Protection
North Tahoe Public Utility District						
Update SCADA Equipment and Telecommunications Infrastructure	NTPUD	New Action	X	X	X	Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
IT and Telecommunications Improvements for Disaster Preparedness	NTPUD	New Action	X	X	X	Emergency Services
Update Emergency Response Plan	NTPUD	New Action	X	X	X	Prevention Emergency Services
Backup Generator Installation at Critical Facilities	NTPUD	New Action	X	X	X	Emergency Services
Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park	NTPUD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Kingswood West Subdivision Emergency Evacuation Access	NTPUD	New Action	X	X		Emergency Services
North Tahoe Regional Park Road Improvements for Emergency Access	NTPUD	New Action	X	X		Emergency Services
Seismic Study and Retrofit of Critical Infrastructure	NTPUD	New Action	X	X		Emergency Services Structural
Sewer Main Replacements in Shorezone of Lake Tahoe	NTPUD	New Action	X	X		Property Protection Structural
Water Booster Pump Station Rehabilitation/Replacement	NTPUD	New Action	X	X		Emergency Services Structural
Increased Storage Capacity for Dollar Cove Water System	NTPUD	New Action	X	X		Emergency Services Structural
Water System Interties	NTPUD	New Action	X	X		Emergency Services Structural
Placer County Flood Control District						
FEMA CTP DFIRM Mapping Study	PCFCWCD	New Action	X	X	X	Prevention Public Information
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds	PCFCWCD	2010 Action	X	X	X	Structural
Update Hydrology and Hydraulic Models within the Cross Canal Watershed	PCFCWCD	2010 Action	X	X	X	Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities	PCFCWCD	2010 Action	X	X	X	Emergency Services
Placer County Water Agency						
Hillside Slope Stabilization	PCWA	New Action	X	X		Natural Resource Protection Structural
LL Anderson Dam Spill Way Modification	PCWA	New Action	X	X	X	Structural
Water System Interties	PCWA	New Action	X	X		Emergency Services Structural
Vegetation Management and Brushing	PCWA	New Action	X	X		Natural Resource Protection
Enhance Canals by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas	PCWA	2010 Action	X	X		Emergency Services Structural
Replace Wooden Flume Structures	PCWA	2010 Action	X	X		Emergency Services Structural
De-Silt Reservoirs.	PCWA	2010 Action	X	X		Property Protection Structural
Placer Hills Fire Protection District						
Assess And Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements For Minor Lot Splits	Placer Hills Fire Protection District	2010 Action	X	X		Prevention
South Placer Fire Protection District						
Vegetation Management for Open Areas	SPFPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	SPFPD	New Action	X	X		Emergency Services
Adopt 2016 CFC, CBC, and local standards	SPFPD	New Action	X	X		Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Squaw Valley Public Service District						
Emergency Water Supply Interconnection to Martis Valley	SVPSD	New Action	X	X		Emergency Services Structural
Truckee River Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural
Squaw Creek Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural
Easement Abatement/Maintenance of Emergency Access	SVPSD	2010 Action	X	X		Prevention Property Protection
Develop a Community-Wide Emergency Notification System Capable of Providing Information to Both Residents and Visitors by Utilizing Permanent, Roadside Changeable Message Boards and a Low-Power Radio Transmitter	SVPSD	2010 Action	X	X	X	Emergency Services Public Information
SVPSD/Mutual Water Company Inter-tie	SVPSD	2010 Action	X	X		Emergency Services Structural
Water Tank Earthquake Retrofit Project	SVPSD	2010 Action	X	X		Emergency Services Structural
Tahoe City Public Utility District						
Bunker Water Tank Replacement	TCPUD	New Action	X	X		Emergency Services Structural
West Lake Tahoe Regional Water Treatment Plant	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Main Emergency Water Supply	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Truckee Unified School District						
North Tahoe High School and Middle School, Tahoe Lake Elementary School Emergency Generators.	TTUSD	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.	TTUSD	2010 Action	X	X	X	Emergency Services Public Information
HVAC Control Upgrades	TTUSD	2010 Action	X	X		Prevention Structural
Truckee Fire Protection District						
Community Wildfire Protection Plan	TFPD	New Action	X	X		Prevention Public Information
Severe Winter Weather and Propane Issues Mainly in Serene Lakes	TFPD	New Action	X	X		Property Protection

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Chapter 1 Introduction

1.1 Purpose

Placer County and 21 other jurisdictions prepared this Local Hazard Mitigation Plan (LHMP) update to the 2010 Federal Emergency Management Agency (FEMA) approved Placer County Multi-Hazard Mitigation Plan. The purpose of this plan update is to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. This plan demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This plan was also developed, among other things, to ensure Placer County and participating jurisdictions' continued eligibility for certain federal disaster assistance: specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA). Completion also earns credits for the National Flood Insurance Program's Community Rating System (CRS) which enhances the community's floodplain management program and can lower flood insurance premiums in CRS communities.

1.2 Background and Scope

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses incurred by insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be reduced or even eliminated.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $4 in avoided future losses in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005).

Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented. This plan documents Placer County's hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the County and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability.

The Placer County LHMP update is a multi-jurisdictional plan that geographically covers the entire area within Placer County's jurisdictional boundaries (hereinafter referred to as the planning area). The following communities participated in the planning process and are seeking approval of the LHMP plan update:

- Placer County*
- City of Auburn*
- City of Colfax*
- Town of Loomis*
- City of Lincoln*
- City of Rocklin*
- Alta Fire Protection District
- Alpine Springs County Water District*
- Foresthill Fire Protection District*
- Loomis Fire Protection District
- Nevada Irrigation District*
- Northstar Community Service District/Fire Department
- North Tahoe Fire Protection District*
- North Tahoe Public Utility District
- Placer County Flood Control & Water Conservation District*
- Placer County Water Agency*
- Placer Hills Fire Protection District*
- South Placer Fire Protection District
- Squaw Valley Community Services District*
- Tahoe City Public Utilities District*
- Tahoe-Truckee Unified School District*
- Truckee Fire Protection District

* Participated in 2010 Plan

This plan update was prepared pursuant to the requirements and associated guidance of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. (Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act (DMA) or DMA 2000.) While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288). Because the Placer County Planning Area is subject to many kinds of hazards, access to these programs is vital.

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The Placer County Planning Area has been affected by hazards in the past and is thus committed to reducing future impacts from hazard events and maintaining eligibility for mitigation-related federal funding.

1.3 Community Profile

Placer County is located in northern California and stretches from Sacramento County to Lake Tahoe and the Nevada border. The Counties of Sacramento, El Dorado, Sutter, Yuba, and Nevada border Placer County. Regional access to the County is provided via Interstate 80 (I-80), which runs east-west through the entire County. Placer County includes the incorporated communities of Auburn, Colfax, Lincoln,

Loomis, Rocklin, and Roseville. Placer County is illustrated in Figure 1-1. A land ownership map for the County is shown in Figure 1-2.

Figure 1-1 Placer County Basemap

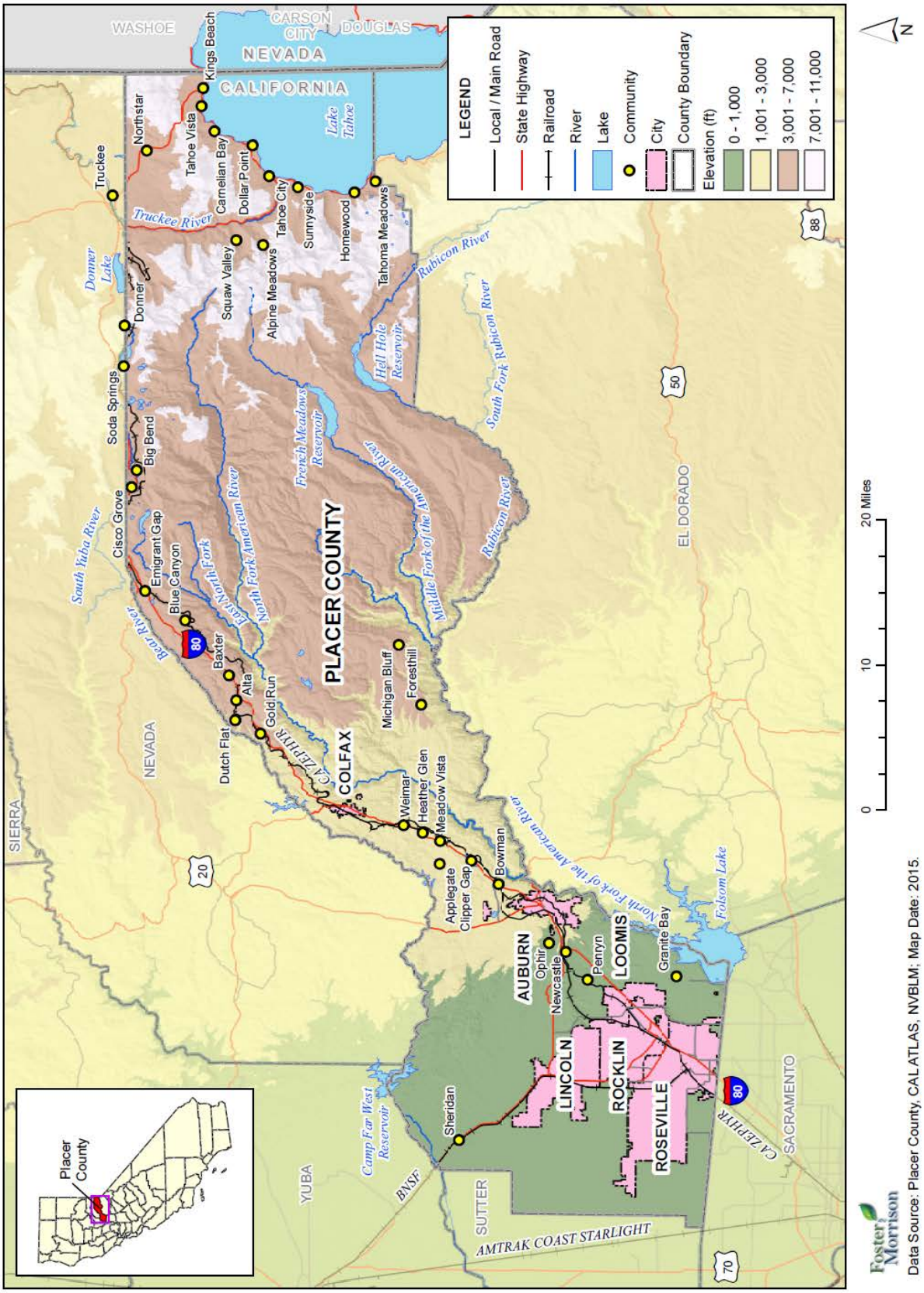
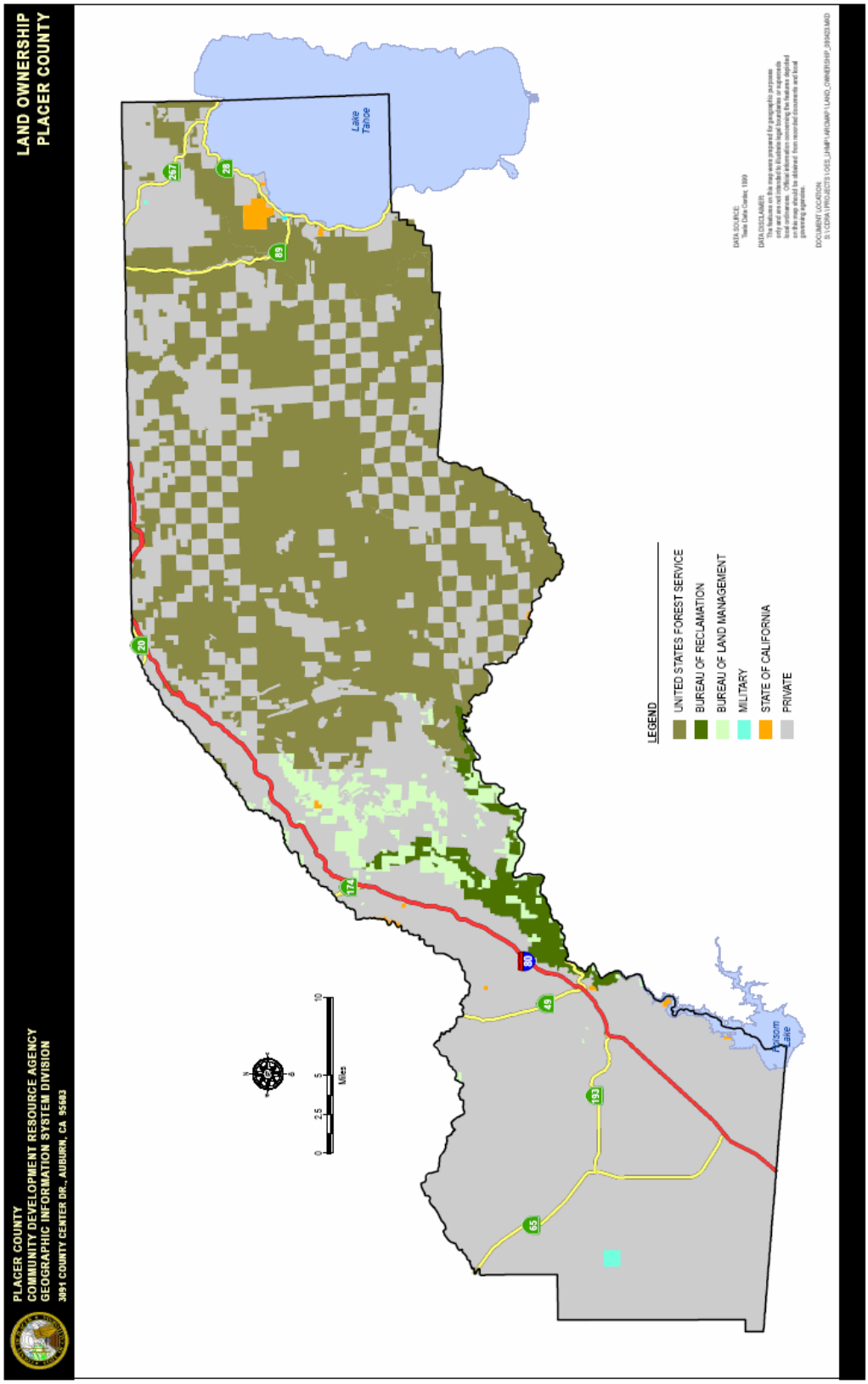


Figure 1-2 Placer County Land Ownership



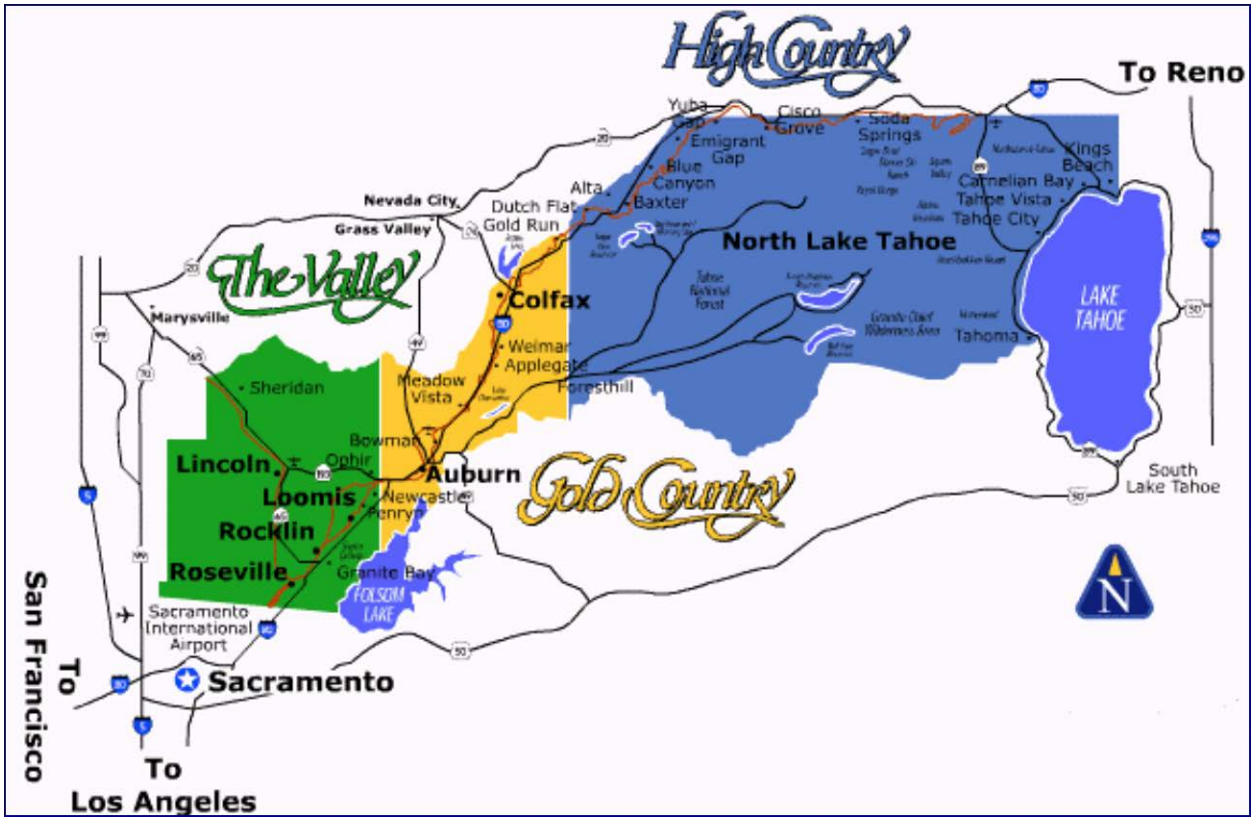
1.3.1. History

Placer County was home to the Nisenan Native Americans for hundreds of years before the discovery of gold in 1848 when multitudes of miners migrated to the area. Auburn was settled in 1848 upon the discovery of gold and later became a shipping and supply center for the surrounding gold camps. Three years after the discovery of gold in the region, the fast-growing county was formed from portions of Sutter and Yuba Counties on April 25, 1851, with Auburn as the County seat. The name Placer comes from the Spanish word meaning "sand and gravel deposits containing gold." Gold mining remained a major industry through the 1880s, eventually overtaken by the industries of farming, timber, and the Southern Pacific Railroad. The commercial fruit industry also expanded rapidly in western Placer County in the late 1870s and early 1880s, with the Central Pacific Railroad providing a wide market in the east for California's agricultural products. Among the produce raised were citrus, apples, peaches, pears, plums, cherries, olives, almonds, and walnuts.

1.3.2. Geography and Climate

Placer County, spanning the eastern part of the Central Valley of California, increases in elevation from urban South Placer, through Western Placer, to the High Sierras of North Lake Tahoe, and the Nevada state line. Located on an area of over 1,500 square miles, 98 square miles of which are comprised of water, the County is generally divided into three geographically distinct areas: the Valley – Roseville to Penryn; the Gold Country - Newcastle to Dutch Flat; and the High Country - Alta to Tahoe. Figure 1-3 illustrates these areas.

Figure 1-3 Placer County Geographic Areas



The County's topography is characterized by broad, relatively flat valley floors (the Valley) in the southwest; valley floors giving way to the foothills areas (Gold County) heading east; and foothills and high mountains (Sierra Nevada) in the east. Elevations range from 160 to 400 feet above mean sea level in the valley near Roseville to approximately 2,000 feet near Colfax in Gold Country, to more than 9,000 feet in the Sierra Nevada. Water resources within Placer County include approximately 700 miles of rivers and streams and 97,000 acres of lakes.

The climate varies throughout the County, primarily based on elevation. Summers are longer, relatively hot, and dry in the lower elevations and are relatively cooler in the higher elevations of the Sierra Nevada. There is little precipitation in the County during the summer. Winters in the lower elevations are shorter and precipitation is primarily in the form of rain. In the higher elevations of the Sierra Nevada, winters vary from short and mild with moderate snowfall to moderately severe with frequent snowfall. Most of the seasonal precipitation throughout the County occurs between October and April. More specific information about Placer County's climate can be found in Chapter 4 Risk Assessment.

1.3.3. Population

The July 1, 2015 California Department of Finance population estimates for the County and incorporated jurisdictions are shown on Table 1-1.

Table 1-1 Placer County Population Estimates – July 1, 2015

Jurisdiction	2015
Auburn	13,818
Colfax	1,994
Lincoln	45,837
Loomis	6,623
Rocklin	60,252
Roseville	128,382
Balance of County	112,548

Source: California Department of Finance, 2015 E-1 Report

1.3.4. Economy and Tax Base

Placer County has a healthy and diverse economy ranging from tourism, focused mainly in the North Lake Tahoe Area, to technology, predominately located in the southwestern portion of the County. Economic characteristics for Placer County are shown in Table 1-2.

Table 1-2 Placer County—Civilian Employed Population 16 and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	844	0.5%
Construction	10,839	6.9%
Manufacturing	10,718	6.8%
Wholesale trade	5,043	3.2%
Retail trade	20,505	13.0%
Transportation and warehousing, and utilities	7,136	4.5%
Information	3,502	2.2%
Finance and insurance, and real estate and rental and leasing	13,967	8.9%
Professional, scientific, and management, and administrative and waste management services	19,429	12.3%
Educational services, and health care and social assistance	33,006	20.9%
Arts, entertainment, and recreation, and accommodation and food services	14,012	8.9%
Other services, except public administration	7,100	4.5%
Public administration	11,574	7.3%

Source: U.S. Census Bureau American Community Survey 2009-2013

Placer County has many large employers. In 2015, the Sacramento Business Journal reported on the largest employers in the County. Information on the 10 largest companies, locations, and headcounts are shown below.

- Kaiser Permanente, various locations, 3,839
- Sutter Health, various locations, 3,693

- Squaw Valley Alpine Meadows, Olympic Valley, 2,500
- Placer County, Auburn, 2,378
- Hewlett-Packard Co., Roseville, 2,000
- Thunder Valley Casino, Lincoln, 1,875
- Pride Industries, Roseville, 1,221
- Safeway, various locations, 1,218
- City of Roseville, Roseville, 1,047
- Roseville City School District, Roseville, 1,015

The County has a wide and varied tax base. Table 1-3 shows the breakdown of the unincorporated County's taxable values. Table 1-4 shows the largest individual assesses in the County by taxable value.

Table 1-3 Unincorporated Placer County Tax Base by Property Type

Property Type Category	Parcels	Net Taxable Value	Percentage of Total Value
Residential	148,166	$52,665,455,020	83.0%
Commercial	5,977	$6,973,306,882	11.0%
Timeshares	4,650	$68,755,028	0.1%
Industrial	1,542	$1,719,764,865	2.7%
Manufactured Homes	1,841	$78,250,049	0.1%
Agricultural/Other	2,261	$439,414,972	0.7%
Unsecured	12,523	$1,503,743,385	2.4%
Totals	**176,960**	**$63,448,690,201**	**100.0%**
Exemptions	78,064	$2,468,073,066	3.7%

Source: Placer County Assessor's Office

Table 1-4 Unincorporated Placer County Largest Tax Assessees

Assessee (Top 10 Values)	Total Value
Roseville Shoppingtown LLC	$396,011,143
Kaiser Foundation Hospitals	$330,000,000
Sutter/CHS Central	$135,000,000
KW Fund V - Roseville Parkway LLC	$81,549,379
Meridian Apartments LP	$71,978,901
Timberpine Holdings LLC	$66,198,907
Roseville Fountains LP	$64,448,031
Hewlett Packard Enterprise Company	$64,000,000
Sutter/CHS Central	$51,096,643
CPT Creekside Town Center LLC	$47,970,222

Source: Placer County Assessor's Office

1.4 Plan Organization

This Placer County 2016 LHMP update is a multi-jurisdictional plan that geographically covers the entire area within Placer County's jurisdictional boundaries (i.e., the planning area). Participating jurisdictions within the Placer County Planning Area include: Unincorporated Placer County, the six incorporated communities, and 16 special districts.

- Chapter 2: What's New
- Chapter 3: Planning Process
- Chapter 4: Risk Assessment
- Chapter 5: Mitigation Strategy
- Chapter 6: Plan Adoption
- Chapter 7: Plan Implementation and Maintenance
- Jurisdictional Annexes
- Appendices

The **Base Plan** provides the overall framework for this multi-jurisdictional LHMP. It is the umbrella document that includes the planning process, methodologies, and procedural requirements for all participating jurisdictions (i.e., unincorporated County and all Jurisdictional Annexes). As such, Chapters 1-7 of the Base Plan apply to the unincorporated County, the six incorporated communities and all 16 special districts as participants to this LHMP update seeking FEMA approval of the plan. Because this is a multi-jurisdictional plan, the Base Plan addresses the LHMP hazard mitigation planning elements for all participating jurisdictions and includes data, information, and analysis specific to: The Placer County Planning Area (which includes all participating jurisdictions and the entire geographic boundary of Placer County) and Unincorporated Placer County.

The **Jurisdictional Annexes** detail the hazard mitigation planning elements specific to the each participating jurisdiction to this 2016 Placer County LHMP Update. Each Annex is not intended to be a standalone document, but appends to, supplements, and incorporates by reference the information contained in the Base Plan document. As such, all Chapters 1-7 of the Base Plan, including the planning process and other procedural requirements and planning elements apply to and were met by each participating jurisdiction. The Annexes provide additional information specific to the each participating jurisdiction, with a focus on providing additional details on the risk assessment and mitigation strategy.

The **Appendices** provide additional information, data, and planning process documentation that applies to all participating jurisdictions (i.e., unincorporated County and all Jurisdictional Annexes) to this Placer County 2016 LHMP Update.

Chapter 2 What's New

Requirements §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The 2010 Placer County Multi-Hazard Mitigation Plan contained a detailed description of the planning process, a risk assessment of identified hazards for the Placer County Planning Area and an overall mitigation strategy for reducing the risk and vulnerability from these hazards. Since approval of the plan by FEMA, much progress has been made by Placer County and all participating communities on implementation of the mitigation strategy. As part of this 2016 LHMP Update, a thorough review and update of the 2010 plan was conducted to ensure that this update reflects current community conditions and priorities in order to realign the overall mitigation strategy for the next five-year planning period. This section of the plan includes the following:

- **What's New in the Plan Update**. This section provides an overview of the approach to updating the plan and identifies new analyses, data and information included in this plan update to reflect current community conditions This includes a summary of new hazard and risk assessment data as it relates to the Placer County Planning Area as well as information on current and future development trends affecting community vulnerability and related issues. The actual updated data, discussions, and associated analyses are contained in their respected sections within this 2016 LHMP Update.
- **Summary of Significant Changes to Current Conditions and Hazard Mitigation Program Priorities**. This provides a summary of significant changes in current conditions and any resulting modifications to the community's mitigation program priorities.
- **2010 Mitigation Strategy Status and Successes**. This section provides a description of the status of mitigation actions from the 2010 plan and also indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2016 mitigation strategy. This section also highlights key mitigation success stories of the County and participating jurisdictions since the 2010 LHMP.

This What's New section provides documentation of Placer County Planning Area's progress or changes in their risk and vulnerability to hazards and their overall hazard mitigation program. Completion of this 2016 LHMP Update further provides documentation of the Placer County community's continued commitment and engagement in the mitigation planning process

2.1 What's New in the Plan Update

This LHMP update involved a comprehensive review and update of each section of the 2010 plan and includes an assessment of the success of the participating communities in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plan. Only the information and data still valid from the 2010 plan was carried forward as applicable into this LHMP update. In fact, based in part on the issuance of new 2011 and 2013 planning guidance, this 2016 plan has been significantly updated and rewritten.

Also to be noted, Section 7.0 Implementation and Maintenance of this plan update identifies key requirements for updating future plans:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

These requirements and others as detailed throughout this plan were addressed during this plan update process.

As part of its comprehensive review and update of each section of the plan, Placer County and participating jurisdictions recognized that updated data, if available, would enhance the analysis presented in the risk assessment and utilized in the development of the updated mitigation strategy. Highlights of new data used for this Plan Update is identified below in this Section and is also sourced in context within Chapter 4, Risk Assessment. Specific data used is sources throughout this plan document. This new data and associated analysis provided valuable input for the development of the mitigation strategy presented in Chapter 5 of this plan.

Highlights of new information and analyses contained in this plan update includes the following:

- A new assessment of updated hazards affecting the Placer County Planning Area was completed resulting in the elimination of epidemic/pandemic, West Nile Virus, expansive soils, and volcano, as they were determined to be of very low significance to the County. New hazards include levee failure, subsidence, and hazardous materials transport.
- The agriculture hazard was consolidated into one hazard given the economic base this industry provides to the County.
- The drought hazard was expanded to include water shortage impacts to the County, to better align with the State of California Hazard Mitigation Plan and to reflect the significant issues related to drought conditions resulting from the current and ongoing drought within the County and State of California.
- Levee failure was separated out from the flood hazard to better identify the status of levees within the County, the potential vulnerability of the County to levees, including both those providing a 100-year level of flood protection and those that do not, and any future mitigation efforts to reduce the vulnerability from a levee failure.
- An entire rework of the risk assessment for each identified hazard. This included reworking the hazard profile and adding new hazard event occurrences; redoing the entire vulnerability analysis to add items identified below and updating the vulnerability assessment based on more recent hazard data as well as using the most current parcel and assessor data for the existing built environment.
- An update of the flood hazard analysis to include an updated analysis of the 100-year flood, an analysis of the 500-year flood, and an enhanced analysis of the localized/stormwater flooding problems affecting the planning area, including the use the new DFIRMs (Preliminary DFIRMs dated March 29, 2010)

developed by FEMA for the County, the Best Available Maps (BAM) compiled by the state, and input from the County. An analysis of flooded acres in the Planning Area based on new DFIRMs was also conducted.

- New dam data provided by Cal OES was used for the Dam inventory and analysis. This data included an updated hazard classification for identified dams.
- An analysis of the Repetitive Loss (RL) properties within the County was completed for this update, including a mapping of historical loss properties to assist the County in identifying potential, future RL properties and areas.
- Climate Change has been addressed within the hazard profiles of each identified hazard to assist the County in considering climate change issues when identifying future mitigation actions for the Planning Area.
- Utilizing updated critical facility GIS mapping for the Planning Area to provide an updated inventory of critical facilities by jurisdiction and a GIS analysis of critical facilities vulnerable to three priority hazards: flood, wildfire, and hazardous materials transportation.
- An enhanced vulnerability assessment which added a GIS analysis of updated future development areas in the Planning Area and specific to each of the mapped hazards.
- Incorporation and analysis of the new 2010 Census data was utilized for this LHMP update.
- Also, as required by current FEMA planning guidance, an analysis of each jurisdictions' ongoing and continued compliance with the NFIP.
- For the CRS community of Placer County, this plan was developed to maximize CRS credits for CRS Activity 510, Floodplain Management Planning.
- As part of the CRS Activity 510 requirements, a greater emphasis was placed on public involvement and outreach of this LHMP Update as well as Agency coordination and input.

2.2 Summary of Significant Changes to Current Conditions, Planning Area Vulnerability, and Hazard Mitigation Priorities

This section provides a summary by hazard of significant changes in current conditions, planning area vulnerability, and any resulting modifications to the community's mitigation program priorities since the 2010 LHMP:

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Agricultural Hazards			X

- Recent drought conditions stressed crops making them more susceptible to insect infestation
- Reduced water supply resulted in land being left out of production reducing overall crop yields
- Noxious weeds are more drought tolerant – better able to compete for water over local crops
- Drought increased the tree mortality in the County further impacting the timber industry. Timber is the #2 Ag product in the County.
- In addition, there is a lack of infrastructure, such as timber mills, online to process product

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Avalanche	X		X

- The avalanche conditions in the County are dynamic and change from season to season and often from day to day resulting in every changing increases and decreases in vulnerability.
- There has been one recent (single home) development allowed through a zoning change in the Alpine Meadows area in an Avalanche area.
- Different avalanche mitigation techniques, propane-based Gaz-Ex, are being used in areas near highways that have been effective in reducing the risk. Cal Trans have been using this up on Highway 50 on Echo Summit. However, this technique requires permanent infrastructure to remain in place as opposed to techniques using mortars and hand charges. The advantage of this other technique is that it can be used remotely.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Dam Failure	X		X

- Folsom Dam Improvement projects are near completion that will allow releases at a lower flood stage so the Dam can hold more water for enhanced flood control. This decreases the overall vulnerability in the Folsom Dam inundation areas.
- Jurisdictional dams generally have no change in vulnerability as they are highly regulated. However, with more people moving into dam inundation areas, the vulnerability increases due to an increase in potentially affected population, but not due to an increased risk of dam failure.
- Non-jurisdictional dams pose the biggest risk and, over time with little regular maintenance and often located in remote areas with little security, result in an increase in vulnerability to Placer.
- Post fire conditions such as those experienced in the aftermath of the King Fire create excess debris and sediment issues which can affect the functionality of area dams. In fact, various water supply districts such as PCWA and NID have been incurring costs associated with monitoring and debris removal around area dams and waterways. Thus there is a potential increase in vulnerability with heavy storms in wildfire burn scar areas.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Drought and Water Shortage			X

- Since the 2010 planning process, current drought conditions, including water supply issues, have had a significant impact on the Placer County planning area and California. As a result the drought hazard has become a significant priority for mitigation planning.
- As previously mentioned, the drought has contributed to an increase in vulnerability of the County due to increase tree mortality issues and general increase in wildfire conditions.

- With water companies/agencies in Placer undertaking intertie projects, the issue of a lack of water supply to area residents is being effectively mitigated. However, on the eastern side, there are still potential issues with the drought for those companies not equipped with submersible pumps.
- Over the last few years, the drought has had a significant economic impact on recreation in the County. With Lake Tahoe and rivers running substantially lower, less people have been vacationing and undertaking water dependent recreational activities, such as boating, rafting, etc.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Earthquakes		X	

- Although the Eastern side of the County has been experiencing an increase in earthquake occurrences over the last several years, the planning team does not feel that the actual earthquake risk has increased.
- The primary factor that might change the earthquake vulnerability, is additional development and more people moving to the area.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Floods:100-/500-year		X	

- With the issuing of new FEMA flood maps (2010 DFRIMs), flood depths have been established in some areas and the regulatory Special Flood Hazard Area has changed. With these changes, flood mitigation projects, including flood insurance promotion and continued participation in the NFIP's CRS program, is a priority.
- Although the FEMA mapped floodplains have changed based on new data, the risk and vulnerability of 100/500 year flooding events remain unchanged. Effective land use planning and requirements for development in identified floodplains have minimized additional exposure to this hazard in the County.
- Within the unincorporated county, there have been 35 new building permits issued within the 1% annual chance floodplain since the 2010 LHMP; 34 of these are residential and 1 is industrial. All new development in the floodplain has been completed in accordance with current and applicable codes and standards, thus these new development areas should be protected from future flooding.
- Also, potentially compounded by the recent years of drought, the predictions for an upcoming El Nino winter is a renewed concern for the planning area, with the potential for large storms carrying significant precipitation that can result in increased flooding and associated damages throughout the planning area.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Floods: Localized Flooding		X	

- Increased development in unmapped flood hazard areas could result in a net increase in vulnerability should these areas experience increased stormwater/localized flooding. However, development requirements that require mitigation of stormwater runoff effectively mitigates this hazard.

- Climate change issues such as this El Nino season may result in more localized flooding as the climate warms and the wetter storms create more runoff.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Landslide and Debris Flows			X

- Over the last couple of years, with the severe drought, much of the vegetation along slopes areas is failing to thrive, thus there is a lack of vegetation to hold soil contributing to the landslide/mudslide potential.
- Post fire conditions, such as the King Fire, have left areas more susceptible to landslides and debris flows, especially with the heavy storms associated with the current El Nino winter.
- Even outside of post-fire areas, recent wet storms have increased the incidents of landslides and road closures.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Levee Failure		X	

- There are limited areas outside of Roseville that are affected by levees, thus this hazard has seen little change.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Seiche (Lake Tsunami)		X	

- The vulnerability of this hazard is primarily affected by changes in development to lakefront properties. There has been little new development in these areas; most changes are the result of redevelopment which has not effectively changed the vulnerability of this hazard.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Extreme Heat		X	

- This low priority hazard in Placer County has seen little change over the last five years.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Freeze and Snow	X		

- Over the last five years of mild winters, there has been a notable decrease in vulnerability of Placer County to freeze and severe winter storms. However, with climate change factors and the current El Nino conditions, this may actually increase in the years ahead.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Fog and Freezing Fog		X	

- This low priority hazard has not changed over the last five years.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Heavy Rains and Storms	X		

- Over the last five years of mild winters, there has been a notable decrease in vulnerability of Placer County to heavy rains and storms. However, climate change and the current El Nino predictions bring renewed concern moving forward for heavy rains, storms and associated issues to the County.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Soil Bank Erosion			X

- Drought conditions have increase the occurrence of stream bank erosion, with soils drying out and becoming more friable, they tend to slough off the banks causing increased areas of erosion.
- As previously noted, erosion issues increased in post-fire burn areas.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Subsidence		X	

- Drought conditions have contributed to increased subsidence statewide. In Placer County, this is likely more of a western side issue; and actual impacts or changes in the County's vulnerability to subsidence is unknown, but are expected to be limited in the County from this low priority hazard.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Wildfire			X

- Compounded by current drought conditions, the wildfire hazard has substantially increased and is no longer just a seasonal issue. The wildfire season, including the potential for a catastrophic wildfire, is now a year around concern.

- The vulnerability of Placer County to increased occurrence of a devastating wildfire has increased as exacerbated by the recent drought, increases in tree mortality, and overall increase in wildfire conditions.
- The increased development in WUI areas within the County also contributes to an increase in vulnerability.
- Significant environmental and economic impacts in recent years such as the cancelling of future Ironman events due to the air pollution associated with wildfire activity is direct evidence of this increasing vulnerability and impact to the County.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Hazardous Materials Transport			X

- Also of recent concern to the Planning Area with recent changes in legislation is the Hazardous Transportation issue, which focuses on Oil by Rail transport within and through the County. As a result, this priority hazard was added to this Plan Update, as part of the Hazardous Materials Transportation Hazard, which incorporated data and analysis identified in the County's 2015 Oil by Rail Plan.
- However, with the price of oil continuing to drop and thus less oil being transported through the County, this may level out the potential impacts of this new hazard to the planning area.

Multi-hazard Considerations

- With new areas of development identified in both the Western and Eastern side of the County and within the incorporated communities, requirements for new development will consider various hazard constraints and mitigation measures to govern ultimate development and buildout of these areas. Changes in development that have occurred in hazard prone areas and have increased or decreased the vulnerability of the Planning Area, development planned or under the consideration of the participating jurisdictions, and other conditions that may affect the risks and vulnerabilities of the Planning Area such as climate change variables are documented and considered in this Plan Update.

2.3 2010 LHMP Mitigation Strategy Status and Successes

Placer County and its various communities have been very successful in implementing actions identified in the 2010 LHMP Mitigation Strategy, thus, working diligently towards meeting their 2010 goals of:

- Goal 1: Prevent Future Hazard Related Losses of Life and Property
- Goal 2: Increase Public Awareness/Action of Vulnerability to Hazards
- Goal 3: Improve Community Emergency Services/Management Capability
- Goal 4: Implement and complete identified high priority projects listed in the plan
- Goal 5: Pursue Multi-Objective Opportunities “MOM” Whenever Possible
- Goal 6: Maintain FEMA Eligibility/Position Jurisdictions for Grant Funding

Where possible, Placer County and the participating jurisdictions used existing plans and programs to implement the 2010 mitigation strategy. Examples include implementation of wildfire mitigation actions

through Fire Safe Alliances and existing community wildfire protection plans (CWPPs), implementation of flood mitigation actions through the County and PCFCWCD programs including existing plans, studies, and projects, and implementation of a variety of projects through the County's Capital Improvement Program.

2.3.1. Success Stories

Placer County and all participating jurisdictions have been successful in completing actions from the previous plan. Some of these success stories are highlighted below.

Provide Fire Protection Water Source in Sheridan

The Sheridan Water Supply Improvements Project was completed in 2014. The project upgraded the public water system in the community of Sheridan, located in unincorporated western Placer County. The project included the development of a new groundwater well, water storage tank, pump station, supporting infrastructure, and pipeline upsizing from Camp Far West road to the Sheridan Elementary School to ensure flows to the school meet State fire flow requirements. The ribbon cutting is shown in Figure 2-1.

Figure 2-1 Ribbon Cutting for Sheridan Well

Source: Placer County Planning Division

Todd Valley Shaded Fuel Break

A recent clearing project was undertaken along Foresthill Road just west of Todd Valley Road, and along Todd Valley Road to the intersection of Mougnberry Lane. According to the Placers Fire Safe Council, grants covered $48,000 of the project with the balance of just over $70,500 being "In Kind" dollars and funding from Property Owners, NRCS grant funds and BLM grant funds. All ground work has been completed using allocated funds for the project. This includes mastication and hand crew work for vegetation removal and chipping of removed products, CEQA documents, project management and oversight of project, and grant administration. Approximately 25 acres received treatment via mastication and hand work, it is estimated that 75 percent of the fuel loading has been reduced in the project area. The project was completed over a sixty day period where weather provided ideal conditions for work to be performed. This project achievement was directly a result of the collaborative effort by multiple government agencies and the private citizens and organizations of the community. This project is a continuation of several strategically placed Shaded Fuel Breaks, more importantly its value to the community in fire protection, watershed enhancement, and cultural preservation. Before and after pictures are shown in Figure 2-2.

Figure 2-2 Shaded Fuel Break Before and After

Source: Foresthill Messenger newspaper, January 20, 2016

Middle Fork Project Fuel Reduction Management Program

Through an annual funding agreement between Placer County Water Agency (PCWA) and Placer County, funds are expended to perform fuel management activities that support a reduction in potential fire in the Middle Fork Project (MFP) area. This area is a critical forested watershed and protection of it is of paramount importance. The MFP is a multi-purpose water supply and hydro-generation project designed to conserve and control waters of the Middle Fork American River, the Rubicon River, and several associated tributary streams. The location is generally located in the Tahoe National Forest and private land well above the community of Foresthill and continues down the American River near the community of Auburn. Beginning in 2014 and for the duration of the federal license for the MFP an annual amount of funds will be made available to organizations that propose projects or have programs that 1) have a direct nexus to the project area and 2) show the potential to reduce fire danger through some form of fuel management projects. There are applications, matching fund requirements, agreements and documentation results that must be met in order to be eligible to receive funding awards. All projects must be identified in the CWPP.

- Greater Auburn Area Firesafe Council was successful in receiving funds for continued work on the Project Canyon Safe Shaded Fuel Break above the American River Canon
- Foresthill/Iowa Hill Firesafe Council was successful in receiving funds for several projects in and around the community of Foresthill.

Firewise Communities/Grant Writer Coordinator

Placer County contracted out for a Firewise Communities Coordinator/Grant Writer to help implement the projects in the CWPP, and work with the Firesafe Councils to identify communities interested in becoming recognized Firewise Communities.

- Moody Ridge Secret Town Shaded Fuel Break in 2014 was the first project funded through the efforts of this position. The Placer Sierra Firesafe Council through a joint effort with U.S Forest Service, CAL FIRE, Placer County Firesafe Alliance and Placer Resource Conservation District received $200,000 in federal grant funding to complete two local projects identified in the West Slope Placer County Wildfire Protection Plan. The project completed 118 acres of shaded fuelbreak along the North Fork American River Canyon Rim in the Moody Ridge area along with 34 acres of roadside clearing along Moody Ridge, and Lovers Leap Rd.
- In 2014 this position was also responsible for acquiring $489,907.50 in Drought Hazard Mitigation Funds from Pacific Gas and Electric Co. this funding was used to complete six fuels reduction projects throughout the county identified in the CWPP
- In 2015 the position was responsible for applying for $2,266,350.00 in grants of which $391,300.30 has been funded completing seven additional CWPP projects, $344,000 was denied due to diminished grant funds, and will be resubmitted in 2016. And $1,531,050.00 is still pending.
- The Firewise Coordinator side of this position with the help of the local Firesafe Councils has identified twenty six Placer County communities that are currently in various stages of the Firewise Recognition process with four of the communities being officially recognized Firewise Communities through the National Firewise program. These recognized communities are
  - ✓ Monte Verde Estates HOA
  - ✓ Sugar Pine View Firewise Community
  - ✓ Olive Orchard Firewise Community
  - ✓ Eaglecrest HOA

Placer County Chipper Program

Placer County has also partnered with the Placer Resource Conservation District, and received funding through the Air Pollution Control District for Chipper Replacement, Pacific Gas and Electric grant for running the day to day operations of the program, CAL FIRE SRA grant funding to purchase an operate a Track Chipper, CAL FIRE SRA, grant funding to operate the Chipper Program for the next two years. For a total of $794,209.00

Dowd/Yankee Bridge and Alpine Bridge

Alpine Meadows Bridge Replacement

Replaced the existing bridge crossing the Truckee River with a new bridge that improves the safety and mobility of autos, pedestrians and cyclists. The new bridge will clear span the Truckee River and will be widened to meet the current design standards as well as improve the hydraulic capacity of the area.

Dowd Road Bridge at Yankee Slough

The new bridge improves the hydraulic capacity of the area, while providing a bridge and roadway approaches designed to current standards.

Figure 2-3 Dowd Bridge Prior to Replacement

Source: Placer County

2.3.2. 2010 Mitigation Strategy Update

The 2010 mitigation strategy contained 113 separate mitigation actions benefiting one or more communities within the Placer County Planning Area. Of these 113 actions, 16 have been completed, 5 are completed but are still ongoing, 64 are ongoing, 14 are ongoing but not yet started, and 14 have not been started. Because many of these projects, such as the various fuels management projects, are implemented on an annual or other continuous basis and some of the projects have yet to be funded or have otherwise not been initiated, 80 2010 projects have been identified for inclusion in this plan update. Another 34 were determined not to be viable projects due to a variety of reasons, including funding availability, resulting in a lack of priority.

Table 2-1provides a status summary of the mitigation action projects from the 2010 LHMP. Following the table is a description of the status of each project.

Table 2-1 Placer County's 2010 LHMP Update: Mitigation Action Status Summary

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
County Mitigation Actions				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	X			X
Replacement of the Alpine Meadows Road Bridge over the Truckee River		X		
Inspection of Bridges Less than 20 Ft in Length		X		
Replacement of the Walerga Road Bridge over Dry Creek		X		
Replacement of Yankee Jims Road Bridge over the North Fork of the American River		X		
Generators for Sewer Pump Stations	X	X		
SCADA Systems	X	X		
Elevate Repetitive Loss Structures in 100-year Floodplain			X	X
Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program		X		X
Continue and Maintain Noxious Weed Eradication Program		X		X
Placer County Noxious Vegetation Management in Land Conservatory		X		X
Placer County Low Intensity Development Program	X			
Establish Additional Fire Safe Councils on the Western Slope		X		
Placer County Chipper Program Operational Funds		X		X
Firewise Communities/USA Educational Outreach		X		X
Establish the "Rural Lincoln Fire Safe Council"	X			

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
Hazardous Vegetation Abatement Program		X		X
Shaded Fuel Break Establishment and Maintenance in Hidden Falls Regional Park		X		
Biomass Removal Projects		X		
Provide Fire Protection Water Source in Sheridan	X			
Develop a Community Wildfire Prevention Plan (CWPP) for West Placer County	X			
Maintenance on Shaded Fuel Breaks and Demonstration Fuel Breaks.			X	X
Annual Defensible Space Inspections Program in the Unincorporated County		X		X
Enhance Enforcement of County Building Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the Unincorporated County		X		X
Ensure That All Homes In The Placer County Foothills Have PRC 4290 Compliant Address Signs		X		X
Develop and fund an enforceable weed abatement program		X		X
Annual Multi-Agency Wildland Fire Drill.		X		X
Cooperative Fire Service Response Agreement for the Western Side of All Placer County Fire Agencies.	X			
City of Auburn				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents			X	
GIS Mapping of Flood Zones within the City.			X	
Lincoln Basin (Downtown) Drainage Infrastructure		X		X
Creek and Stream Cleaning and Maintenance Program		X		X
Implementation of Storm Water Treatment Plan		X		X
Electric Street Diversion Project		X		X
Old Town Auburn Storm Drain System		X		X
American River Canyon Shaded Fuel Break		X		X
Community Education on Wildfire		X		X
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.		X		X
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)		X		X
City of Colfax				
Identify Un-Reinforced Masonry Buildings in the City			X	

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
Obtain Funding for a Residential Fuel Reduction Program (was Obtain Funding For A Residential Fire Protection Program in 2005 Plan)			X	
Evaluate the Need and Feasibility of Improving Fire Prevention for The Historic Business District		X		X
City of Lincoln				
Flood Warning System		X		
State Route 65: Auburn Ravine Bridge – Reconstruct Bridge			X	X
State Route 193: Auburn Ravine Bridge – Additional 110' Span		X	X	X
Lakeview Farms Regional Volumetric Mitigation Improvements – Phase 1		X	X	X
Gladding Parkway, State Route 65, McCourtney Road Stream Restoration and Culvert Improvements.		X	X	X
"O" Street Drainage Improvements.		X	X	X
7th Street Drainage Improvements.		X	X	X
Auburn Ravine at State Route 193 Bridge.		X	X	X
Auburn Ravine at State Route 65 Bridge.		X	X	X
Ingram Slough – Orchard Creek return channel		X	X	X
Markham Ravine – Updated FEMA Analysis and Mapping.		X	X	X
Markham Ravine Drainage Improvements – Union Pacific Railroad and State Route 65 crossings.		X	X	X
Auburn Ravine Stream Restoration Projects (analysis and repairs).		X	X	X
Markham Ravine Streambed Restoration Projects (analysis only).		X	X	X
Coon Creek Streambed Restoration Projects (analysis only).		X	X	X
Fire Prevention and Fuels Management Plan		X	X	X
City of Rocklin				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents		X		X
Open Space Fire Prevention & Vegetation Management Prescribed Grazing		X		X
Town of Loomis				
Address signage for property addresses		X		X
Delmar Avenue Headwall Reconstruction Project		X		X
Creek Maintenance Secret Ravine & Antelope Creek		X		X

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
Reconstruction of Brace Bridge at Secret Ravine		X		X
Raise Flood-Prone Houses Along Loomis Creeks		X		X
Alpine Springs County Water District				
Mineral Springs Soil Bank Stabilization Project		X		X
Alpine Meadows Consolidated Defensible Space Project	X	X		X
Foresthill Fire Protection District				
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County		X		X
Assess And Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing And Maintenance Ordinance. Put Programs In Place With Homeowners Associations In CC&R's And Maintenance Contracts		X		X
Todd Valley Shaded Fuel Break		X		X
Foresthill Biomass Project			X	X
Completion of Fuels Management Projects within Identified Areas of the Western Slope of Placer County		X		X
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County		X		X
Nevada Irrigation District				
Portable Generator Project	X			
Canal Culvert Replacement Program		X		X
Reservoir Cleaning		X		
North Tahoe Fire Protection District				
FCC P-25 Interoperability Radio Systems		X		X
District GIS Technology, Equipment, Database and Mapping Improvements		X		X
Emergency Radio Transmitters and Information Systems	X			
Evacuation Shelter Improvements			X	
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements		X		X
North Tahoe Fire Protection District Headquarters Station Relocation and North Tahoe Command Center Development	X			
Seiche Wave Warning Systems, Signs and Public Education			X	X

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
Community Wildfire Protection Plan (CWPP) projects (was Completion of Fuels Management Projects on Various Parcels in the North Tahoe Fire Protection District, as Outlined in the North Tahoe Community Fire Protection Plan in 2005 plan)	X			
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education		X		X
Hazardous Wood Roof Replacement Program		X		X
Regional Water System Fire Protection Upgrades and Interoperability		X		X
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment			X	X
Hydrant Risers, Replacements and Markers			X	X
PCFCWCD/Placer County				
Squaw Creek Restoration & Drainage Enhancement Project		X		X (County)
Elevate Remaining 95 Homes in the Dry Creek Watershed			X	X (County)
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds.		X		X
Update Hydrology and Hydraulic Models within the Critical Dry Creek and Cross Canal Watersheds.	X (Dry Creek)	X (Cross Canal)		X (Cross Canal)
Implementation of Identified Bridge and Culvert Replacement Projects.		X		X (County)
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities		X		X
Placer County Water Agency				
Maintain and Enhance Canal Systems by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas		X		X
Replace Wooden Flume Structures with Steel Structures		X		X
De-Silt Reservoirs		X		X
Placer Hills Fire Protection				
Annual Defensible Space Inspections Program for the Placer Hills Fire Protection District (PHFPD)		X		
Assess and Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements for Minor Lot Splits		X		X
Squaw Valley Public Service District				
East Booster Emergency Power	X			
Easement Abatement/Maintenance of Emergency Access		X		X

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2016 Update
Develop a Community-Wide Emergency Notification System			X	X
Water & Sewer System GPS Project	X			
SVPSD/Mutual Water Company Inter-tie Hazards		X		X
Water Tank Earthquake Retrofit Project		X		X
Tahoe City Public Utility District				
Seismic Stability Study and Retrofit	X			
Forest Fuel Reduction - Highlands	X			
Forest Fuel Reduction, Water, Sewer Pump & Lift Stations	X			
Tahoe Truckee Unified School District				
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.	X	X		X
HVAC Control Upgrades		X		
Forest Thinning Around Lake Area Schools		X		
Structural Upgrades of Roofs at School Sites to Support Higher Snow Loads.	X			X

Placer County Actions

Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Progress to Date: This was integrated into the Safety Element of the General Plan in 2013. Although the LHMP was completed in 2010, incorporation into the General Plan took a while due to the update schedule and General Plan update process.

Replacement of the Alpine Meadows Road Bridge over the Truckee River

Progress to Date: The construction contract for the bridge replacement was awarded; construction is currently underway with construction anticipated to be complete by 12/2015.

Inspection of Bridges Less than 20 Ft in Length

Progress to Date: The County began to locate and compile a list of bridges less than 20-feet in length.

Replacement of the Walerga Road Bridge over Dry Creek

Progress to Date: The new bridge has been designed and is waiting funding for construction. This project would construct a new bridge to meet the anticipated needs of this community. The proposed bridge will be raised to reduce flood related closures and improve emergency vehicle access during flood events. The County has convinced Caltrans to fund the bridge replacement project with federal aid at an 88.53%/11.47% federal / local ratio. The portion of the project scope that will be participating in the federal-aid program is still being finalized. Conceptual design has been completed (to approximately 30%) and the bridge type selection and roadway long approach has been approved by Caltrans. Environmental work, design, and utility coordination work is currently underway.

Replacement of Yankee Jims Road Bridge over the North Fork of the American River

Progress to Date: We are just about complete with a Feasibility Study that looked at different options of replacement and the option of rehabilitating the existing bridge. It was determined early on that rehabilitation of the existing structure was not feasible and the study has narrowed down the proposed alignment of the replacement bridge and roadway approaches as well as narrowed it down to three bridge types with a recommended alternative. The next phase will be to complete the report and submit it to Caltrans and the Technical Advisory Committee (TAC) for review and comment. Then we will move forward with the environmental and design phase.

Generators for Sewer Pump Stations

Progress to Date: The following emergency generators were installed:

- New Sheridan water well 2014
- Applegate Pump Station 2013
- SMD 3 Pump Station 2015
- Saddleback Pump Station 2015

Additional generators will be installed at other pump stations as funding becomes available.

SCADA Systems

Progress to Date: The following SCADA systems were installed:

- Russell Road
- Union Hall
- Cavitt Stallman
- Lawrence

Additional systems will be installed at other pump stations as funding becomes available

Elevate Repetitive Loss Structures in 100-year Floodplain

Progress to Date: No progress to report. There appears to be a general lack of interest from the affected public in pursuing flood elevation projects, likely due to the lack of any significant flooding event in the past 15 years. There has also been a lack of grant funding to assist with the projects.

Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program

Progress to Date: This is an ongoing project. This program addressed all hazards of concern with an emphasis on severe weather, drought, wildfire, and flood hazards since 2010. Examples include regular meetings and outreach associated with the Fire Safe Alliance group and the pre-flood season meeting with multiple agency stakeholders for the flood outlook and associated issues. Other mechanisms include information on the County website, and local education and outreach projects through multiple departments through local community events. Moving forward, this program will work on becoming less fragmented, more collaborative within the County especially with the establishment of the Communications Division of the County PIO.

Continue and Maintain Noxious Weed Eradication Program

Progress to Date: The Placer County noxious weed eradication program is an ongoing program administered by the County Department of Agriculture. Given the value of the Ag industry to the County, this program will remain a priority and will be implemented on an annual basis subject to funding constraints.

Placer County Noxious Vegetation Management in Land Conservatory

Progress to Date: The only work has be the actions to develop programs to remove Scotch Broom. Meadow Vista has an annual event (2015 was the third annual event), and RCD and the Fire Safe Alliance team has worked with PG&E to procure weed wrench's to assist in the remove of the plant. RCD is working to develop a loan program to support individual property owner projects.

Placer County Low Intensity Development Program

Progress to Date: A LID Guide for the Sierra Nevada was completed in 2012. An effort is currently underway to develop LID design standards that will assist in implementing requirements of applicable National Pollutant Discharge Elimination (NPDES) permits. This effort is being led by CDRA Planning, so they should be able to provide further information regarding schedule.

Establish Additional Fire Safe Councils on the Western Slope

Progress to Date: The "Greater Lincoln Fire Safe Council" was formed in January 2010. Other communities are encouraged to establish Fire Safe Councils. This project is ongoing.

Placer County Chipper Program Operational Funds

Progress to Date: The Placer County Chipper program continues. A $430K grant was received from the SRA Grant program to continue to support the program through 2017. The County also received funds to purchase a track chipper, which will allow the program to expand and include areas away from road access and encourage landscape fuel treatment options.

Firewise Communities/USA Educational Outreach

Progress to Date: In 2014 Placer County approved funding to hire a "Firewise Coordinator". The coordinator is active in all of the Fire Safe Council area and to date has 4 nationally recognized Firewise community, and is working with 12 additional communities. All 12 communities are involved in the process and we anticipate all of them will achieve their goal of receiving their recognition.

Establish the "Rural Lincoln Fire Safe Council"

Progress to Date: Greater Lincoln Fire Safe Council" was formed in January 2010.

Hazardous Vegetation Abatement Program

Progress to Date: The Placer County HVA Ordinance originally started in 2007 as a pilot program in the Lake Tahoe area. In 2010 or thereabouts, the program was extended to all but three Fire Protection Districts and then in 2012 was accepted by all FPD's as a Countywide ordinance. To date, all HVA events have been mitigated by the land owner, with none requiring the County to mitigate the properties.

Shaded Fuel Break Establishment and Maintenance in Hidden Falls Regional Park

Progress to Date: The County received a $506,207.00 from the Sierra Nevada Conservancy (SNC) to create a series of strategically placed shaded fuel breaks across Hidden Falls Regional Park and project status shows complete and fully paid as of 5/12/2012

Biomass Removal Projects

Progress to Date: Multiple Biomass removal projects are performed annually in both the eastern side of the county in the Lake Tahoe region and the western slope of the county mainly in Foresthill region and the upper American River Watershed. These projects are typically in partnership with the USFS and involve grant funds from various organizations and agencies including Placer County, Sierra Nevada Conservancy, Tahoe Conservancy, California State Parks, Placer County Air Pollution Control District and others. Generally, several projects on each side of the county are performed and typically involve the collection, grinding and hauling of 2 to 3 thousand bone dry tons (BDT) per project. The air quality emissions reductions for each project (due to the conversion from open pile burning to energy production) have been shown to be significant to the region. Placer County, as a part of their Strategic Plan for Biomass utilization, intends to continue this practice throughout the span of this plan. This project will not be carried forward in the Plan Update.

Provide Fire Protection Water Source in Sheridan

Progress to Date: The Sheridan Water Supply Improvements Project was completed in 2014. The project upgraded the public water system in the community of Sheridan, located in unincorporated western Placer County. The project included the development of a new groundwater well, water storage tank, pump station, supporting infrastructure, and pipeline upsizing from Camp Far West road to the Sheridan Elementary School to ensure flows to the school meet State fire flow requirements.

Develop a Community Wildfire Prevention Plan (CWPP) for West Placer County

Progress to Date: The 2007 CWPP for the Western Slope of Placer County was updated in 2012. As part of the update, funding was approved to include the Greater Lincoln Fire Safe Council area. The four FSC's and the Fire Alliance are current doing their annual update of the fuels management and public education projects.

Maintenance on Shaded Fuel Breaks and Demonstration Fuel Breaks.

Progress to Date: This project has not been started, but the desire exists to start the maintenance projects. This will be carried forward in the plan update.

Annual Defensible Space Inspections Program in the Unincorporated County

Progress to Date: Cal Fire does have a seasonal hiring of SRA Fee funded defensible space inspectors. Cal Fire also maintains a master database in prevention of all defensible space inspections that are completed within the county. Placer Hills and other agencies are offered the option of providing us copies of their inspection results to be included in the database. Monthly inspection reports are provided to Sacramento.

Enhance Enforcement of County Building Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the Unincorporated County

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Ensure That All Homes In The Placer County Foothills Have PRC 4290 Compliant Address Signs

Progress to Date: Foresthill Fire and Placer Hills Fire Protection District both have active low cost reflective signage projects. Cal Fire NEU has been actively seeking funding to create one for all State Responsibility Areas in the unit. Cal Fire defensible space inspectors currently include documenting compliant signage in their inspections and provide residents with education material.

Develop and fund an enforceable weed abatement program

Progress to Date: The Placer County HVA Ordinance originally started in 2007 as a pilot program in the Lake Tahoe area. Around 2010 the program was extended to all but three Fire Protection Districts and then in 2012 was accepted by all FPD's as a County wide ordinance. To date, all HVA events have been mitigated by the land owner, with none requiring the County to mitigate the properties.

Annual Multi-Agency Wildland Fire Drill.

Progress to Date: The Western Placer County Fire Chief's Association sponsors annually an interagency wildland drill that fulfills the annual fireline safety refresher (RT-130) training that is required for all personnel assign to positions with fireline duties in order to maintain currency. Agencies participating include Auburn City, South Placer, Placer Hills, Rocklin, Roseville and CAL FIRE.

Placer County also participates in an annual multi-agency wildland drill that includes participants from Nevada, Yuba, Placer, Sacramento and Sierra Counties and includes CAL FIRE, California Highway Patrol (CHP) and the U.S. Forest Service. This training provides a critical opportunity for agencies to work together and fulfill mandatory training requirements.

Cooperative Fire Service Response Agreement for the Western Side of All Placer County Fire Agencies.

Progress to Date: This project was completed in December of 2015. The yearly RT-130 Wildland Refresher has been conducted every year for the past twenty years and is a multi-jurisdictional and sometimes multi county drill. The Western Placer County Fire Chiefs Association Training Officers is responsible for the planning and coordination of this yearly training.

City of Auburn

GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents

Progress to Date: This project is not yet started and is not considered a viable action going forward.

GIS Mapping of Flood Zones within the City.

Progress to Date: This project is not yet started and is not considered a viable action going forward.

Lincoln Basin (Downtown) Drainage Infrastructure

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Creek and Stream Cleaning and Maintenance Program

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Implementation of Storm Water Treatment Plan

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Electric Street Diversion Project

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Old Town Auburn Storm Drain System

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

American River Canyon Shaded Fuel Break

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Community Education on Wildfire (was Action #3 – Public Education of the Results of a Wildfire in a Community and What Can Be Done by Citizens in Developing Safeguards)

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

City of Colfax

Identify Un-Reinforced Masonry Buildings in the City

Progress to Date: The identity of the un-reinforced masonry building within the City of Colfax was not completed. The City resources were limited due to the recession, therefore, funding was not available to start the project. This project will not be carried forward in the Plan Update.

Obtain Funding for a Residential Fuel Reduction Program (was Obtain Funding For A Residential Fire Protection Program in 2005 Plan)

Progress to Date: Obtaining funding for a residential fuel reduction program did not get completed in the 2010 annex time frame. Resources to pursue grant funding was limited, therefore, the City was unable to obtain grant funding. This project will not be carried forward in the Plan Update.

Evaluate the Need and Feasibility of Improving Fire Prevention for The Historic Business District

Progress to Date: Ongoing. Initial attack pre-plans for 13 buildings encompassing 37 businesses have been completed within Colfax City limits. The pre-plan effort within the Historic Business District is approximately 40% complete as of 2015. Will be carried forward in this Plan Update.

City of Lincoln

Flood Warning System

Progress to Date: All City creek monitoring is done through Placer County Flood Control District. This project will not carry forward in the plan update.

State Route 65: Auburn Ravine Bridge – Reconstruct Bridge

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

State Route 193: Auburn Ravine Bridge – Additional 110' Span

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Lakeview Farms Regional Volumetric Mitigation Improvements – Phase 1

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Gladding Parkway, State Route 65, McCourtney Road Stream Restoration and Culvert Improvements.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

"O" Street Drainage Improvements.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

7th Street Drainage Improvements.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Auburn Ravine at State Route 193 Bridge.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Auburn Ravine at State Route 65 Bridge.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Ingram Slough – Orchard Creek return channel

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Markham Ravine – Updated FEMA Analysis and Mapping.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Markham Ravine Drainage Improvements – Union Pacific Railroad and State Route 65 crossings.

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Auburn Ravine Stream Restoration Projects (analysis and repairs).

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Markham Ravine Streambed Restoration Projects (analysis only).

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Coon Creek Streambed Restoration Projects (analysis only).

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

Fire Prevention and Fuels Management Plan

Progress to Date: This project is ongoing but not yet started. It will carry forward in this Plan Update.

City of Rocklin

GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents

Progress to Date: The City has now funded a full-time GIS analyst position and several part-time positions to expand its GIS system and database, including infrastructure and pre-emergency data. This project is ongoing. It will be carried forward in this Plan Update.

Open Space Fire Prevention & Vegetation Management Prescribed Grazing

Progress to Date: The City has continued to use grazing as a management approach to hazard mitigation in open space areas prone to wildfire. The program has expanded to allow the use of prescribed grazing on privately-owned open space lands. This project is ongoing. It will be carried forward in this Plan Update.

Town of Loomis

Address signage for property addresses

Progress to Date: This project is ongoing. It will carry forward in this Plan Update.

Delmar Avenue Headwall Reconstruction Project

Progress to Date: This project is ongoing. It will carry forward in this Plan Update.

Creek Maintenance Secret Ravine & Antelope Creek

Progress to Date: This project is ongoing. It will carry forward in this Plan Update.

Reconstruction of Brace Bridge at Secret Ravine

Progress to Date: This project is ongoing. It will carry forward in this Plan Update.

Raise Flood-Prone Houses along Loomis Creeks

Progress to Date: This project is ongoing. It will carry forward in this Plan Update.

Alpine Springs County Water District

Mineral Springs Soil Bank Stabilization Project

Progress to Date: This project has not been completed due to the lack of funding and the need to coordinate with Placer County on road improvements. Due to the last several years of low rain and snow fall the flows in Bear Creek have not continued the erosion which threatens to undercut the road and the water and sewer mains located in the road. This project will be carried forward in this Plan Update.

Alpine Meadows Consolidated Defensible Space Project

Progress to Date: The project was completed in August 2012 after receiving a $176,375.00 Grant from the Sierra Nevada Conservancy District. This project will be carried forward in this Plan Update as a continuation project.

Foresthill Fire Protection District

Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County

Progress to Date: This project is ongoing. Grants are pending to complete this work. This project will be carried forward in this Plan Update.

Assess And Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing And Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's And Maintenance Contracts

Progress to Date: This project is ongoing. Grants are pending to complete this work. This project will be carried forward in this Plan Update.

Todd Valley Shaded Fuel Break

Progress to Date: Todd Valley plan is in place. Currently waiting for grant approval. Project will begin upon funding. This project will be carried forward in this Plan Update.

Foresthill Biomass Project

Progress to Date: Biomass project is being discussed at the County level. This project will be carried forward in this Plan Update.

Completion of Fuels Management Projects within Identified Areas of the Western Slope of Placer County

Progress to Date: This project is ongoing pending grants and funding. This project will be carried forward in this Plan Update.

Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County

Progress to Date: This project is ongoing pending grants and funding. This project will be carried forward in this Plan Update.

Nevada Irrigation District

Portable Generator Project

Progress to Date: The District purchased a 500 KW portable generator to power critical water distribution and supply pump stations during extended outages. The purchase was made in 2013 and has been utilized during a number of power outages. This project is complete.

Canal Culvert Replacement Program

Progress to Date: The District has over 2,000 culverts within its canals to facilitate crossings. Many of these culverts have met their life expectancy and are beginning to fail. A failure of one of these crossings presents a threat to both the public trying to cross the canal, as well as jeopardizing the water supply to District customers. This project is being carried forward in this Plan Update.

Reservoir Cleaning

Progress to Date: The District is still actively working on reservoir sedimentation removal. Much of the CEQA documentation has been completed and the District is awaiting favorable hydrologic conditions to move forward. Current drought conditions have made the draining of reservoirs a challenge.

North Tahoe Fire Protection District

FCC P-25 Interoperability Radio Systems

Progress to Date: This project is ongoing and will be carried forward in the Plan Update.

District GIS Technology, Equipment, Database and Mapping Improvements

Progress to Date: NTFPD and MBFD received a $170.00 federal grant to purchase and place into service mobile data terminals and associated mapping technology and wireless communication improvements to enhance emergency response capabilities for district vehicles. This project is in the final stages of installation and completion. When fully implemented, these improvements will greatly enhance emergency response and incident management capabilities. This project is ongoing and will be carried forward in the Plan Update.

Emergency Radio Transmitters and Information Systems

Progress to Date: This equipment has been purchased and is in service in district operations for several years as 2015.

Evacuation Shelter Improvements

Progress to Date: Not started. No funding available at present.

North Tahoe Fire Protection District Critical Facility Infrastructure Improvements

Progress to Date: District is seeking additional funding to replace aged and dilapidated infrastructure of its fire stations and related facilities. This project will be carried forward in the Plan Update.

North Tahoe Fire Protection District Headquarters Station Relocation and North Tahoe Command Center Development

Progress to Date: In May 2008 the NTFPD entered into a lease agreement with CAL FIRE to staff the NTFPD Carnelian Bay Fire Station during the fire season. This arrangement has resulted in a staffed Type 3 CAL FIRE Engine available for response to all-risk incidents within the NTFPD boundaries and the surrounding areas. Over subsequent years, this relationship has continued to strengthen between both agencies and in 2015 resulted in a long term year round lease facility agreement between the two agencies. As of 2015, CAL FIRE is staffing the station with suppression personnel and equipment (during fire season) and prevention and administrative staff year round.

Seiche Wave Warning Systems, Signs and Public Education

Progress to Date: Not started. No funding available at present. This project will be carried forward in the Plan Update.

Community Wildfire Protection Plan (CWPP) projects (was Completion of Fuels Management Projects on Various Parcels in the North Tahoe Fire Protection District, as Outlined in the North Tahoe Community Fire Protection Plan in 2005 plan)

Progress to Date: Completed 2015

Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education

Progress to Date: Ongoing program. Additional funding would allow for the program to be developed further with greater outreach. This project will be carried forward in the Plan Update.

Hazardous Wood Roof Replacement Program

Progress to Date: Ongoing program as development opportunities present to require compliance and upgrades to existing structures in the District. This project will be carried forward in the Plan Update.

Regional Water System Fire Protection Upgrades and Interoperability

Progress to Date: The District contains several small water districts that lack adequate funding to upgrade infrastructure and service to meet fire suppression needs. Additional funding would provide opportunities to increase service and reliability of these systems and provide for inter-operability between systems during large scale incidents. This project will be carried forward in the Plan Update.

Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment

Progress to Date: Not started. No funding available at present. This project will be carried forward in the Plan Update.

Hydrant Risers, Replacements and Markers

Progress to Date: Not started. No funding available at present. As development opportunities arise, the district requires upgrades to meet current standards. This project will be carried forward in the Plan Update.

PCFCWCD/Placer County

Squaw Creek Restoration & Drainage Enhancement Project

Progress to Date: Placer County Planning Department and its partners have completed restoration design plans for the project and are now seeking funding for implementation. Additionally, the Placer County Flood Control and Water Conservation District, in cooperation with FEMA have produced updated hydrology and hydraulic studies of Squaw Creek which will be referenced over the next two years as FEMA and its study contractor produce updated and detailed floodplain maps (Flood Insurance Rate Maps or FIRM).

Elevate Remaining 95 Homes in the Dry Creek Watershed

Progress to Date: No change or specific progress has been made. This project was reviewed as part of the updated Dry Creek Watershed Flood Control Plan completed in 2011. Available funding and homeowner interest in cost sharing remain a concern. Funding of $6 million necessary is not available within Dry Creek Trust Fund and would likely only be available thru Federal or State grant sources. A more realistic schedule is within 5 years instead of 3 years. Homes are still at risk of flooding if they are not elevated. Other than elevating the structure, alternatives include; acquisitions/relocations, dry flood proofing of non-residential structures, minor localized flood control projects, and demolition of NFIP-insured structures on acquired or restricted real property.

There appears to be a general lack of interest from the affected public in pursuing flood elevation projects, likely due to the lack of any significant flooding event in the past 15 years. The recently enacted federal Biggert Waters Flood Control Act of July 2012 and the recent FHA 203k Home Rehab Loan Program may encourage certain homeowners with existing NFIP policies to elevate their homes and businesses in the near future in order to avoid large insurance rate increases that will come about as a result of this act.

Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds.

Progress to Date: The August 2003 dated feasibility study identifying possible flood control project sites along Secret Ravine has been found to be unreliable due to faulty assumptions within the hydraulic models utilized in the study. The only significant regional flood control plan update since 2010 is the 2011 Updated Dry Creek Watershed Flood Control Plan. The Dry Creek Watershed Flood Control Plan provides a detailed hydrological analysis of the watershed, provides recommendations for feasible regional flood control projects, means to mitigate development projects, and recommends an updated facility plan and fee program. The updated plan identified new recommended sites for regional flood control projects, including the top ranked Antelope Creek Flood Control project along Antelope Creek between Atlantic Street and the Highway 65 overpass. The District is still working on plans to complete a project in this watershed.

Within the Cross Canal Watershed, while no updates to the existing 1994 dated flood control plan have occurred, County and District staff continues to pursue the single viable regional retention project, termed the Scilacci Farms project, along Coon Creek near the Placer/Sutter County line. Staff continue to pursue

grant funding sources to fund this estimated $3.3 million dollar project but have so far been unsuccessful despite three separate attempts to receive grant awards from State programs

For the on-going Antelope Creek Flood Control Project, this project has received all agency permits (except the 404, anticipated by December 2015) and is otherwise shovel ready with a construction bid package ready to be released just as soon as the County can fill a $600,000 construction funding shortfall. This is a multi-objective water efficiency and regional flood control improvement project proposed within the Dry Creek Watershed area of the American River Basin. This project includes the first phase of a two-phase project. The first phase would include the concrete gunite lining of approximately 3,300 lineal feet of Antelope Canal and the construction of one (in a future series of two) on-channel flood control weirs on Antelope Creek. The project will conserve up to 125 acre-feet per year, reduce the amount of erosion in the watershed, and reduce peak flow from a 100-year storm event by 530 cubic feet per second (Phase 2 / Upstream Weir) on Antelope Creek near Atlantic Street in the City of Roseville.

Update Hydrology and Hydraulic Models within the Critical Dry Creek and Cross Canal Watersheds.

Progress to Date: In 2011 the Placer County Flood Control and Water Conservation District updated the Dry Creek Watershed Flood Control Plan, including updating the hydrologic and hydraulic models of all creeks within this watershed. There has been no progress towards updating the 1994 dated Cross Canal Watershed flood control plan however, the District in cooperation with FEMA, has updated the hydrologic and hydraulic models for four creeks within this watershed. These include Pleasant Grove Creek, Curry Creek, Auburn Ravine and Orchard Creek. Over the next two years, FEMA and its study contractor will be producing detailed FIRM mapping of the 100-year floodplain along these four creeks.

Implementation of Identified Bridge and Culvert Replacement Projects.

Progress to Date: The County has replaced several bridges including Cook Riolo, Barton Road, Watt Avenue, and Walgera. The County has also completed improvements in the Tahoe area through the creek restoration of Lake Forest Creek and Restoration of Snow Creek.

Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities

Progress to Date: This project is ongoing. The District (as well as the County and the City of Roseville) have now received 2 separate grant awards from DWR under the Flood Emergency Response Program (FERP) that will allow the County to create the flood inundation and flood forecasting capabilities described in the 2010 HMP. It will also allow partial funding for an upgrade of the warning system to “ALERT 2” status, at least for the base stations and several gages. This work is underway and will likely be completed within a years timeframe or so.

Placer County Water Agency

Maintain and Enhance Canal Systems by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas

Progress to Date: Historically the Agency has an on-call gunite contract and we continually improve canals based upon need. Typically out of the 165-miles of canal we are able to gunite a little less than 5-miles per year on average. The budget for gunite is a variable cost and the last few years' projects have been reduced due to drought and decreased funding from water sales. This project will be included in the plan update.

Replace Wooden Flume Structures with Steel Structures

Progress to Date: While the Agency would like to enhance and enclose many of the flumes, it is likely that they will exist well into the future due to a community fondness for the structures, engineering challenges, and increased construction cost for improvement. The Upper Fiddler Green, Turner, Alpine, Lang #1 & #2, Spikes, Cherry Tree and Secret Town flumes have been replaced by a pipe. Ongoing analysis and improvement will occur where warranted and as feasible. This project will be included in the plan update.

De-Silt Reservoirs

Progress to Date: Ongoing. Priority for desilting projects leans toward the Middle Fork Project where fire and subsequent erosion has created a problem that may span decades of impact upon the operation of the project. Sediment monitoring is being performed, but Emergency Debris Management for the Ralston Afterbay is a priority. The goal of desilting of smaller holding ponds and reservoirs on the canal system have been unobtainable because of the priority of protecting the dams, as well as environmental and logistical challenges for de-silting, and the ultimate cost of performing the work

Placer Hills Fire Protection

Annual Defensible Space Inspections Program for the Placer Hills Fire Protection District (PHFPD)

Progress to Date: This project is not being done as there is no funding for staff. CAL FIRE is doing inspections currently. It will not be carried forward in this plan update.

Assess and Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements for Minor Lot Splits

Progress to Date: This project is ongoing with each lot split and for development. This project will carry forward into the plan update.

Squaw Valley Public Service District

East Booster Emergency Power

Progress to Date: The East Booster Power Project was completed in 2011 with the assistance of Placer County Water Agency who provided a $35,000 grant. The project was completed in house using District labor and equipment.

Easement Abatement/Maintenance of Emergency Access

Progress to Date: The Easement Abatement Project is ongoing and about 90% complete. The District continues with public outreach and education. There are about a dozen properties remaining the District is working with to obtain compliance.

Develop a Community-Wide Emergency Notification System

Progress to Date: The District participates in the reverse 911 notification system Teleminder which is now called Everbridge, however the installation of a message board is still a viable project.

Water & Sewer System GPS Project

Progress to Date: The water and sewer system GPS project was completed in 2013 with production of new District base maps. The GPS information has been imported into the Districts GIS based maintenance and infrastructure management software VueWorks.

SVPSD/Mutual Water Company Inter-tie Hazards

Progress to Date: The design portion of this project was completed in 2014 with assistance from the Placer County Water Agency who provided a $10,000 grant.

Water Tank Earthquake Retrofit Project

Progress to Date: This project was partially complete. The redwood tank was replaced in 2011. Retrofitting of the remaining tanks remains a priority, and that portion of the mitigation action will be carried forward in this plan update.

Tahoe City Public Utility District

Seismic Stability Study and Retrofit

Progress to Date: The seismic stability of these tanks was analyzed in reports prepared by Nolte Associates dated January 2006 and September 2010. Of the 11 analyzed tanks:

- One (1) was built in 2005 and is seismically stable and requires no retrofits (Upper Highlands).
- One (1) is seismically unstable and requires a major foundation and shell retrofit or requires a change in its operational water level (Lower Highlands).
- One (1) is seismically unstable and due to its age and material requires a complete replacement (Bunker).
- Eight (8) are seismically stable with minor improvements recommended.

All recommended operational changes have been made and the Bunker Tank is currently under design contract for replacement in 2016-17 time frame.

Forest Fuel Reduction - Highlands

Progress to Date: Forest Fuels Reduction in the Highlands area was completed in 2010. In total, 17 acres of wildland urban interface was treated using mastication methods. This project was completed in conjunction with the California Tahoe Conservancy on lands they own directly adjacent. In total over 100 acres of land was treated between the two projects. This project was a success as it resulted in a more fire tolerant zone being created between in the wildland urban interface area of a heavily populated residential subdivision. Grant funding of approximately $50,000 was secured for the project from the Nevada Fire Safe Council.

Forest Fuel Reduction, Water, Sewer Pump & Lift Stations

Progress to Date: Forest Fuels Reduction at select Sewer and Water Pump and Lift Station Facilities was completed in 2010. In total, 8 facilities were treated by mastication and hand thinning methods. This project was a success as it resulted in a more fire tolerant zone being created around key public water and sewer infrastructure systems. Grant funding of approximately $39,000 was secured for the project from the Nevada Fire Safe Council.

Tahoe Truckee Unified School District

School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.

Progress to Date: This item has been completed, and is ongoing. The scope of work that had been identified for the 2010 LHMP has been completed, but we had to transition to a narrow-band frequency and radios in 2013. Additionally, education of procedures and improving our District's alert system is an ongoing, continually evolving effort.

HVAC Control Upgrades

Progress to Date: The District in the process of putting out a controls RFP that would further upgrade the HVAC that was identified in the 2010 LHMP. The District's HVAC Controls will be an ever evolving process to assure that meet necessary environmental requirements, as well as energy efficiencies and occupant comfort levels.

Forest Thinning Around Lake Area Schools

Progress to Date: This is an ongoing item due to time availability of project managers, and coordinate this work when we have other major projects occurring at the Lake Area School sites.

Structural Upgrades of Roofs at School Sites to Support Higher Snow Loads.

Progress to Date: These projects have been completed.

Chapter 3 Planning Process

Requirements §201.6(b) and §201.6(c)(1): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and
3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Placer County recognized the need and importance of the update process for their local hazard mitigation plan and initiated its development. After receiving a grant from the Federal Emergency Management Agency (FEMA), which served as the primary funding source for this plan, the County contracted with Foster Morrison Consulting, LLC (Foster Morrison) to facilitate and develop the plan. Jeanine Foster, a professional planner with Foster Morrison, was the project manager and CRS lead in charge of overseeing the planning process and the development of this LHMP update. Chris Morrison, also a professional planner with Foster Morrison, was the lead planner for the development of this update. The Foster Morrison's team's role was to:

- Assist in establishing the Hazard Mitigation Planning Committee (HMPC) as defined by the Disaster Mitigation Act (DMA);
- Meet the DMA requirements as established by federal regulations and following FEMA's planning guidance;
- Support objectives under the National Flood Insurance Program's Community Rating System and the Flood Mitigation Assistance program;
- Facilitate the entire planning process;
- Identify the data requirements that HMPC participants could provide and conduct the research and documentation necessary to augment that data;
- Assist in facilitating the public input process;
- Produce the draft and final plan documents; and
- Coordinate with the California Office of Emergency Services (Cal OES) and FEMA Region IX plan reviews.

3.1 Local Government Participation

The DMA planning regulations and guidance stress that each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the HMPC;

- Detail where within the planning area the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan.

For the Placer County Planning Area's HMPC, "participation" meant the following:

- Providing facilities for meetings;
- Attending and participating in the HMPC meetings;
- Completing and returning the Data Collection Worksheets;
- Collecting and providing other requested data (as available);
- Managing administrative details;
- Making decisions on plan process and content;
- Identifying mitigation actions for the plan;
- Reviewing and providing comments on plan drafts; including annexes
- Informing the public, local officials, and other interested stakeholders about the planning process and providing opportunity for them to comment on the plan;
- Coordinating, and participating in the public input process; and
- Coordinating the formal adoption of the plan by the governing boards.

The County and all jurisdictions with annexes to this plan seeking FEMA approval met all of these participation requirements. In most cases one or more representatives for each jurisdiction attended the HMPC meetings described in Table 3-3 and also brought together a local planning team to help collect data, identify mitigation actions and implementation strategies, and review and provide data on plan drafts. Appendix A provides additional information and documentation of the planning process.

In order to promote the integration of CRS into this planning process, the representatives from the County were selected based on their areas of expertise relative to the CRS mitigation categories as detailed in Table 3-1. In addition, the Placer County Community Development Resource Agency Planning Services Division (Crystal Jacobsen, Principal Planner and Chris Schmidt, Planner), in association with planners from many of the cities and Foster Morrison Planners were involved in the development of this plan update through attendance at meetings, coordination, providing data, future land use planning support, and help with meeting facilitation. In addition to attending meetings, providing draft text for inclusion in the plan, reviewing plan documents, and coordinating input from other departments and stakeholders, Placer County planners also provided information on development since the last plan, mapping and details on future development areas, input on current mitigation capabilities, and in-progress modifications to the General Plan and associated documents specific to Placer County's floodplain management provisions for regulating to the 200-year level of flood protection.

Table 3-1 Placer County Staff Capability with Six Mitigation Categories

Placer County Departments/Staff	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Community Development Resource Agency/Planning Services Division– Crystal Jacobsen, Chris Schmidt	X	X	X			X	X

Placer County Departments/Staff	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Emergency Services/Fire– John McEldowney, Young Rodriguez, Luana Dowling	X	X	X	X	X	X	X
Public Works and Facilities, Planning and Building Services – Christina Hansen	X	X	X		X		X
Public Works and Facilities Department, Parks Division – Andy Fisher	X	X	X			X	X
Public Works and Facilities – Flood Management & Engineering – Bob Costa, Mary Keller	X	X	X		X	X	X
Community Development Resource Agency/GIS-Information Technology – Kelly Berger, Chris Brown	X					X	X
Community Development Resource Agency, Planning Services Division– Chris Brown	X	X	X			X	X

Specific individuals representing the Placer County (CRS community) departments participating in this LHMP Update were actively involved throughout the plan update process and are identified in Appendix A in the sign-in sheets for the meetings and as referenced in the resolution forming the steering committee also included in this planning process appendix. This Chapter 3 and Appendix A provides additional information and documentation of the planning process and participants to this plan update, including members of the steering and working committees, comprising the HMPC.

3.2 The 10-Step Planning Process

Foster Morrison established the planning process for updating the Placer County Local Hazard Mitigation Plan using the DMA planning requirements and FEMA's associated guidance. This guidance is structured around a four-phase process:

1. Organize Resources;
2. Assess Risks;
3. Develop the Mitigation Plan; and
4. Implement the Plan and Monitor Progress.

Into this process, Foster Morrison integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 10-step process used for this plan meets the requirements of six major programs: FEMA's Hazard Mitigation Grant Program; Pre-Disaster Mitigation program; Community Rating System; Flood Mitigation Assistance Program; Severe Repetitive Loss program; and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 3-1 shows how the modified 10-step process fits into FEMA's four-phase process. The sections that follow describe each planning step in more detail.

Table 3-2 Mitigation Planning Processes Used to Develop the Placer County Local Hazard Mitigation Plan

DMA Process	Modified CRS Process
1) Organize Resources	
201.6(c)(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments and Agencies
2) Assess Risks	
201.6(c)(2)(i)	4) Identify the Hazards
201.6(c)(2)(ii)	5) Assess the Risks
3) Develop the Mitigation Plan	
201.6(c)(3)(i)	6) Set Goals
201.6(c)(3)(ii)	7) Review Possible Activities
201.6(c)(3)(iii)	8) Draft an Action Plan
4) Implement the Plan and Monitor Progress	
201.6(c)(5)	9) Adopt the Plan
201.6(c)(4)	10) Implement, Evaluate, and Revise the Plan

This LHMP update involved a comprehensive review and update of each section of the 2010 plan and includes an assessment of the success of the participating communities in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plan, as previously described in more detail in Chapter 2 and throughout Chapter 4.

The process followed to update the plan is detailed in the above table and the sections that follow and is in conformance with the latest DMA planning guidance and the CRS 2013 Coordinator's Manual. As part of this plan update, all sections of the plan were reviewed and updated to reflect new data, processes, participating jurisdictions, and resulting mitigation strategies. Only the information and data still valid from the 2010 plan was carried forward as applicable into this LHMP update.

3.2.1. Phase 1: Organize Resources

Planning Step 1: Organize the Planning Effort

With Placer County's and participating jurisdictions' commitment to participate in the DMA planning process and the CRS program, Foster Morrison worked with the County's Office of Emergency Services (OES) to establish the framework and organization for development of the plan. An initial meeting was held with key community representatives to discuss the organizational and process aspects of this plan update process. At the beginning of this planning process, a resolution was passed by Placer County, the CRS community establishing the planning process and the Hazard Mitigation Planning Committee (HMPC). The resolution is included in Appendix A.

The initial kick-off meetings were held on April 28 and 29, 2015. To better facilitate the planning process, for each planned meeting, duplicate meetings were held in Auburn (for the eastern HMPC participants) and in the Tahoe area (for the western HMPC participants). Invitations to these kickoff meetings were extended to key county departments, the five incorporated communities, special districts located within the planning area, as well as to other federal, state, and local stakeholders, including representatives from the public, that might have an interest in participating in the planning process. Representatives from participating jurisdictions and HMPC members to the 2010 plan were used as a starting point for the invite list, with additional invitations extended as appropriate throughout the planning process. The list of initial invitees is included in Appendix A.

The HMPC was established as a result of these organizational meetings, as well as through interest generated through the initial public meetings and outreach conducted for this project as detailed later in this section. The HMPC, comprising key county, city, special district, and other government and stakeholder representatives and the public, developed the plan with leadership from the County OES and facilitation by Foster Morrison. Each participating jurisdiction seeking FEMA approval of the plan had representation on the HMPC. Participating jurisdictions also indicated their commitment to participate as evidenced by executing a letter of commitment of participation at the beginning of the planning process. Letters of commitment for participating jurisdictions are included in Appendix A. The HMPC was comprised of members of the steering committee established for this process (as discussed further in this section) as well as other representatives from key county, city, and other government agencies, key stakeholders, and the public, with an interest in hazard mitigation. The following participated on the HMPC:

Placer County

- Administrative Services
- Agricultural Commissioner
- Assessor
- Communications and Public Affairs
- Community Development Resource Agency, GIS/Information Technology
- Community Development Resource Agency, Planning Services Division
- Community Development Resource Agency, Building Services Division
- Emergency Services
- Health and Human Services
- Public Works and Facilities, Capital Improvements Division
- Fire Services
- Police
- Public Works and Facilities, Planning and Building Services
- Public Works and Facilities, Parks
- Public Works and Facilities, Environmental Engineering
- Public Works and Facilities, Roads
- Public Works and Facilities, Flood Control, Drainage, and Stormwater Quality

Participating Cities

- City of Auburn
- City of Colfax
- City of Lincoln
- City of Rocklin

- Town of Loomis

Other Government and Stakeholder Representatives:

- Alta Fire Protection District*
- Alpine Springs County Water District*
- Foresthill/Iowa Hill Fire Protection District*
- Loomis Fire Protection District*
- Nevada Irrigation District*
- Northstar Community Services District*
- North Tahoe Fire Protection District*
- North Tahoe Public Utilities District*
- Placer County Flood Control District*
- Placer County Water Agency (PCWA)*
- Placer Hills Fire Protection District*
- South Placer Fire Protection District*
- Squaw Valley Public Services District*
- Tahoe City Public Utility District*
- Tahoe-Truckee Unified School District*
- Truckee Fire Protection District*

*Indicates participating jurisdiction seeking FEMA approval of this plan

Citizens

- George Alves
- Tom Jones
- Rick Bluhm
- Carolyn Macola
- Michael Garabedian
- Dave Noel
- Harvey Oslick, Wood Rodgers
- Suzanne Wilkins, CDM Smith
- Brian Judge, Lahanton Waterboard
- Peter Kraatz
- Dick Morton, North Tahoe Fire CERT
- Nilita Morton, North Tahoe Fire CERT

A list of participating HMPC representatives for each jurisdiction is included in Appendix A. This list details all HMPC members that attended one or more HMPC meetings detailed in Table 3-4. Each jurisdiction also utilized the support of many other support staff in order to collect and provide requested data and to conduct timely reviews of the draft documents as further detailed in each annex to this plan. Note that the above list of HMPC members also includes several other government and stakeholder representatives that were invited to participate and contributed to the planning process.

Steering Committee

The HMPC includes both a Steering Committee and Working Group. The Steering Committee is the policy body which has primary input and decides what is included in the plan document. The Working Group provides data and information to the Steering Committee for consideration. The Steering Committee is

comprised of key representatives from the County and the incorporated communities, and other agency and public representatives. The non-local government members of the Steering Committee (citizens and other outside stakeholders) represent more than 50% representation of the committee. See Table 3-3 and Appendix A for details on the makeup of the Steering Committee.

Table 3-3 Placer County LHMP Steering Committee

Community/Representative	Department/Organization	Citizen	Stakeholder
Placer County			
Young Rodriguez/John McEldowney	Emergency Services		
Chris Schmidt	Community Development/ Planning Services		
Bob Costas/Mary Keller	Public Works and Facilities/ Flood Control		
George Alves			
Tom Jones		X	
Rick Bluhm		X	
Carolyn Macola		X	
Michael Garabedian		X	
Dave Noel		X	
Harvey Oslivick	Wood Rodgers	X	
Suzanne Wilkins	CDM Smith	X	
Brian Judge	Lahanton Waterboard		X
Peter Kraatz		X	
Dick Morton	North Tahoe Fire CERT	X	X
Nilita Morton	North Tahoe Fire CERT		X
City of Auburn			
John Ruffcorn	Public Safety Director		
City of Colfax			
Wes Heathcock	Community Services Director		
City of Loomis			
Britton Snipes	Director of Public Works		
Town of Lincoln			
Mike Davis	Fire Department		
City of Rocklin			
David Mohlenbrok	Environmental Services Manager		

Table 3-1 demonstrates the Placer County Steering Committee members' expertise in the six mitigation categories (Prevention, Property Protection, Emergency Services, Natural Resource Protection, Structural Flood Control Projects, and Public Information) The Placer County staff responsible for community land

use and comprehensive planning for the County, as the CRS community, were active participants on the HMPC and Steering Committee and provided data and information to support development of the plan. Specifically, this includes the Planning Services Division of the Community Development Resource Agency from Placer County as previously described. The support of staff from all participating jurisdictions were called upon to collect and provide requested data and to conduct timely reviews of the draft documents. Note that the above list of HMPC and steering committee members also includes citizens and several other government and stakeholder representatives that contributed to the planning process. Specific participants from these other agencies are identified above and, with supporting documentation included in Appendix A.

Meetings

The planning process officially began with a kick-off meeting held in both Auburn and Tahoe City, on April 28 & 29, 2015, at 2:00 pm, followed by public kick-off meeting held the same day as each of the two meetings at 6:00 pm at the Placer County Fire Station in Auburn and the North Tahoe Fire Protection District Station 51 in Tahoe City. The meetings covered the scope of work and an introduction to the DMA, CRS, and FMA requirements. During the HMPC Kick-off meetings, participants were provided with data collection worksheets to facilitate the collection of information necessary to support development of the plan. Using FEMA guidance, these worksheets were designed to capture information on past hazard events, identify hazards of concern to each of the participating jurisdictions, quantify values at risk to identified hazards, inventory existing capabilities, record possible mitigation actions, and to capture information on the status of mitigation action items from the 2010 plan. A copy of the worksheets for this project are included in Appendix A. The County and each jurisdiction seeking FEMA approval of this plan update completed and returned the worksheets to Foster Morrison for incorporation into the plan document.

During the planning process, the HMPC communicated through face-to-face meetings, email, telephone conversations, file transfer protocol (ftp) and Dropbox websites, and through a County developed webpage dedicated to the plan development process. This later website was developed to provide information to the HMPC, the public and all other stakeholders on the LHMP process. Draft documents were also posted on these websites so that the HMPC members and the public could easily access and review them. The LHMP website can be accessed at:

- Placer County – http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan

The HMPC met formally five times during the planning period (April 2015 – January 2016) which adequately covers the four phases of DMA and the 10-Step CRS planning process. The formal meetings held and topics discussed are described in Table 3-4. Agendas and sign-in sheets for each of the meetings are included in Appendix A.

Table 3-4 HMPC Meetings

Meeting Type	Meeting Topic	Meeting Date(s)	Meeting Location(s)
HMPC #1 Kick-off Meeting	1) Introduction to DMA and the planning process 2) Overview of current LHMP; 3) Organize Resources (CRS Steps 1,2,&3): the role of the HMPC, planning for public involvement, coordinating with other agencies/stakeholders 4) Introduction to Hazard Identification	4/28 & 29, 2015	Placer County Planning Commission Hearing Room, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City
HMPC #2	1) Risk assessment overview and work session -CRS Step 4: Assess the Hazard -CRS Step 5: Assess the Problem	8/5 & 6, 2015	Auburn Justice Center, Community Meeting Room, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City
HMPC #3	1) Review of risk assessment summary 2) Review and update of mitigation goals -CRS Step 6: Set Goals -CRS Step 7: Review possible activities	9/22 & 24, 2015	Auburn Justice Center, Community Meeting Room, Auburn & Kings Beach Event Center, Kings Beach
HMPC #4	1) Review of mitigation alternatives 2) Review and update of mitigation actions from the 2010 plan 3) Identify updated list of mitigation actions by hazard 4) Review of mitigation selection criteria 5) Update and prioritize mitigation actions 6) Mitigation Action Strategy Implementation and Draft Action Development -CRS Step 7: Review possible activities -CRS Step 8: Draft an Action Plan	9/23 & 25, 2015	Auburn Justice Center, Community Meeting Room, Auburn & Kings Beach Event Center, Kings Beach
HMPC #5	1) Review of final HMPC, jurisdictional and public comments and input to plan 2) Review and documentation of changed conditions, vulnerabilities and mitigation priorities 3) CRS Step 8: Draft an Action Plan 4) CRS Step 9 & 10: Plan maintenance and Implementation Procedures	1/19 & 20, 2016	Auburn Justice Center, Community Meeting Room, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City

Planning Step 2: Involve the Public

Up-front coordination discussions with the Office of Emergency Services, planning staff, and Floodplain managers for Placer County established the initial plan for public involvement. Public involvement activities for this plan update included press releases, outreach on weekly County e-newsletter and social media, stakeholder and public meetings, development of an LHMP webpage and associated website postings, and the collection of public and stakeholder comments on the draft plan through a variety of mechanisms as further described below, as well as specific targeted outreach to different groups of people and other agencies throughout the county and incorporated municipalities. Information provided to the public included an overview of the mitigation status and successes resulting from implementation of the 2010 plan as well as information on the processes, new risk assessment data, and proposed mitigation strategies for this plan update. As part of the plan development process, a Public Involvement Plan was

also developed to ensure a meaningful public process and to focus efforts on maximizing CRS credits for public outreach.

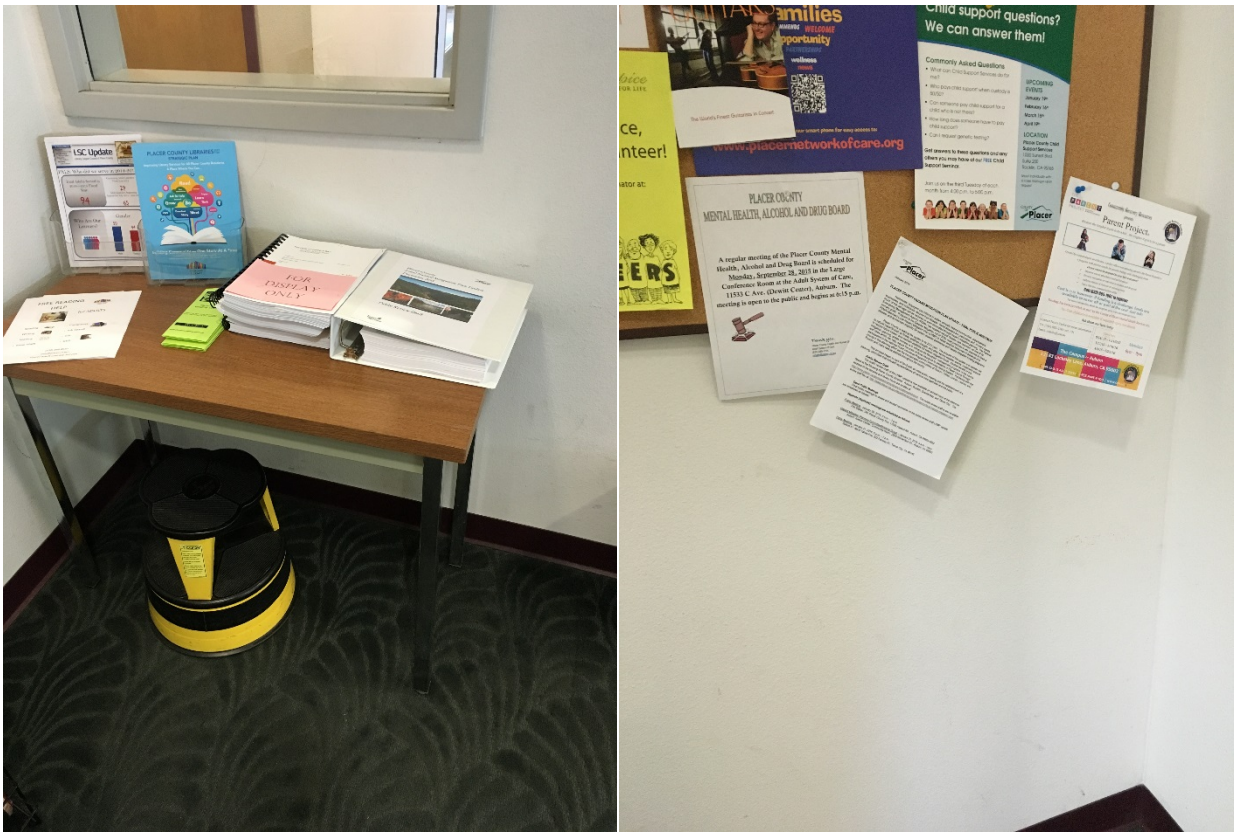
Early Public Meetings

Public outreach for this plan update began at the beginning of the plan development process with an advertisement placed in the local newspaper and other local outreach methods to inform the public of the purpose of the DMA and the hazard mitigation planning process for the Placer County Planning Area and an advertisement placed to invite the public to early public meetings held in duplicate on the western and eastern sides of the County to kick-off the project on April 28 & 29, 2015 at the Placer County Fire Department in Auburn and the North Tahoe Fire Protection District Station 51 in Tahoe City. These meeting locations were selected for easy access for all county residents. At the planning team kick-off meetings, the HMPC discussed additional strategies for public involvement and agreed to an approach using established public information mechanisms and resources within the community, including the Placer County Public Information Office.

Final Public Meetings

The first draft of the plan was provided to the HMPC in November of 2015, with a public review draft provided in December of 2015. Two public meetings were held on January 21 & 22, 2016 to present the draft LHMP and to collect public comments on the plan prior to finalization and submittal to Cal OES/FEMA. Public meetings were advertised in a variety of ways to maximize outreach efforts to both targeted groups and to the public at large and included advertisements in the local paper inviting the public to attend the formal public meetings. The advertisements in the local newspapers included information on the date, location and time of the meeting, and where the draft plan could be accessed in the community. Two articles were also included in the local Tahoe newspaper, both prior to and reporting on the final public meetings. Similar to the early public meetings, the two public meetings on the draft plan were held on the eastern and western sides of the County to facilitate participation by all County residents. In addition to a copy of the draft plan being placed on the County website in advance of these meetings, hard copies of the draft of the plan were made available to interested parties at four Placer County Public Libraries: Auburn, Granite Bay, Rocklin, and Tahoe City

Figure 3-1 Public Outreach Table at Placer County Library – Granite Bay



Source: Placer County

Documentation to support the final public meeting can be found in Appendix A. In addition to advertisement for public participation, notices of meetings were sent directly to all persons on the HMPC contact list and also to other agency and key stakeholders with an interest in the Placer County Planning Area. The majority of these people reside in Placer County or in surrounding communities. Because this is a multi-jurisdictional planning effort, all public outreach activities for this plan update were conducted in cooperation with and on behalf of Placer County, the incorporated communities, and all participating jurisdictions. The formal public meetings for this project are summarized in Table 3-5.

Table 3-5 Schedule of Public and Stakeholder Meetings

Meeting Topic	Meeting Date	Meeting Locations
1) Intro to DMA and mitigation planning 2) LHMP plan overview and public comments	4/28 & 29, 2015	Placer County Fire Station, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City
Presentation of Draft LHMP and solicitation of public and stakeholder comments	1/21 & 22, 2016	Placer County Fire Station, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City

Where appropriate, stakeholder and public comments and recommendations were incorporated into the final plan, including the sections that address mitigation goals and strategies. Written public comments were provided by only two members of the public, with several agency stakeholders providing input and comments on the draft plan and other related data throughout the plan development process. All press releases, newspaper advertisements and articles, website postings, and public outreach efforts are on file with the Placer County OES and are included in Appendix A.

Other Public Outreach Efforts

Beyond these more formal public involvement activities, the update process also included the following public outreach activities included in Table 3-6 which are further documented and described in Appendix A. The public outreach activities described here were conducted with participation from and on behalf of all jurisdictions participating in this plan, including the CRS community of Placer County.

Table 3-6 Other Public Outreach Efforts

Effort	Description
Manned Fire Safe Alliance Booth at Auburn Home Show on 5/1/2015	Provided materials of the LHMP Update process table along with other tables with fire mitigation pamphlets and flyers inside a CALFIRE building at the PC Gold Country Fairground. Discussed roles of the community in hazard mitigation planning and the communication of disaster information. Sought input on plan development and how to get involved in the plan update process.
Article in Newspaper	An article was published to make citizens in the County aware of the hazard mitigation update process and invite participation and attendance at upcoming HMPC and Public Meetings
Placer County Weekly e-newsletter	Information on the Plan update process and upcoming HMPC and public meeting locations were included in the Placer County e-newsletter informing interested parties on how to be involved in the LHMP Update Process
LHMP Public Outreach Flyer included with Flood Hazard Letter to property owners with properties in the floodplain	The County mailed out (by 11/23/15) approximately 300-310 repetitive loss (RL) letters to property owners with RL properties, with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC
LHMP Public Outreach Flyer included with Flood Hazard Letter to Real Estate Agents	The County mailed 255 (combined) flood zone determination service and flood insurance information letters to real estate agents with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC.
LHMP Public Outreach Flyer included with Flood Hazard Letter to Insurance Companies	The County mailed 255 (combined) flood zone determination service and flood insurance information letters to insurance companies with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC.

Effort	Description
Storm Drain Marking Event in Tahoe City on October 10, 2015	The Placer County Stormwater Quality Division working in partnership with the League to Save Lake Tahoe to put on a storm drain marker event in which volunteers swept the storm drains free of debris, picked up trash, installed English and Spanish anti-pollution message markers into storm drain grates and receive a short presentation on the impact of stormwater runoff on Lake Tahoe water clarity. Information on the LHMP Update process (LHMP Public Outreach Flyer with Survey Link) and how the public could get involved was distributed as part of this event.
Truckee River Day & River Fair in the Town of Truckee on October 18, 2015	This event, through the Truckee River Water Shed Council and the Sierra Watershed Education Partnership, included restoration projects. The Placer County Stormwater Quality Division hosted a table with informational materials at the Education Fair from 1 pm to 4 pm at the Granite Flat Campground on Highway 89. Information on the LHMP Update process (LHMP Public Outreach Flyer with Survey Link) and how the public could get involved was distributed as part of this event.
Rocklin Fall Festival on October 24, 2015	The Placer County Stormwater Quality Division hosted a table with informational materials in partnership with the City of Rocklin. This was a free family event geared towards school-age children and their families. It included a stormwater demonstration model, prize wheel, and prizes provided by the County and City. The event at Johnson Springview Park in Rocklin included information on the LHMP Update process (LHMP Public Outreach Flyer) and how the public could get involved.
Survey	A public survey was posted on the County's website inviting the public to comment on how prepared both the County and individuals are for a possible natural disaster, including flood events
Public Outreach at Placer County Public Library, Auburn location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input.
Public Outreach at Placer County Public Library, Granite Bay location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Public Outreach at Placer County Public Library, Rocklin location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Public Outreach at Placer County Public Library, Tahoe City location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Placer County LHMP Update Website	Information on the Plan update process and location of documents, and final HMPC and public meeting locations were posted on the County website. Links to the County website were placed on websites from the other incorporated communities.
Placer County Weekly e-newsletter	Information on the Plan update process and location of documents, and final HMPC and public meeting locations were included in the Placer County e-newsletter informing interested parties on how to provide input to the draft plan prior to submittal to Cal OES/FEMA
Paid Ad and Article in Newspaper: Sierra Sun	A paid ad was taken out and an article published before the final public meetings, to make citizens in the County aware of the hazard mitigation update process and invite comment on the draft plan/attendance at public meetings prior to submittal to Cal OES/FEMA

Effort	Description
Article in Newspaper: Sierra Sun	Sierra Sun Staff attended the final public meeting in Tahoe. A follow-up article was published reporting on the final public meetings, to make citizens in the County aware of the hazard mitigation update process and invite comment on the draft plan prior to submittal to Cal OES/FEMA

The draft plan is currently available online on the Placer County website at http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan. The public outreach activities described here were conducted with participation from and on behalf of all jurisdictions participating in this plan, including the CRS community of Placer County, incorporated communities, and other participating jurisdictions.

Public Outreach Survey

An integral element in hazard mitigation planning is broad public participation. Information provided by residents fosters a better understanding of local hazard concerns and can spawn innovative ideas to reduce impacts of future hazard events. A public opinion survey was accomplished to gather information from Placer area residents concerning local hazards. The survey was located on the County's LHMP website throughout most of the planning process and survey participation was promoted through public meetings, program websites, press releases, social media, and other public outreach events as previously described. Following is a summary of survey results. The survey and survey results are included in Appendix G.

Public Information Program Strategy

Placer County has in place a public program information strategy designed to maximize credits under CRS Activity 330. (This annual floodplain management update is being sent to those who may own property located within a floodplain.) Placer County's Floodplain Management Program is administered through the Department of Public Works and Facilities. The County makes efforts to make available information that pertains to floodplain management to educate and assist Placer County citizens about developing and living in a floodplain. Numerous FEMA publications and reference materials are made available at the Placer County Library. County residents may contact Placer County –Floodplain Management Staff at 530-745-7503 or visit the County's website at: http://www.placer.ca.gov/Departments/Works/FloodplainMgt.aspx.

Planning Step 3: Coordinate with Other Departments and Agencies

Early in the planning process, the HMPC determined that data collection, mitigation strategy development, and plan approval would be greatly enhanced by inviting other local, state and federal agencies and organizations to participate in the process. Based on their involvement in hazard mitigation planning, their landowner status in the County, and/or their interest as a neighboring jurisdiction, representatives from the following agencies were invited to participate on the HMPC:

- Cal OES
- Cal Fire
- California Department of Water Resources

- Community Services Districts
- Incorporated communities in Placer County
- Fire Protect Districts
- Fire Safe Alliance
- Flood Control District
- Irrigation Districts
- National Weather Service
- Neighboring Communities
- NFIP/CRS Program Coordinators
- Public Utility Districts
- Red Cross
- Resource Conservation District
- Placer County and all Agencies
- United States Corps of Engineers
- United States Forest Service
- Water Agencies
- Water Districts

Coordination with key agencies, organizations, and advisory groups throughout the planning process allowed the HMPC to review common problems, development policies, and mitigation strategies as well as identifying any conflicts or inconsistencies with regional mitigation policies, plans, programs and regulations. Coordination involved contacting these agencies through a variety of mechanisms and informing them on how to participate in the plan update process and if they had any expertise or assistance they could lend to the planning process or specific mitigation strategies. Coordination with these groups included, holding face-to-face meetings, sending outreach letters or e-mails, some with follow up phone calls; and making phone calls alone to out of area agencies. All of these groups and agencies were solicited asking for their assistance and input, telling them how to become involved in the plan update process, and inviting them to HMPC meetings. This coordination with other agencies is documented in Appendix A and includes a summary table of who was contacted, the method of contact, that the purpose. Supporting documentation such as meeting telephone conversation logs are also included.

In addition, as part of the overall stakeholder and agency coordination effort, the HMPC coordinated with and utilized input to the LHMP update from the following agencies:

- American Red Cross
- Auburn Resource Conservation District
- CAL OES
- CAL FIRE
- California Department of Finance
- California Department of Water Resources
- California Geological Survey
- California Highway Patrol
- California Office of Environmental Health Hazard Assessment
- California Register of Historic Places
- Central Valley Water Board
- City of Roseville
- Contractor's Association of Truckee Tahoe
- Dry Creek Conservancy and American Basin Council of Watersheds
- FEMA Region IX

- Foresthill/Iowa Hill Fire Safe Council
- Greater Lincoln Fire Safe Council
- Invasive Species Council of California
- Kinder Morgan
- Lahontan Water Board
- Library of Congress
- Local Government Affairs Committee
- National Oceanic and Atmospheric Association
- National Performance of Dams Program
- National Register of Historic Places
- National Resource Conservation Service
- National Response Center
- National Weather Service, WFO Sacramento
- North State Building Industry Association
- Pacific Gas & Electric
- Placer County Architects, Geologists, Engineers and Surveyors
- Placer County Fire
- Placer County Fire Safe Council
- Placer County Fire Safe Alliance
- Placer County Fire Chief's Association
- Placer County Office of Education
- Sierra Nevada Conservancy District
- Tahoe Resource Conservation District
- Town of Truckee PC/Truckee Stormwater Citizens Advisory Committee
- Union Pacific Railroad
- United States Army Corps of Engineers
- United States Bureau of Land Management
- United States Bureau of Reclamation
- United States Department of Agriculture
- United States Farm Service Agency
- United States Forest Service
- United States Geological Survey
- Valley Vision
- Western Regional Climate Center

Several opportunities were provided for the groups listed above to participate in the planning process. At the beginning of the planning process, invitations were extended to many of these groups to actively participate on the HMPC. Specific participants from these groups are detailed in Appendix A. Others assisted in the process by providing data directly as requested in the Data Worksheets or through data contained on their websites or as maintained by their offices. Further as part of the public outreach process, all groups were invited to attend the public meetings and to review and comment on the plan prior to submittal to CAL OES and FEMA. In addition, as part of the review of the draft plan, key agency stakeholders were contacted and their comments specifically solicited as described further in this Section and included in Appendix A.

Other Community Planning Efforts and Hazard Mitigation Activities

Coordination with other community planning efforts is also paramount to the success of this plan. Hazard mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's

risk and vulnerability to hazards. Placer County uses a variety of comprehensive planning mechanisms, such as general plans and ordinances, to guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

- Auburn/Bowman Community Plan Hydrology Study
- City of Auburn General Plan
- City of Colfax General Plan
- City of Colfax Housing Element
- City of Lincoln General Plan
- City of Rocklin General Plan
- Town of Loomis General Plan
- Crude Oil/Hazmat By Rail Operational Response Guide
- Lake Tahoe Watershed Assessment
- Olympic Valley Groundwater Management Plan
- Placer County General Plan
- Placer County General Plan Technical Background Report
- Placer County Emergency Operations Plan
- Placer County Flood Insurance Study
- Placer County Flood Control & Water Conservation District Stormwater Management Manual
- Placer County Housing Element
- California State Hazard Mitigation Plan
- California State Drought Contingency Plan
- State of California Department of Conservation Farmland Mapping and Monitoring Program
- USDA Census of Agriculture
- Placer County Agricultural Commissioner Reports
- California Department of Food and Agriculture Invasive Species Report
- Community Wildfire Protection Plans
- Water and Sewer Service Agreement for the Resort at Squaw Creek: Phase II Draft Supplemental Environmental Impact Report

These and other documents were reviewed and considered, as appropriate, during the collection of data to support Planning Steps 4 and 5, which include the hazard identification, vulnerability assessment, and capability assessment. Data from these plans and ordinances were incorporated into the risk assessment and hazard vulnerability sections of the plan. Where the data from the existing studies and reports is used in this plan update, the source document is referenced throughout this plan update. The data was also used in determining the capability of the community in being able to implement certain mitigation strategies. Appendix B References provides a detailed list of references used in the preparation of this plan update.

3.2.2. Phase 2: Assess Risks

Planning Steps 4 and 5: Identify the Hazards and Assess the Risks

Foster Morrison led the HMPC in a research effort to identify, document, and profile all the hazards that have, or could have, an impact the planning area. Starting with the 2010 plan, natural hazards of concern were added, deleted, and modified for this LHMP Update. Data collection worksheets and jurisdictional

annexes were developed and used in this effort to aid in determining hazards and vulnerabilities and where the risk varies across the planning area. Geographic information systems (GIS) were used to display, analyze, and quantify hazards and vulnerabilities.

The HMPC also conducted a capability assessment to review and document the planning area's current capabilities to mitigate risk from and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the HMPC could assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified. A more detailed description of the risk assessment process, methodologies, and results are included in Chapter 4 Risk Assessment.

3.2.3. Phase 3: Develop the Mitigation Plan

Planning Steps 6 and 7: Set Goals and Review Possible Activities

Foster Morrison facilitated brainstorming and discussion sessions with the HMPC that described the purpose and process of developing planning goals and objectives, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Chapter 5 Mitigation Strategy. Additional documentation on the process the HMPC used to develop the goals and strategy is in Appendix C.

Planning Step 8: Draft an Action Plan

Based on input from the HMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7, a complete first draft of the plan was developed. This complete draft was provided for HMPC review and comment via a Dropbox web link. Other agencies were invited to comment on this draft as well. HMPC and agency comments were integrated into the second public review draft, which was advertised and distributed to collect public input and comments. The HMPC integrated comments and issues from the public, as appropriate, along with additional internal review comments and produced a final draft for the CAL OES and FEMA Region IX to review and approve, contingent upon final adoption by the governing boards of each participating jurisdiction.

3.2.4. Phase 4: Implement the Plan and Monitor Progress

Planning Step 9: Adopt the Plan

In order to secure buy-in and officially implement the plan, the plan was adopted by the governing boards of each participating jurisdiction using the sample resolution contained in Appendix D.

Planning Step 10: Implement, Evaluate, and Revise the Plan

The true worth of any mitigation plan is in the effectiveness of its implementation. Up to this point in the planning process, all of the HMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Each recommended action includes key descriptors, such as a lead manager and possible funding sources, to help initiate implementation. An overall implementation strategy is described in Chapter 7 Plan Implementation and Maintenance.

Finally, there are numerous organizations within the Placer County Planning Area whose goals and interests interface with hazard mitigation. Coordination with these other planning efforts, as addressed in Planning Step 3, is paramount to the implementation and ongoing success of this plan and mitigation in Placer County and is addressed further in Chapter 7.

Implementation and Maintenance Process: 2010

The 2010 Placer County, California Local Hazard Mitigation Plan Update included a process for plan maintenance and implementation of the mitigation strategy as well as formal updates to the plan document. The 2010 process called for annual reviews with the status of mitigation strategy implementation documented in an annual report. In addition the 2010 process called for a formal plan update as required by DMA regulations every 5 years. In accordance with the process outlined in the 2010 plan, annual reviews were conducted and documented by the Placer County Department of Public Works and Facilities, Flood Control Section, and this LHMP update, once complete, will meet the DMA formal update requirements.

Specifically, Placer County's existing plan was completed and adopted by the County in 2010. It was anticipated that in compliance with the five-year update requirement, the next complete update of the plan would be in 2015/2016. This current plan update process was initiated in spring 2015, and finished in February 2016 with the submittal of this LHMP update to Cal OES and FEMA Region IX.

As stated, documented reviews of the 2010 plan took place on an annual basis by the County and participating jurisdictions, and the 2010 LHMP was integrated into many other planning mechanisms in the County. The entire LHMP was adopted and incorporated by reference into the Placer County General Plan Safety Element as part of their General Plan Update Process. For those jurisdictions who have not yet updated their Safety Element, this LHMP Update will be adopted into the respective Safety Element updates. The risk assessment portion of the 2010 LHMP was relied on and further integrated into other planning mechanisms. Table 3-7 lists the planning mechanism the 2010 LHMP was integrated into by Placer County. Each of the jurisdictional annexes have similar tables that show how the 2010 was specifically integrated into their local community planning mechanisms.

Table 3-7 Incorporation of Placer County LHMP into Other Planning Mechanisms

Planning Mechanism 2010 LHMP Was Incorporated/Implemented Through	Details
2011 General Plan – Safety Element and other sections	2010 LHMP fully incorporated by reference into Safety Element of the most recent General Plan Update
2010 Emergency Operations Plan	LHMP risk assessment data incorporated into the Base EOP; other LHMP data use in developing EOP Annexes
Updates of Placer County Community Wildfire Protection Plans	LHMP risk assessment data and mitigation projects, specific to wildfires are used and considered in the CWPP updates: likewise, this LHMP update will be implemented through CWPP updates

Planning Mechanism 2010 LHMP Was Incorporated/Implemented Through	Details
Capital Improvement Plans and Budgets	Mitigation projects are considered and included in annual CIPs as feasible
Placer County Evacuation Planning	LHMP mapping and risk assessment data are considered in updates to area evacuation plans

The plan implementation and maintenance process as set forth in the 2010 plan has been updated for this LHMP update. The revised update implementation and maintenance process for the Placer County 2016 LHMP update is set forth in Section 7 of this plan document. A strategy for continued public involvement for this update process is also included in Chapter 7.

Chapter 4 Risk Assessment

Requirement §201.6(c)(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

As defined by the Federal Emergency Management Agency (FEMA), risk is a combination of hazard, vulnerability, and exposure. "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage."

The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The process allows for a better understanding of a jurisdiction's potential risk to natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

This risk assessment followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses (FEMA 386-2, 2002), which breaks the assessment down to a four-step process:

1. Identify Hazards;
2. Profile Hazard Events;
3. Inventory Assets; and
4. Estimate Losses.

Data collected through this process has been incorporated into the following sections of this chapter:

- **Section 4.1: Hazard Identification: Natural Hazards** identifies the natural hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Section 4.2: Hazard Profiles** discusses the threat to the planning area and describes previous occurrences of hazard events and the likelihood of future occurrences.
- **Section 4.3: Vulnerability Assessment** assesses the planning areas' exposure to natural hazards; considering assets at risk, critical facilities, future development trends, and, where possible, estimates potential hazard losses.
- **Section 4.4: Capability Assessment** inventories existing mitigation activities and policies, regulations, plans, and projects that pertain to mitigation and can affect net vulnerability.

This risk assessment covers the entire geographical extent of Placer County, including the incorporated communities and other participating jurisdictions. Since this plan is a multi-jurisdictional plan, the Hazard Mitigation Planning Committee (HMPC) is required to evaluate how the hazards and risks vary from jurisdiction to jurisdiction. While these differences are noted in this chapter, they are expanded upon in the annexes of the participating jurisdictions. If no additional data is provided in an annex, it should be assumed that the risk and potential impacts to the affected jurisdiction are similar to those described here for the entire Placer County Planning Area.

This LHMP update involved a comprehensive review and update of each section of the risk assessment. As part of the risk assessment update, new data was used, where available, and new analyses were conducted. Where data from existing studies and reports was used, the source is referenced throughout this risk assessment. Refinements, changes, and new methodologies used in the development of this risk assessment update are summarized in Chapter 2 What's New and also detailed in this Risk Assessment portion of the plan.

4.1 Hazard Identification: Natural Hazards

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.

The Placer County HMPC conducted a hazard identification study to determine the hazards that threaten the Planning Area. This section details the methodology and results of this effort.

4.1.1. Results and Methodology

Using existing natural hazards data and input gained through planning meetings, the HMPC agreed upon a list of natural hazards that could affect Placer County. Hazards data from the California Office of Emergency Services (Cal OES), FEMA, California Department of Water Resources, the National Oceanic and Atmospheric Administration (NOAA), and many other sources were examined to assess the significance of these hazards to the Planning Area. Significance was measured in general terms and focused on key criteria such as frequency and resulting damage, which includes deaths and injuries, as well as property and economic damage. The natural hazards evaluated as part of this plan include those that have occurred historically or have the potential to cause significant human and/or monetary losses in the future. Only the more significant (or priority) hazards have a more detailed hazard profile and are analyzed further in Section 4.3 Vulnerability Assessment.

The following hazards in Table 4-1, listed alphabetically were identified and investigated for this plan update. As a starting point, the updated California State Hazard Mitigation Plan was consulted to evaluate the applicability of new hazards of concern to the State to the Placer County Planning Area (Planning Area). Building upon this effort, hazards from the past plan were also identified, and comments explain how hazards were updated from the previous plan. Most hazards from the 2010 plan were profiled in this plan, with the exception of epidemic/pandemic, West Nile Virus, expansive soils, and volcano, which have been eliminated from further consideration in this natural hazards plan, as they were determined to be of very low significance to the County. New hazards include levee failure, subsidence, and hazardous materials transport.

Table 4-1 County Hazard Identification and Comparison

2016 Hazards	2010 Hazards	Comment
Agricultural Hazards	Agricultural	The Ag hazards from the 2010 plan were consolidated into one Ag hazard. Similar analysis was performed.
Avalanche	Avalanche	Similar analysis was performed.

2016 Hazards	2010 Hazards	Comment
Dam Failure	Dam Failure	Updated dam data from Cal OES and Cal DWR was added.
Drought and Water Shortage	Drought	Water shortage was added to this hazard and a greater emphasis placed on the hazard as a whole
Earthquake	Earthquake	Similar analysis was performed.
Flood: 100/500 year	Flood	The new DFIRM layer was intersected with the newest parcel and assessor's data.
Flood: Localized Stormwater Flooding	Flood	Localized flooding was broken out separately from the 100-/500-year flood.
Landslides and Debris Flows	Landslide	Similar analysis was performed.
Levee Failure	–	New hazard.
Seiche (Lake Tsunami)	Seiche (Lake Tsunami)	Similar analysis was performed.
Severe Weather: Extreme Heat	Extreme Temperatures	Extreme heat was broken out to be a separate hazard.
Severe Weather: Freeze and Snow	Snow	Extreme cold was broken out to be a separate hazard and renamed freeze. The snow profile was also combined with this hazard.
Severe Weather: Fog and Freezing Fog	Fog	Freezing fog was added.
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Heavy Rain/Thunderstorm/Hail/ Lightning/Wind/Tornado	Similar analysis was performed. Tornado was removed as a separate hazard and added to the heavy rains and storms hazard.
Soil Bank Erosion	Erosion	Similar analysis was performed.
Subsidence	–	New hazard.
Wildfire	Wildfire	Further analysis was performed using the most recent CAL FIRE data.
Hazardous Materials Transport	–	New hazard.
–	Human Health Hazards: Epidemic/Pandemic	This hazard was dropped from the plan as it is adequately addressed in other County planning mechanisms.
–	Human Health Hazards: West Nile Virus	This hazard was dropped from the plan as it is adequately addressed in other County planning mechanisms.
–	Soil Hazards: Expansive Soils	This hazard was dropped from the plan; not a significant concern
–	Volcano	This hazard was dropped from the plan; not a significant concern

Table 4-2 was completed by the County and HMPC to identify, profile, and rate the significance of identified hazards. Only the more significant (or priority) hazards have a more detailed hazard profile and are analyzed further in Section 4.3 Vulnerability Assessment. Table 4-25 in Section 4.2.19 Natural Hazards Summary provides an overview of these significant hazards.

Table 4-2 Placer County Hazard Mitigation Worksheet

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Significant	Highly Likely	Critical	High
Avalanche	Limited	Likely	Limited	Low
Dam Failure	Significant	Occasional	Critical	High
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Significant	Occasional	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Critical	High
Flood: Localized Stormwater Flooding	Limited	Occasional/Highly Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Low
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	High
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Critical	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Limited	Occasional	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Highly Likely	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

4.1.2. Disaster Declaration History

One method the HMPC used to identify hazards was the researching of past events that triggered federal and/or state emergency or disaster declarations in the Planning Area. Federal and/or state disaster declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

The federal government may issue a disaster declaration through FEMA, the U.S. Department of Agriculture (USDA), and/or the Small Business Administration (SBA). FEMA also issues emergency declarations, which are more limited in scope and without the long-term federal recovery programs of major disaster declarations. The quantity and types of damage are the determining factors.

A USDA declaration will result in the implementation of the Emergency Loan Program through the Farm Services Agency. This program enables eligible farmers and ranchers in the affected county as well as contiguous counties to apply for low interest loans. A USDA declaration will automatically follow a major disaster declaration for counties designated major disaster areas and those that are contiguous to declared counties, including those that are across state lines. As part of an agreement with the USDA, the SBA offers low interest loans for eligible businesses that suffer economic losses in declared and contiguous counties that have been declared by the USDA. These loans are referred to as Economic Injury Disaster Loans.

Based on the disaster declaration history provided in Table 4-3, Placer County is among the many counties in California susceptible to disaster. Details on federal and state disaster declarations were obtained by the HMPC, FEMA, and Cal OES and compiled in chronological order in Table 4-3. A review of state declared disasters indicates that Placer County received 26 state declarations between 1950 and 2014. Of the 26 state declarations: 18 were associated with severe winter storms, heavy rains, or flooding; 4 were for wildfires; 1 was for freeze and severe weather conditions; 1 was for drought; 1 was for an energy emergency; and 1 was for fires and explosions on the Southern Pacific Railroad.

A review of federal disasters shows 19 federal disaster declarations.

Table 4-3 Placer County State and Federal Disasters Declaration, 1950-2014

Hazard Type	Disaster #	Year	State Declaration	Federal Declaration	Location	Damage*
Floods	CDO 50-01	1950	11/21/50	N/A	Placer County (statewide)	9 deaths; $32,183,000
Floods	DR-47	1955	12/22/55	12/23/55	Placer County (statewide)	74 deaths; $200,000,000
Unseasonal and Heavy Rainfall	N/A	1957	5/20/57 (cherry-producing)	N/A	Placer County (other cherry-producing areas)	2 injuries; $6,000,000

Hazard Type	Disaster #	Year	State Declaration	Federal Declaration	Location	Damage*
Storm & Flood Damage	CDO 58-03	1958	2/26/58	N/A	Placer County (northern California)	N/A
Storm & Flood Damage	N/A	1958	4/02/58	4/4/58	Placer County (statewide)	13 deaths $24,000,000
Widespread Fires	N/A	1961	9/08/61	N/A	Placer County (and 8 other counties)	$5,696,813
Flood and Rainstorms	138	1962	10/25/62	10/24/62	Placer County (and 11 other counties)	$4,000,000+
Abnormally Heavy and Continuous Rainfall	N/A	1963	2/14/64	N/A	Placer County (and 50 other counties)	N/A
Flood and Rainstorms	145	1963	2/07/63	2/25/63	Placer County (and 20 other counties)	N/A
Late Winter Storms	OEP 183-DR-CA	1964/ 1965	12/28/64	12/29/64	Placer County (and 25 other counties)	$213,149,000
Major and Widespread Fires	N/A	1965	9/18/65	N/A	Placer County (and 4 other counties)	113,766 acres and 41 buildings destroyed
1969 Storms	OEP 253-DR-CA	1969	1/28/69	1/26/69	Placer County (and 39 other counties)	47 deaths; 161 injuries; $300,000,000
Freeze and Severe Weather Conditions	N/A	1972	4/17/72	N/A	Placer County (and 16 other counties)	$111,517,260
Storms and Floods	N/A	1973	2/08/73	N/A	Placer County (and 5 other counties)	$1,864,000
Southern Pacific Railroad Fires and Explosions	N/A	1973	4/30/73	N/A	Placer County (and 1 other county)	37 injuries; $2,925,000
Winter Storms	DR-682	1982/1983	3/15/83	2/9/83	Placer County (and 43 other counties)	$523,617,032
Storms	DR-758	1986	2/20/86	2/18/86	Placer County (and 38 other counties)	13 deaths; 67 injuries; $407,538,904

Hazard Type	Disaster #	Year	State Declaration	Federal Declaration	Location	Damage*
Wildland Fires	N/A	1987	9/03/87	N/A	Placer County (and 23 other counties)	3 deaths; 76 injuries; $18,000,000
Severe Winter Storms	DR-1044	1995	1/10/95	1/13/95	Placer County (and 44 other counties)	11 deaths; $741,400,000
Late Winter Storms	DR-1046	1995	N/A	1/10/95	Placer County (and all other counties except Del Norte)	17 deaths; $1,100,000,000
January 1997 Floods	DR-1155	1997	1/03/97	1/04/97	Placer County (and 47 other counties)	8 deaths; $1,800,000,000
Energy Emergency	GP-2001	2001	1/1/01	N/A	Placer County (and all 57 other counties)	N/A
Sierra Fire	FM-2463	2002		9/19/02	Placer County	$720,595
Stevens Fire	FM-2541	2004		8/8/04	Placer County	$3,469,004
Hurricane Katrina Evacuations: Economic	EM-3248	2005		9/13/05	Placer County (and all 57 other counties)	$763,576
Severe Rainstorms, Flooding, Landslides, and Mudslides	DR-1628	2005/ 2006	1/03/06	2/03/06	Placer County (and 33 other counties)	N/A
Severe Storms, Flooding, Landslides, and Mudslides	DR-1646	2006	4/10/06	6/05/06	Placer County (and 18 other counties)	N/A
Extreme Winds and Heavy Rains	N/A	2008	1/07/08	N/A	Placer County (and 12 other counties)	N/A
Wildfire	FM 2786	2008	–	9/1/2008	Placer County	$3,227,824
Wildfire	FM-2832	2009	–	8/31/2009	Placer County	N/A
Wildfire	GP 2010-12	2010	10/22/2010	–	Placer County	$478,119
Wildfire	FM-5081	2014	–	9/17/2004	Placer County	N/A
Wildfire	FM-5082	2014	–	10/8/2014	Placer County	N/A
California Drought	GP 2014-13	2014	1/17/2014	–	All California Counties	–

Source: Cal OES, FEMA

*Note: Damage amount and deaths and injuries reflect totals for all impacted counties

This disaster history (combined FEMA and state) suggests that Placer County experiences a major event worthy of a disaster declaration every 1.4 years. The County has a 64.6 percent chance of receiving a federal or state disaster declaration in any given year. With the exception of the declarations for wildfire, energy emergency, and the railroad fires, every other state declaration (20 total) resulted directly or indirectly from severe weather. Similarly, most disaster-related injuries to people and damage to property and crops resulted from severe weather conditions.

4.2 Hazard Profiles

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the…location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

The hazards identified in Section 4.1 Hazard Identification Natural Hazards, are profiled individually in this section. In general, information provided by planning team members is integrated into this section with information from other data sources. These profiles set the stage for Section 4.3 Vulnerability Assessment, where the vulnerability is quantified for each of the priority hazards.

Each hazard is profiled in the following format:

- **Hazard/Problem Description**—This section gives a description of the hazard and associated issues followed by details on the hazard specific to the Placer County Planning Area. Where known, this includes information on the hazard extent, area, seasonal patterns, speed of onset/duration, and magnitude and/or any secondary effects.
- **Past Occurrences**—This section contains information on historical incidents, including impacts where known. The extent or location of the hazard within or near the Placer County Planning Area is also included here. Historical incident worksheets were used to capture information from participating jurisdictions on past occurrences.
- **Frequency/Likelihood of Future Occurrence**—The frequency of past events is used in this section to gauge the likelihood of future occurrences. Where possible, frequency was calculated based on existing data. It was determined by dividing the number of events observed by the number of years on record and multiplying by 100. This gives the percent chance of the event happening in any given year (e.g., three droughts over a 30-year period equates to a 10 percent chance of a experiencing a drought in any given year). The likelihood of future occurrences is categorized into one of the following classifications:
  - ✓ **Highly Likely**—Near 100 percent chance of occurrence in next year or happens every year
  - ✓ **Likely**—Between 10 and 100 percent chance of occurrence in next year or has a recurrence interval of 10 years or less
  - ✓ **Occasional**—Between 1 and 10 percent chance of occurrence in the next year or has a recurrence interval of 11 to 100 years
  - ✓ **Unlikely**—Less than 1 percent chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.
- **Climate Change**—This section contains the effects of climate change (if applicable). The possible ramifications of climate change on the hazard are discussed.

Section 4.2.19 Natural Hazards Summary provides an initial assessment of the profiles and assigns a level of significance or priority to each hazard. Those hazards determined to be of high or medium significance were characterized as priority hazards that required further evaluation in Section 4.3 Vulnerability Assessment. Those hazards that occur infrequently or have little or no impact on the Planning Area were determined to be of low significance and not considered a priority hazard. Significance was determined based on the hazard profile, focusing on key criteria such as frequency and resulting damage, including deaths/injuries and property, crop, and economic damage. The ability of a community to reduce losses through implementation of existing and new mitigation measures was also considered as to the significance of a hazard. This assessment was used by the HMPC to prioritize those hazards of greatest significance to the Planning Area, enabling the County to focus resources where they are most needed.

The following sections provide profiles of the natural hazards that the HMPC identified in Section 4.1 Hazard Identification. The severe weather hazards are discussed first because it is the secondary hazards generated by severe weather (e.g., flood and wildfire) that can result in the most significant losses. The other hazards follow alphabetically.

4.2.1. Severe Weather: General

Severe weather is generally any destructive weather event, but usually occurs in the Placer County Planning Area as localized storms that bring heavy rain, hail, lightning, and strong winds.

The National Oceanic and Atmospheric Administration's National Climatic Data Center (NCDC) has been tracking severe weather since 1950. Their Storm Events Database contains data on the following: all weather events from 1993 to current (except from 6/1993-7/1993); and additional data from the Storm Prediction Center, which includes tornadoes (1950-1992), thunderstorm winds (1955-1992), and hail (1955-1992). This database contains 586 severe weather events that occurred in Placer County between January 1, 1950, and December 31, 2014. Table 4-4 summarizes these events.

*Table 4-4 NCDC Severe Weather Events for Placer County 1950-12/31/2014**

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Astronomical Low Tide	1	0	0	0	0	$0	$0
Avalanche	8	6	0	5	0	$0	$0
Blizzard	2	0	0	0	0	$30,000	$0
Cold/Wind Chill	11	0	0	0	0	$0	$0
Debris Flows	4	0	0	0	0	$2,000	$0
Dense Fog	11	6	2	38	0	$2,320,000	$0
Dense Smoke	2	0	0	0	0	$0	$0
Drought	1	0	0	0	0	$0	$0
Excessive Heat	1	0	0	0	0	$0	$0
Extreme Cold/Wind Chill	1	0	0	0	0	$0	$0
Flash Flood	3	0	0	0	0	$208,000	$0

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Flood	13	2	0	1	0	$6,370,000	$7,800,000
Frost/Freeze	5	0	0	0	0	$200,000	$5,000,000
Hail	6	0	0	0	0	$1,000	$0
Heat	26	0	1	18	1	$0	$0
Heavy Rain	10	2	0	0	0	$10,000	$0
Heavy Snow	215	1	1	6	1	$550,000	$0
High Surf	1	0	0	0	0	$0	$0
High Wind	61	1	0	2	0	$12,681,000	$48,000
Strong Wind	18	0	2	0	1	$3,176,600	$0
Thunderstorm Wind	3	0	0	0	0	$0	$0
Tornado	5	0	0	0	0	$252,530	$0
Wildfire	14	0	0	27	12	$500,000,000	$0
Winter Storm	126	3	1	5	1	$515,000	$0
Winter Weather	38	3	0	0	0	$10,000	$0
Total	**586**	**24**	**7**	**102**	**16**	**$526,326,130**	**$12,848,000**

Source: NCDC

*Note: Losses reflect totals for all impacted areas

The NCDC table above summarize severe weather events that occurred in Placer County. Only a few of the events actually resulted in state and federal disaster declarations. It is further interesting to note that different data sources capture different events during the same time period, and often display different information specific to the same events. While the HMPC recognizes these inconsistencies, they see the value this data provides in depicting the County's "big picture" hazard environment.

As previously mentioned, most all of Placer County's state and federal disaster declarations have been a result of severe weather. For this plan, severe weather is discussed in the following subsections:

- Extreme Heat
- Freeze and Snow
- Fog and Freezing Fog
- Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Due to size of the County and changes in elevation (i.e., from approximately 100 feet to more than 9,000 feet above mean sea level (msl)) and climate, weather conditions can vary greatly across the County. For purposes of this hazard profile, the County will be divided into two distinct sections, as applicable: western Placer County, which is predominantly below an elevation of 4,000 feet above msl, is generally below the snowfall line (although snow has fallen at lower elevations), and includes the community of Foresthill and all land to the west (including all incorporated cities and towns); and eastern Placer County, which is generally above 4,000 feet above msl, receives snowfall, and includes all of the County east of Foresthill. The profiles that follow provide information, where possible, from two weather stations located in these

two different parts of the County: Auburn (elevation: 1,290 feet above msl) in west Placer County and Tahoe (elevation: 6,230 feet above msl), in east Placer County.

Severe Weather and Climate Change

Climate change refers to any distinct change in measures of climate lasting for a long period of time, more specifically major changes in temperature, rainfall, snow, or wind patterns. Climate change may be limited to a specific region, or may occur across the whole Earth. Climate change may result from:

- Natural factors (e.g., changes in the Sun's energy or slow changes in the Earth's orbit around the Sun);
- Natural processes within the climate system (e.g., changes in ocean circulation); and
- Human activities that change the atmosphere's make-up (e.g., burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

Climate change is a natural occurrence in which the earth has warmed and cooled periodically over geologic-time. The recent and rapid warming of the earth over the past century has been cause for concern, as this warming has been associated with the accumulation of human-caused greenhouse gases such as CO2, in the atmosphere. This warming has taken place almost everywhere over the continents which strongly suggest that there is a global cause, rather than a mere coincidence of weather patterns that would result in patches of warming and cooling. The effects of climate change are varied: warmer and more varied weather patterns, melting ice caps, and poor air quality, for example.

The 2013 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

Climate change can have direct implications on almost every hazard addressed in the plan, with earthquake and hazardous materials being possible exceptions. Climate Change has the potential to alter the nature and frequency of most hazards. The potential for climate change influences on hazards are further noted in each of the hazard discussions.

4.2.2. Severe Weather: Extreme Heat

Hazard/Problem Description

According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980 more than 1,250 people died. Extreme heat can also affect the agricultural industry. Extreme heat as it affects agriculture in Placer County is discussed further in the section on agricultural hazards.

Heat disorders generally have to do with a reduction or collapse of the body's ability to shed heat by circulatory changes and sweating or a chemical (salt) imbalance caused by too much sweating. When heat gain exceeds a level at which the body can remove it, or when the body cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illness may develop. Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions.

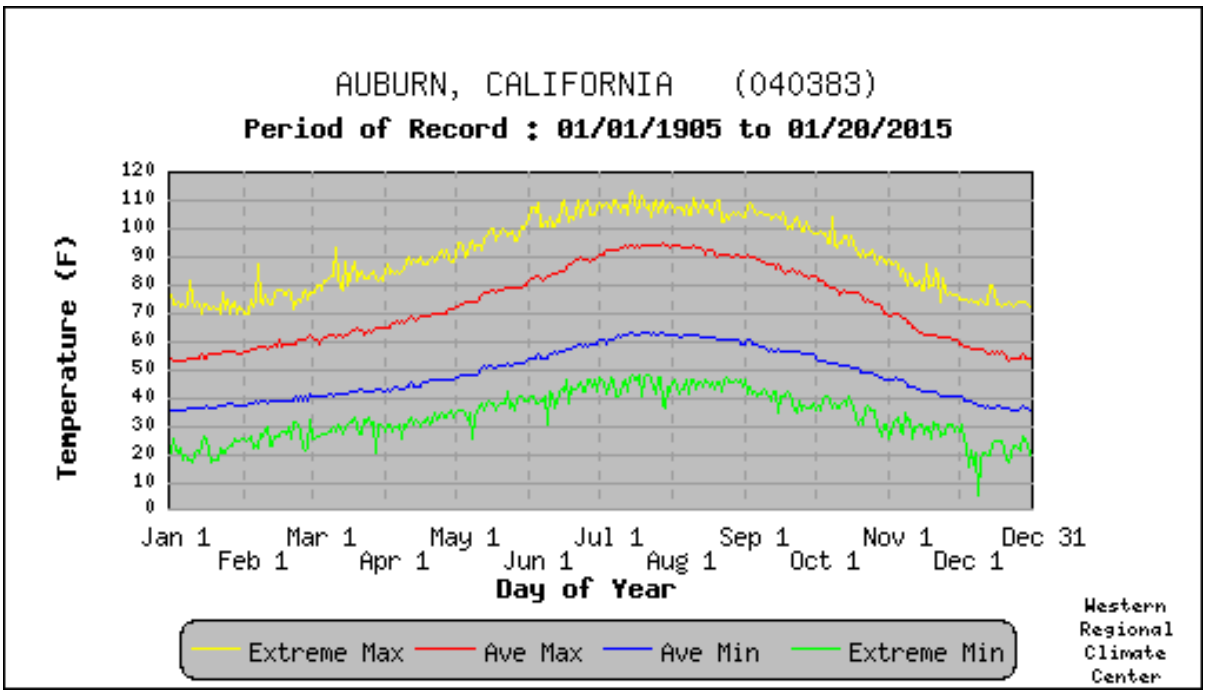
Heat emergencies are often slower to develop, taking several days of continuous, oppressive heat before a significant or quantifiable impact is seen. Heat waves do not strike victims immediately, but rather their cumulative effects slowly take the lives of vulnerable populations. Heat waves do not cause damage or elicit the immediate response of floods, fires, earthquakes, or other more "typical" disaster scenarios. While heat waves are obviously less dramatic, they are potentially more deadly. According to the 2013 California State Hazard Mitigation Plan, the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave resulted in 946 deaths.

The Western Regional Climate Center (WRCC) maintains data on weather normal and extremes in the western United States. WRCC data for the County is summarized below and in Figure 4-1 and Figure 4-2.

Placer County—West (Auburn Weather Station, Period of Record 1905 to 2015)

According to the WRCC, in the western portion of Placer County, monthly average maximum temperatures in the warmest months (May through October) range from the mid-70s to the low 90s. The highest recorded daily extreme was 113°F on July 15, 1972. In a typical year, maximum temperatures exceed 90°F on 68 days.

Figure 4-1 Placer County—West Daily Temperature Averages and Extremes

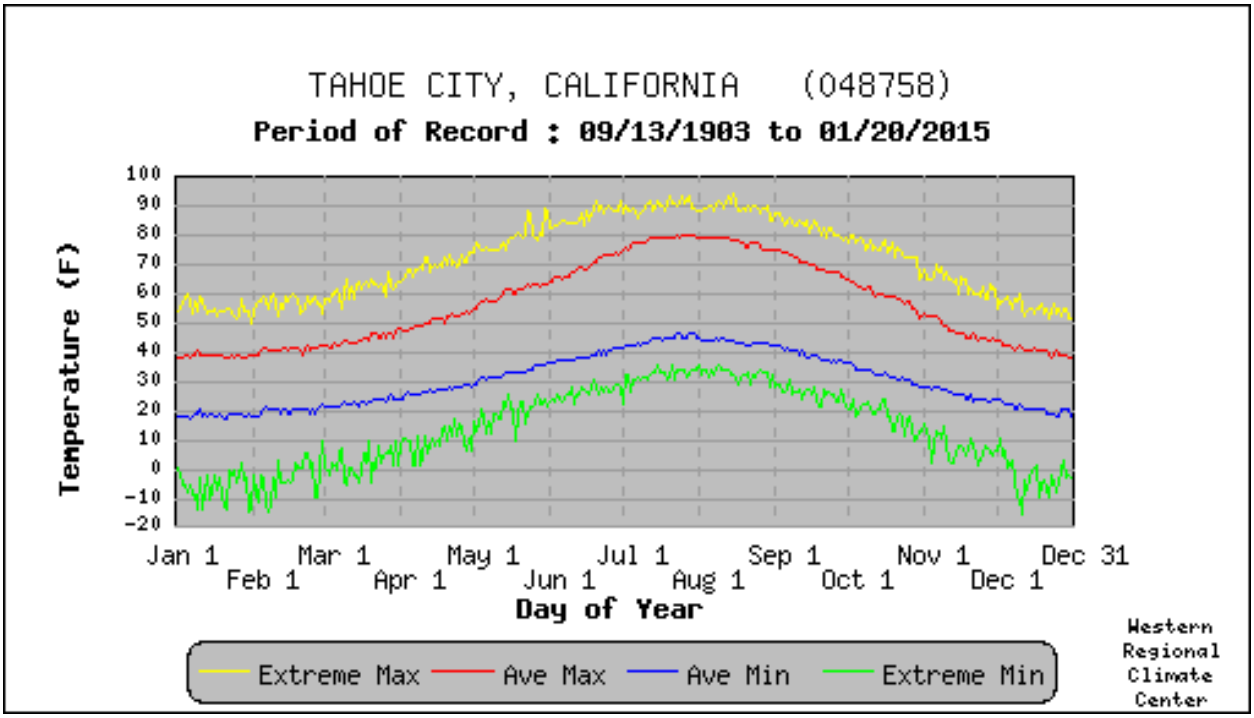


Source: Western Regional Climate Center, www.wrcc.dri.edu/

Placer County—East (Tahoe Weather Station, Period of Record 1903 to 2015)

According to the WRCC, in the eastern portion of Placer County, monthly average maximum temperatures in the warmest months (May through October) range from the high 50s to the high 70s. The highest recorded daily extreme was 94°F on August 15, 1933. In a typical year, maximum temperatures exceed 90°F on 0.4 days.

Figure 4-2 Placer County—East Daily Temperature Averages and Extremes



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-3 and Figure 4-4 show the Heat Index (HI) that the National Weather Service uses to show the relationship between heat and relative humidity. The Heat Index describes how hot the heat-humidity combination makes it feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the HI rises, so do health risks.

- When the HI is 90°F, heat exhaustion is possible with prolonged exposure and/or physical activity.
- When it is 90°-105°F, heat exhaustion is probable with the possibility of sunstroke or heat cramps with prolonged exposure and/or physical activity.
- When it is 105°-129°F, sunstroke, heat cramps or heat exhaustion is likely, and heatstroke is possible with prolonged exposure and/or physical activity.
- When it is 130°F and higher, heatstroke and sunstroke are extremely likely with continued exposure. Physical activity and prolonged exposure to the heat increase the risks.

Figure 4-3 Heat Index

NWS Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

Source: National Weather Service

Note: Since HI values were devised for shady, light wind conditions, exposure to full sunshine can increase HI values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Figure 4-4 Possible Heat Disorders by Heat Index Level

Heat Index	Category	Possible heat disorders for people in high risk groups
130°F or higher	Extreme Danger	Heatstroke risk extremely high with continued exposure.
105° - 129°F	Danger	Sunstroke, Heat Cramps and Heat Exhaustion likely, Heatstroke possible with prolonged exposure and/or physical activity.
90° - 105°F	*Extreme Caution*	*Sunstroke, Heat Cramps and Heat Exhaustion possible with prolonged exposure and/or physical activity.*
80° - 90 °F	Caution	Fatigue possible with prolonged exposure and/or physical activity.

Source: National Weather Service

The NWS has in place a system to initiate alert procedures (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. A common guideline for the issuance of excessive heat alerts is when the maximum daytime high is expected to equal or exceed 105°F and a nighttime minimum high of 80°F or above is expected for two or more consecutive days. The NWS office in Sacramento can issue the following heat-related advisory as conditions warrant.

- **Excessive Heat Outlook**: are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to Heat Index forecast map for the contiguous United States those who need considerable lead time to prepare for the event, such as public utilities, emergency management and public health officials.
- **Excessive Heat Watch**: is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A Watch is used when the risk of a heat wave has increased, but its occurrence and timing is still uncertain. A Watch provides enough lead time so those who need to prepare can do so, such as cities that have excessive heat event mitigation plans.
- **Excessive Heat Warning/Advisory**: are issued when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

Past Occurrences

Disaster Declaration History

There have been no FEMA or Cal OES disasters related to extreme heat.

NCDC Disasters

The NCDC data shows 29 extreme heat incidents for Placer County since 1993. These are shown in Table 4-5.

Table 4-5 NCDC Extreme Heat Events in Placer County 1993 to 12/31/2014

Event	Date	Deaths	Injuries	Property Damage	Crop Damage
Excessive Heat	7/5/2007	0	0	$0	$0
Heat	7/11/1999	0	0	$0	$0
Heat	12/19/1999	0	0	$0	$0
Heat	5/21/2000	0	0	$0	$0
Heat	6/13/2000	0	3	$0	$0
Heat	6/13/2000	0	0	$0	$0
Heat	7/29/2000	0	0	$0	$0
Heat	9/18/2000	0	0	$0	$0
Heat	9/20/2000	0	0	$0	$0
Heat	7/1/2005	0	0	$0	$0
Heat	8/12/2005	0	0	$0	$0
Heat	2/16/2007	0	0	$0	$0
Heat	3/11/2007	0	0	$0	$0
Heat	3/23/2007	0	0	$0	$0
Heat	9/1/2007	0	0	$0	$0

Event	Date	Deaths	Injuries	Property Damage	Crop Damage
Heat	9/1/2007	0	0	$0	$0
Heat	4/12/2008	0	0	$0	$0
Heat	5/15/2008	0	0	$0	$0
Heat	5/16/2008	0	0	$0	$0
Heat	5/17/2008	0	0	$0	$0
Heat	7/9/2008	1	1	$0	$0
Heat	8/28/2008	0	0	$0	$0
Heat	8/29/2008	0	0	$0	$0
Heat	11/14/2008	0	0	$0	$0
Heat	11/16/2008	0	0	$0	$0
Heat	11/18/2008	0	0	$0	$0
Heat	6/7/2013	0	15	$0	$0
Heat	6/28/2013	0	0	$0	$0
Heat	7/1/2013	0	0	$0	$0
Total		**1**	**19**	**$0**	**$0**

Source: NCDC

HMPC Events

The HMPC identified the following events related to extreme temperatures in the Placer County Planning Area.

- June 13, 1961 – A heat event recorded in the SHELDUS database reported property damage of $14,700.
- July 2006 – In response to extreme high temperature, the Governor's Office of Emergency Service (now Cal OES) directed that the California Department of Food and Agriculture make each state-owned fairground a cooling center, which included the Placer County Gold Country Fairgrounds (PC GCF). PCOES and Health & Human Services served as lead in coordinating and staffing the cooling center located at the PC GCF.
- June-September 2007 – PCOES & County HHS coordinated contingency preparedness to activate cooling centers for general public and assistance to special population in response to very high temperatures occurring throughout the summer.
- June-September 2008 – PCOES & County HHS coordinated contingency preparedness to activate cooling centers for general public and assistance to special population in response to very high temperatures occurring throughout the summer.

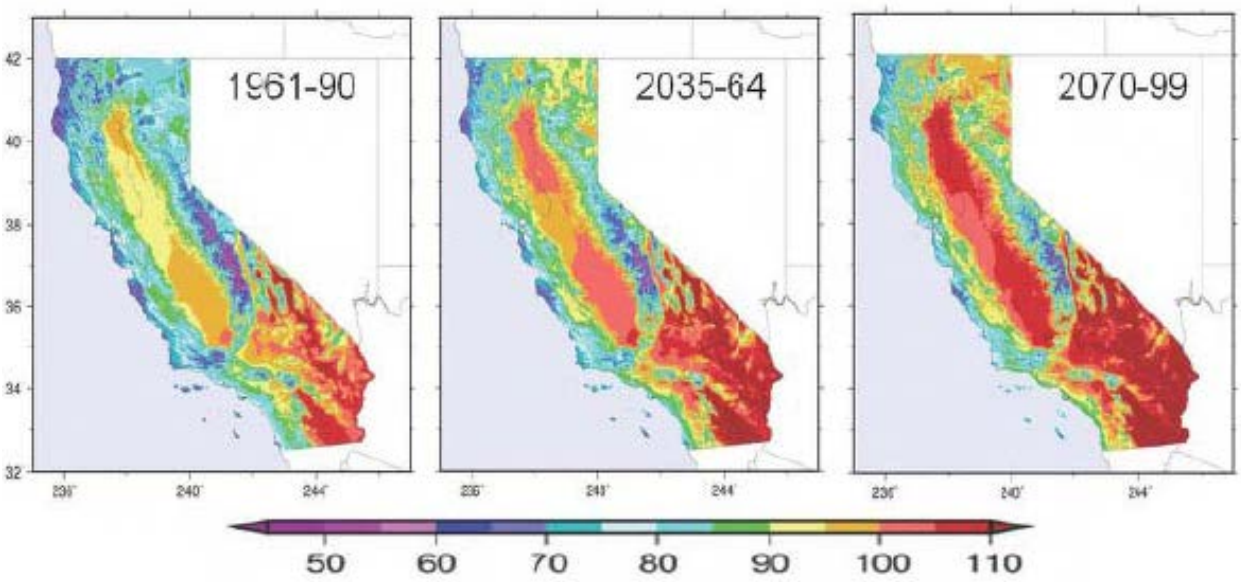
Likelihood of Future Occurrence

Highly Likely—Temperature extremes are likely to continue to occur annually in the Placer County Planning Area. Extreme heat is less likely in eastern portions of the county at higher elevations, than in the western portion. Temperatures at or above 90°F are common most summer days in the western part of the County.

Climate Change and Extreme Heat

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves. These factors may lead to increased mortality from excessive heat, as shown in Figure 4-5.

Figure 4-5 California Historical and Projected Temperature Increases - 1961 to 2099



Source: Dan Cayan; California Climate Adaptation Strategy

As temperatures increase, California and Placer County will face increased risk of death from dehydration, heat stroke, heat exhaustion, heart attack, stroke and respiratory distress caused by extreme heat. According to the CAS report and the 2013 State of California Hazard Mitigation Plan, by 2100, hotter temperatures are expected throughout the state, with projected increases of 3-5.5°F (under a lower emissions scenario) to 8-10.5°F (under a higher emissions scenario). These changes could lead to an increase in deaths related to extreme heat in Placer County.

4.2.3. Severe Weather: Freeze and Snow

Hazard/Problem Description

According to the NWS and the WRCC, winter snow storms can include heavy snow, ice, and blizzard conditions. Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, damage repair, and business losses can have a tremendous impact on cities and towns.

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days until the damage can be repaired. Power outages can have a significant impact on communities, especially critical facilities such as public utilities. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Some winter storms are accompanied by strong winds, creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chills. Strong winds accompanying these intense storms and cold fronts can knock down trees, utility poles, and power lines. Blowing snow can reduce visibility to only a few feet in areas where there are no trees or buildings. Serious vehicle accidents with injuries and deaths can result.

The western portion of the Placer County Planning Area does not experience snowfall on a regular seasonal basis; however, the northern and eastern portions of the County receive an abundance of snow, mostly between the months of November through March. Winter snow storms in this part of the County, including strong winds and blizzard conditions can result in localized power and phone outages and closures of streets, highways, schools, businesses, and nonessential government operations. During periods of heavy snow there is also an increase in the number and severity of traffic accidents. People can become isolated in their homes and vehicles and are unable to receive essential services. Snow removal costs can impact budgets significantly. Heavy snowfall during winter can lead to flooding or landslides during the spring if the area snowpack melts too quickly and also create numerous challenges for emergency responders. In the higher elevations at Lake Tahoe, snowfall will bury fire hydrants and street signs. It can often take the district weeks to dig out the approximately 2,500 fire hydrants. This is exacerbated by County snow plows/blowers re-burying the hydrants in subsequent plowing efforts. Inaccessible hydrants and/or delayed responses can impact life and property.

Extreme cold often accompanies a winter storm or is left in its wake. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Infants and the elderly are most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures can cause significant damage to the agricultural industry. The effects of freezing temperatures on agriculture in Placer County are discussed further in Section 4.2.6 Agricultural Hazards.

In 2001, the NWS implemented an updated Wind Chill Temperature index (shown in Figure 4-6), which is reproduced below. This index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 4-6 Wind Chill Temperature Chart

Wind (mph)	Temperature (°F)																	
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph) *Effective 11/01/01*

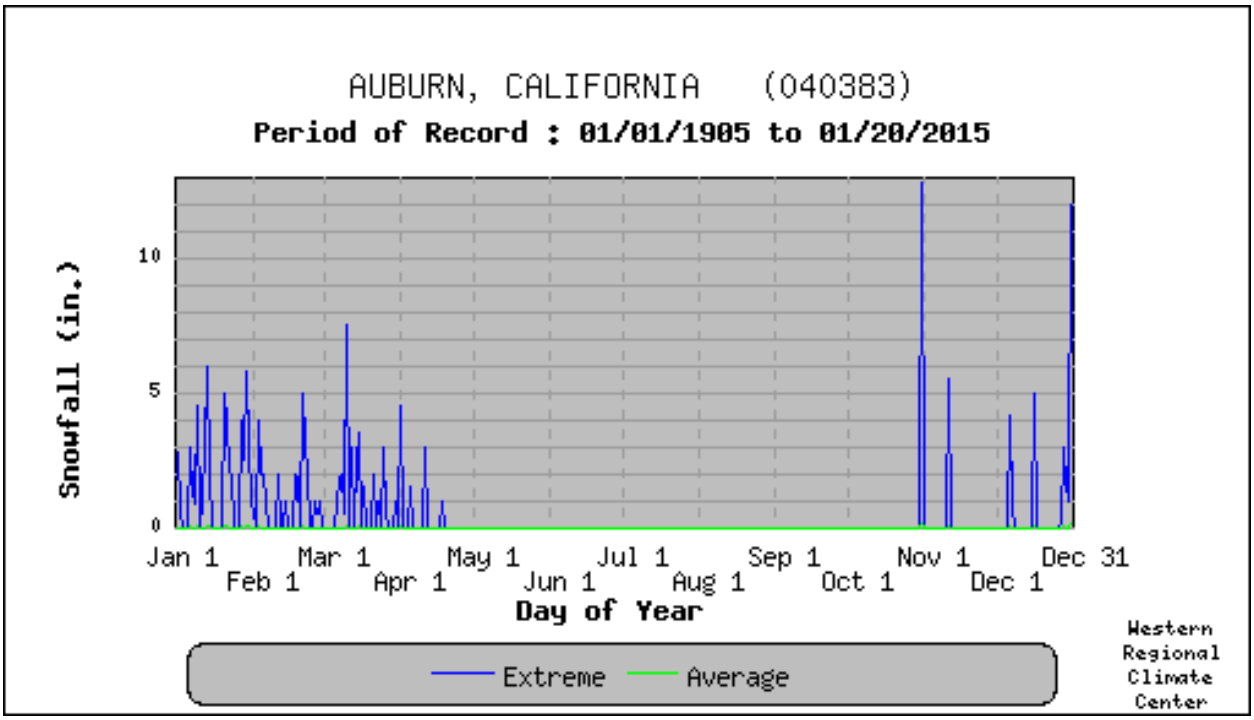
Source: National Weather Service

Information from the two representative weather stations introduced in Section 4.2.1 Severe Weather: General is summarized below and in Figure 4-1and Figure 4-2 in the previous section.

Placer County—West (Auburn Weather Station, Period of Record 1914 to 2007)

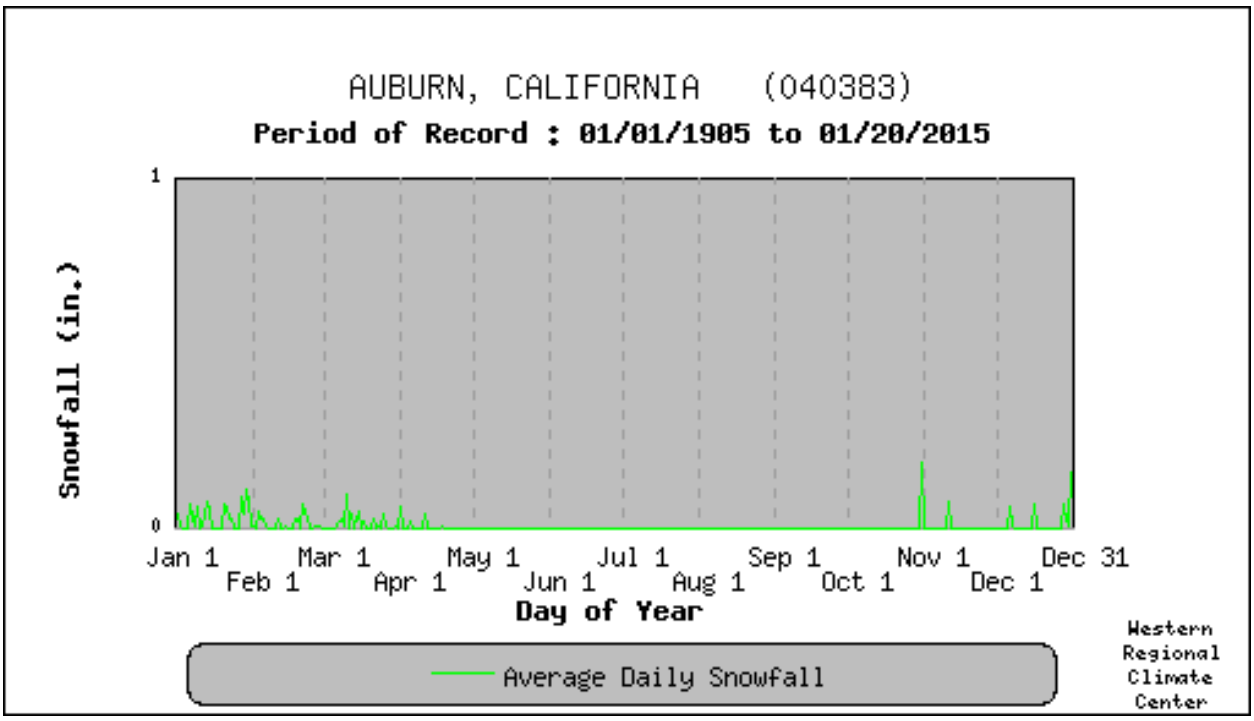
According to the WRCC, in the western portion of Placer County, monthly average minimum temperatures from November through April range from the mid-30s to the mid-50s. The lowest recorded daily extreme was 16°F on December 9, 1972. In a typical year, minimum temperatures fall below 32°F on 22.5 days with no days falling below 0°F. Average snowfall is 1.3 inches, as shown in Figure 4-7. The highest annual snowfall fell in 1972, when 10.7 inches fell. Highest monthly snowfall accumulation came in January of 1972, when 6.5 inches fell. Average snowdepths in January through March fall at 0 inches. This can be seen in Figure 4-8.

Figure 4-7 Placer County—West Snowfall Averages and Extremes



Source: Western Regional Climate Center

Figure 4-8 Placer County—West Snowdepth Averages and Extremes

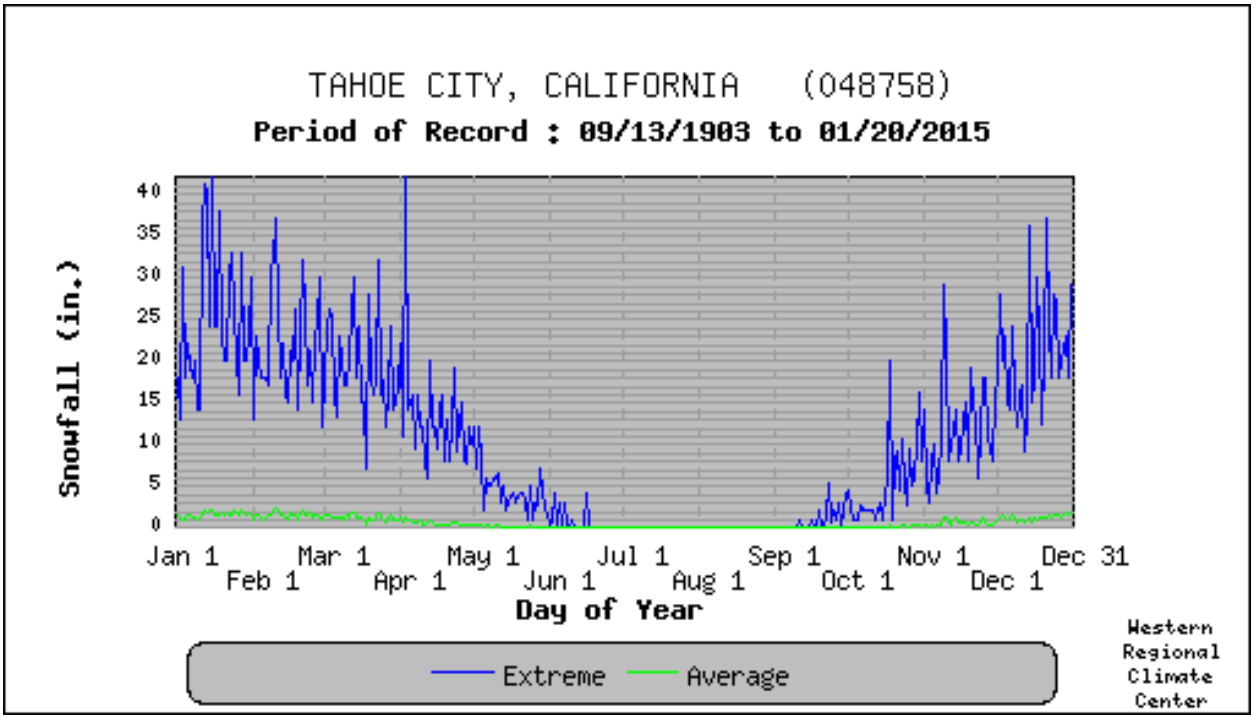


Source: Western Regional Climate Center

Placer County—East (Tahoe Weather Station, Period of Record 1914 to 2007)

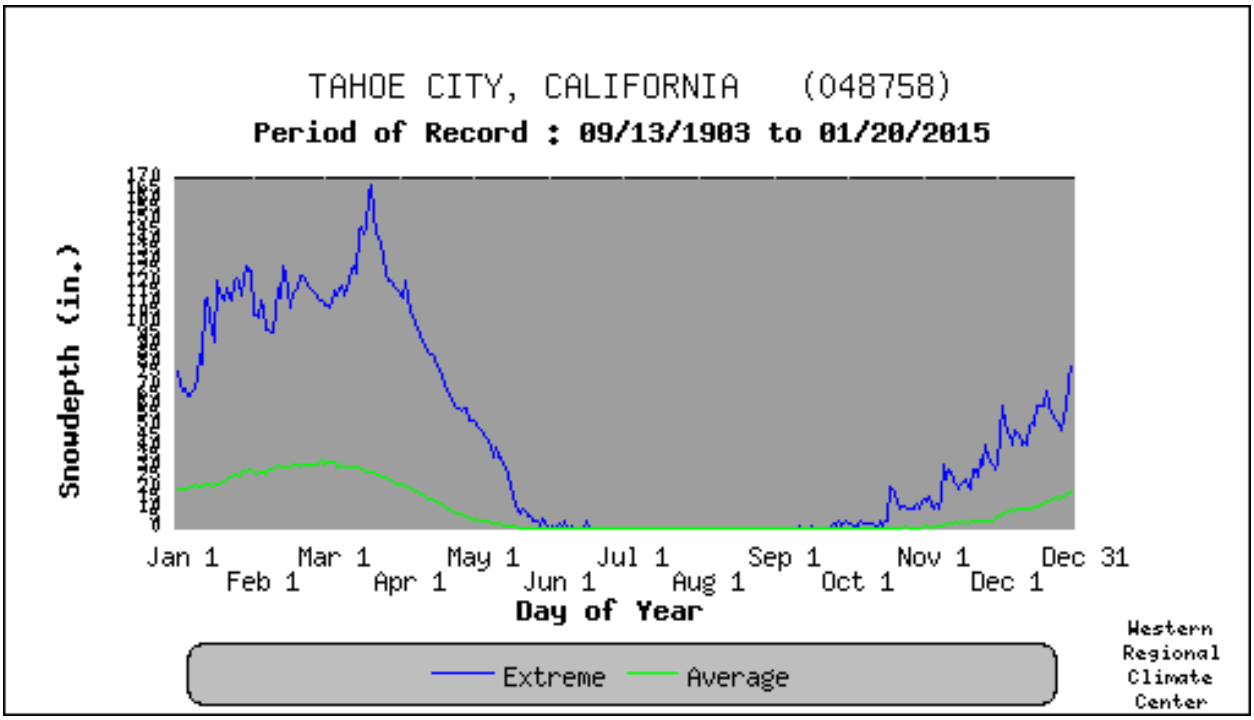
According to the WRCC, in the eastern portion of Placer County, monthly average minimum temperatures from November through April range from the high teens to the high 20s. The lowest recorded daily extreme was -16°F on December 12, 1972. In a typical year, minimum temperatures fall below 32°F on 207.8 days with 1.6 days falling below 0°F. Average snowfall is 190.7 inches, as shown in Figure 4-9. The highest annual snowfall fell in 1952, when 499.3 inches fell. Highest monthly snowfall accumulation came in January of 1911, when 229.0 inches fell. Average snowdepths in January through March fall between 23 and 30 inches. This can be seen in Figure 4-10.

Figure 4-9 Placer County—East Snowfall Averages and Extremes



Source: Western Regional Climate Center

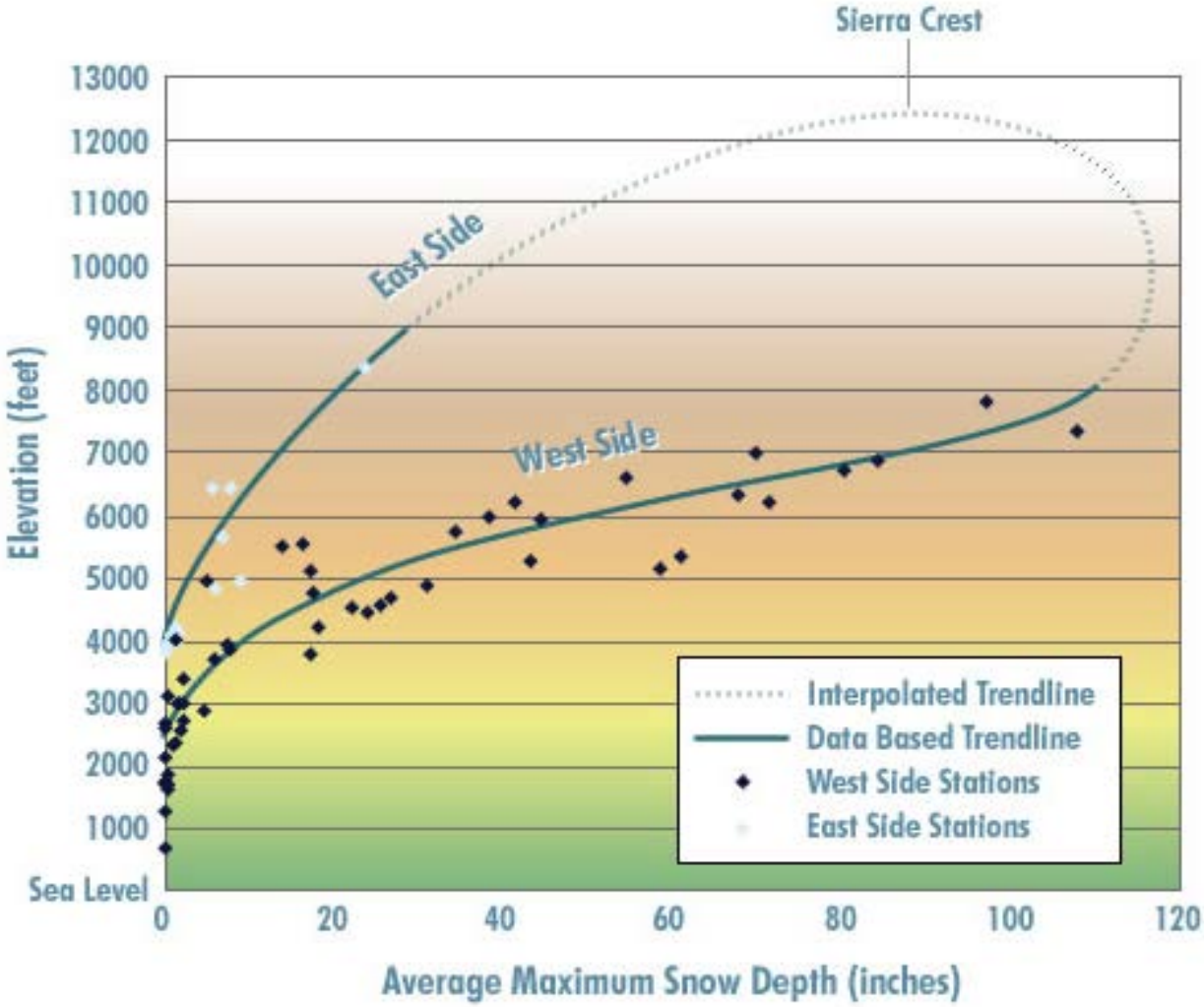
Figure 4-10 Placer County—East Snowdepth Averages and Extremes



Source: Western Regional Climate Center

Snow accumulation does not directly follow precipitation in the Sierra Nevada. While the greatest total precipitation occurs in the northern part of the range, the greatest snow accumulation occurs in the central and high southern parts of the range, due to higher elevations and colder temperatures which inhibit snow melt. The western slope of the Sierra Nevada acts as trap for winter storms, wringing out the moisture before it can get to the east side. Weather stations located on the west side begin registering measurable snow between 2,500 and 3,000 feet elevation. On the east side, measurable snow accumulation doesn't begin until about 4,000 feet and increases more slowly with altitude. Snow depths drop dramatically on the east side of the range due to the rain shadow effect as illustrated in the comparative east side/west side snow depth chart shown on Figure 4-11.

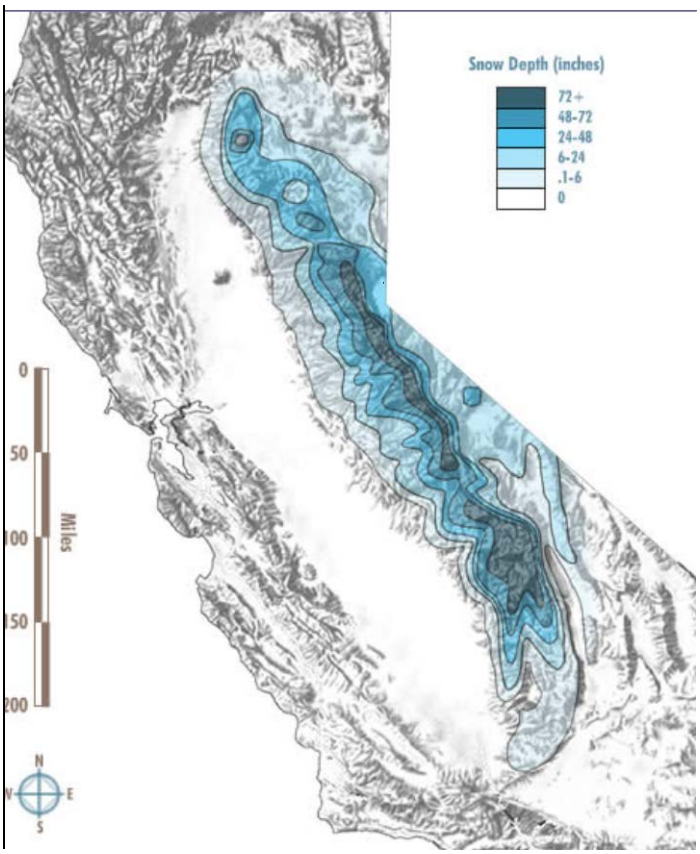
Figure 4-11 Snow Accumulation with Directional Variations



Source: http://www.sierranevadaphotos.com/geography/east_west_snow_depth.html

Figure 4-12 shows the average maximum measured snow depth in the Sierra Nevada for the month of March (the month of greatest average snow depths).

Figure 4-12 Average Maximum Snow Depths of Sierra Nevada Mountains in March



Source: http://www.sierranevadaphotos.com/geography/snow_depth.asp

Past Occurrences

Disaster Declaration History

A disaster declaration for Placer County was issued by both the state and federal government in 1972 for freeze and severe weather conditions.

NCDC Events

The NCDC data recorded 398 freeze and snow incidents for Placer County since 1993. A summary of these events are shown in Table 4-6. Specific events from the NCDC database that caused injuries, deaths, or damages in Placer County are discussed below the table.

Table 4-6 NCDC Winter Storms and Extreme Cold Events in Placer County 1993 to 12/31/2014

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Blizzard	2	0	0	0	0	$30,000	$0
Cold/Wind Chill	11	0	0	0	0	$0	$0

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Extreme Cold/Wind Chill	1	0	0	0	0	$0	$0
Frost/Freeze	5	0	0	0	0	$200,000	$5,000,000
Heavy Snow	215	1	1	6	1	$550,000	$0
Winter Storm	126	3	1	5	1	$515,000	$0
Winter Weather	38	3	0	0	0	$10,000	$0
Total	**398**	**7**	**2**	**11**	**2**	**$1,305,000**	**$5,000,000**

Source: NCDC

*Deaths, injuries, and damages are for the entire event, and may not be exclusive to the County.

- **December 20, 1996** – The heaviest snow in many years caused a number of problems in the Shasta-Cascades region and in the Sierra Nevada range. A storm total of 8 feet fell in the Lake Tahoe area. 4-foot accumulations in 30 hours occurred at the 3,000 to 4,000-foot elevations. Heavy snow fell as low as 1,500 feet, and lighter accumulations fell as low as 500 feet. The heavy snow pulled down numerous trees, taking power lines with them. About 120,000 people in the Sierra Nevada and its foothills lost power for several days, with some getting back power late Christmas Eve, and most regaining power by the day after Christmas. The snow closed most roads and several major highways in the region, including state route 70, Interstate 80 (closed nearly two days), and US Route 50 (closed nearly 3 days). The Amtrak passenger train California Zephyr derailed in the Sierra Nevada near the town of Blue Canyon. Small avalanches at a ski resort injured two people. The storm also caused two fatalities. These heavy snows would not melt until the end of the year, when they contributed to some of the worst flooding in state history.
- **April 3, 1999** – 6 inches of snow in 3 hours with visibilities ranging from 0 to 300 feet in South Lake Tahoe. A 13 car accident was reported on US Highway 50. No deaths or injuries were reported, but $30,000 in damages was estimated.
- **April 15, 2002** – A heavy snow shower, creating low visibility and a slick roadway, caused a 21 vehicle pile-up on Interstate 80 about 5 miles east of Truckee, CA. Several trucks were involved in the accident with at least one semi trailer destroyed. Four injuries were reported, but no deaths. Property damage was estimated at $500,000.
- **January 14, 2007** – A very cold arctic airmass settled over the region and temperatures in the Central Valley of California dropped sharply for a relatively prolonged period of time. Many temperature records were tied and broken during the episode and the damage to area crops was extensive. Extensive crop damage was caused by the prolonged sub-freezing temperatures. No deaths or injuries were reported, but crop damages of $5,000,000 and property damage of $200,000 were reported.
- **March 2, 2009** – A powerful winter storm moved through the northern and central Sierra Nevada and western Nevada. Storm-total snowfall amounts in the upper elevations ranged from 40 to 50 inches. A portion of Interstate 80 was also closed from the Nevada State line west to Truckee overnight on March 3-4 as a result of the heavy snowfall and numerous accidents. No deaths or injuries were reported. $50,000 in property damage was estimated to have taken place.
- **December 17, 2010** – Very cold low pressure remained off the Pacific Northwest coast for several days bringing very heavy snow to the Sierra and periods of strong, damaging winds. The very heavy snowfall increased the high Sierra snowpack from 150 to 160 percent of normal to over 220 percent of normal in just four days. Ski resorts accumulated an average of 5 to 8 feet of snow. 20 to 30 inches of snow fell north and west of Lake Tahoe below 7,000 feet. Heavy wet snow caused a rock slide on

highway 50 which closed the road on the 19th. In addition to snow, numerous reports of downed trees and associated damage were noted on the 19th. Falling trees were responsible for one destroyed house in South Lake Tahoe, with winds gusting to 63 mph and 68 mph in Truckee and South Lake Tahoe, respectively, and up to 155 mph over the crest. Finally, a tree fell on a ski lift cable at the Sierra-at-Tahoe resort and caused two skiers to be ejected and injured. No deaths occurred. Property damage was estimated at $400,000.

HMPC Events

The HMPC identified the following events related to extreme temperatures in the Placer County Planning Area.

- April 17, 1972 – State declaration for freeze and severe weather conditions.
- December 1990 – Freezing temperatures cause the fire sprinkler pipes to burst in the main office of the Placer County Office of Education causing $107,487 in damages.
- December 17, 1992 – Heavy snow on a roof caused damages to a building located in the Foresthill Union School District causing $3,371 in damages.
- March 23, 1995 – Excessive snow closed the school in Colfax; damages unknown.
- January 26, 1999 – Excessive snow closed the school in Colfax; damages unknown.
- 1999 – A severe freeze caused broken pipes at three schools in the Eureka Union School District (Oakhills, Ridgeview, Cavitt) in southern Placer County. Total damage to carpet, drinking fountains, and miscellaneous supplies was $10,281 ($1,000 deductible, remainder insurance).
- February 2003 – A severe snowstorm caused a variety of damage to schools located in the areas of Tahoe City, West Shore, and Polaris Road. The snowstorm caused an underground propane leak at one school, a district-wide power outage, and damages resulting from roof snow loading and removal. School closures ranged from two days to two weeks.
- December 2006/January 2007 – Placer County, as well as the State, declared a local disaster proclamation declared as result of an extreme low temperature event for the entire state. Placer County Office of Emergency Services (OES) & Health and Human Services (HHS) coordinated with the Salvation Army in the City of Roseville, and local church organizations to open warming centers at the fairgrounds in Auburn and in church affiliated facilities in the Auburn and Roseville area.
- In March, April, and May 2011 the Serene Lakes community was hit by a continuous stream of storms that dumped record setting amounts of snow on the area. Approximately 700 of the structures in Serene Lakes are served by propane and the high snow levels led to one home explosion, 43 identified propane leaks, a voluntary evacuation order, a protective sheriff's patrol and a very anxious community. No lives were lost and there were no major injuries, but it was just luck that the community avoided human catastrophe. None of the installations that leaked met current code requirements. The principal reason for propane leaks was failure of piping in all areas.

Likelihood of Future Occurrence

Highly Likely—Freeze and snow are likely to continue to occur annually in the Placer County Planning Area. This is especially true for the eastern portion of the County where elevations are higher.

Climate Change and Freeze and Snow

According to the CAS, freezing spells are likely to become less frequent in California as climate temperatures increase; if emissions increase, freezing events could occur only once per decade in large portion of the state by the second half of the 21st century. According to a California Natural Resources Report in 2009, it was determined that while fewer freezing spells would decrease cold related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

4.2.4. Severe Weather: Fog and Freezing Fog

Hazard/Problem Description

Fog is a collection of water droplets or ice crystals suspended in the air at or near the Earth's surface. Fog results from air being cooled to the point where it can no longer hold all of the water vapor it contains. Fog can form in a number of ways, depending on how the cooling that caused the condensation occurred. The most common types in the County are radiation and advection fog.

Radiation Fog

This type of fog forms at night under clear skies with calm winds when heat absorbed by the earth's surface during the day is radiated into space. As the earth's surface continues to cool, provided a deep enough layer of moist air is present near the ground, the humidity will reach 100% and fog will form. Radiation fog varies in depth from 3 feet to about 1,000 feet and is always found at ground level and usually remains stationary. This type of fog can reduce visibility to near zero at times and make driving very hazardous.

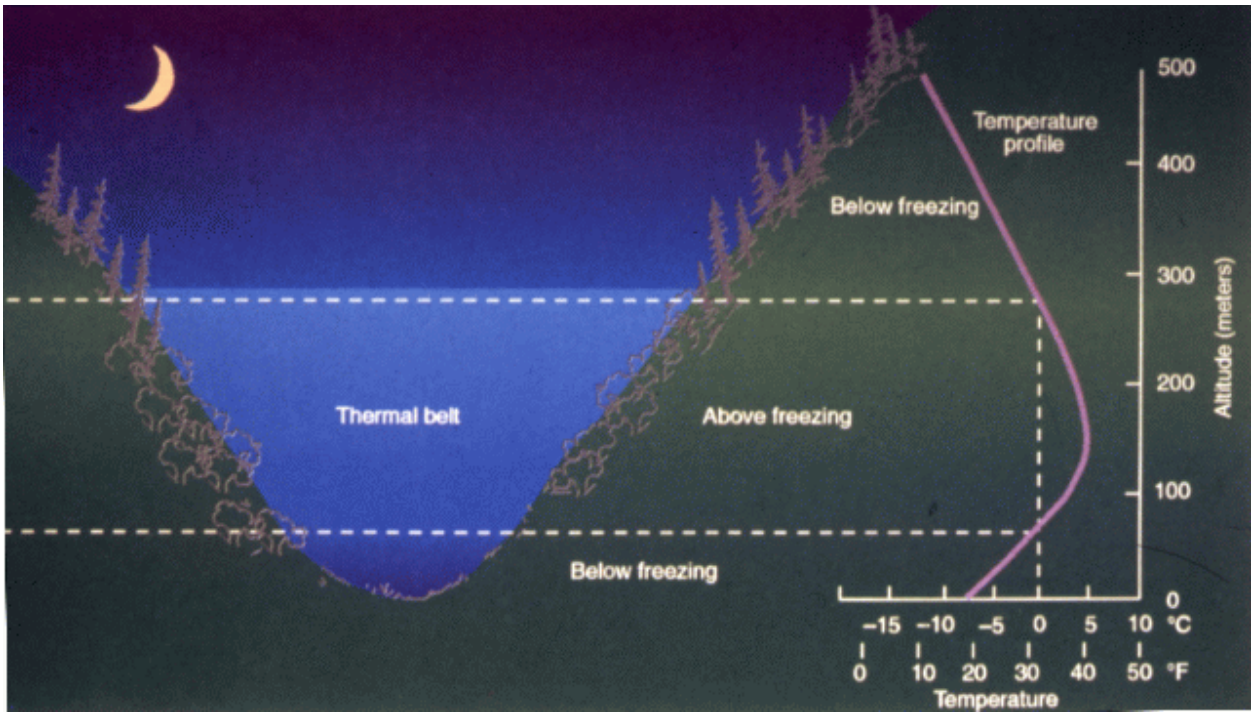
One of the most dangerous types of radiation fog unique to the planning is tule fog. It forms on clear nights when the ground is moist and the wind is near calm. On nights like this, the ground cools rapidly. In turn, the moist air above it cools and causes water vapor to condense. Once it has formed, the air must be heated enough to either evaporate the fog or lift it above the surface so that visibilities improve. It can cover large areas, as seen in Figure 4-13, with Placer County's location approximated with the black oval. The fog layer in tule fog often builds to several hundred feet thick, and can effectively block out incoming sunlight.

Figure 4-13 Tule Fog in the Central and San Joaquin Valley of California

Source: University of California Santa Barbara Department of Geology.

The Great Valley of California (the Sacramento and San Joaquin Valleys) is essentially a closed air basin. Therefore the introduction of moisture is not removed from the valley air basin unless pushed or lifted out by atmospheric processes. By the late fall, cool season frontal passages begin to bring rain to the valley floor thereby adding low-level atmospheric moisture. High pressure building aloft behind frontal passages after a significant rain event provides moisture at low atmospheric levels, light wind, clear skies, and a temperature inversion aloft. This can be seen in Figure 4-14.

Figure 4-14 Temperature Inversion Affecting Fog in Valleys like Sacramento Valley



Source: University of California Santa Barbara Department of Geology.

This inversion limits vertical air movement from the valley air basin. Radiational cooling of the ground during the long nights cools the adjacent air and forms fog as temperatures reach dew points. The lack of strong sunshine during the fall and winter daytime hours does not provide sufficient incoming energy to always evaporate the overnight fog development. Thus fog can and does last several days at a time until the atmosphere provides some form of additional drying or mixing. The combination of the previous mentioned parameters and circumstances provides for a rather dense fog where visibility is often limited to mere feet. It is situations like these that often lead to multi-car accidents where one car follows another into a fog bank. Another area prone to fatal accidents is intersections across major roads or heavily traveled roads, where the cross traffic does not have to stop.

Advection Fog

Advection fog often looks like radiation fog and is also the result of condensation. However, the condensation in this case is caused not by a reduction in surface temperature, but rather by the horizontal movement of warm moist air over a cold surface. This means that advection fog can sometimes be distinguished from radiation fog by its horizontal motion along the ground.

The fog season in Placer County is typically in the late fall and winter (November through March) but can occur as late as May. Fog typically forms rapidly in the early morning hours. Fog can have devastating effects on transportation corridors in the County. Severe fog incidents can close roads, cause accidents, and impair the effectiveness of emergency responders. These accidents can cause multiple injuries and deaths and can have serious implications for human health and the environment if a hazardous or nuclear waste shipment is involved.

Freezing Fog

Freezing fog is also an issue in Placer County. Both advection and radiation fog can turn into freezing fog. While rare, a meteorological condition exists where water in the atmosphere stays liquid much lower than the freezing point of water on the surface. According to NOAA, water in fog can stay liquid down to approximately 14°F. It stays liquid until it hits something, at which point the liquid inside the fog will freeze on contact. It collects on roads, power lines, sidewalks, and other areas. While it can be visually appealing, this freezing fog can increase the difficulty of driving in already treacherous conditions. Not only is visibility reduced, but the ability to stop quickly in low visibility conditions is impeded.

Past Occurrences

Disaster Declaration History

There are no FEMA or Cal OES disaster declarations for Placer County.

NCDC Events

The NCDC data recorded 11 freeze and snow incidents for Placer County since 1993. A summary of these events are shown in Table 4-7.

Table 4-7 NCDC Fog Events in Placer County 1993-12/31/2014

Event	Date	Deaths (Direct)	Injuries (Direct)	Property Damage	Crop Damage	Injuries (Indirect)	Deaths (Indirect)
Dense Fog	11/25/1996	0	0	$0	$0	0	0
Dense Fog	12/11/1997	5	26	$1,500,000	$0	0	0
Dense Fog	12/18/1998	1	10	$500,000	$0	0	0
Dense Fog	12/20/1999	0	2	$120,000	$0	0	0
Dense Fog	1/3/2001	0	0	$0	$0	0	0
Dense Fog	1/23/2003	0	0	$0	$0	0	0
Dense Fog	1/25/2003	0	0	$0	$0	0	0
Dense Fog	1/28/2003	0	0	$0	$0	0	0
Dense Fog	1/16/2005	0	0	$0	$0	0	0
Dense Fog	11/4/2006	0	0	$0	$0	0	0
Dense Fog	12/24/2014	0	0	$200,000	$0	0	2
Total		**6**	**38**	**$2,320,000**	**$0**	**0**	**2**

Source: NCDC

HMPC Events

The HMPC indicated that fog events affecting the I-80 corridor are the most significant issue in the Placer County Planning Area due to the potential for multi-car/truck accidents.

Likelihood of Future Occurrence

Occasional – Fog is a natural occurrence that happens in Placer County. However, significant fog events causing damages do not happen with high regularity, making the likelihood of future occurrence occasional.

Climate Change and Fog

It is currently unclear if climate change will have any effect on fog issues in the future. Limited data and research performed for redwood regions in California suggests that the occurrence of summertime fog has declined by 33% over the course of the 20th century. These findings were presented by Johnstone and Dawson in the Proceedings of the National Academy of Sciences.

4.2.5. Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

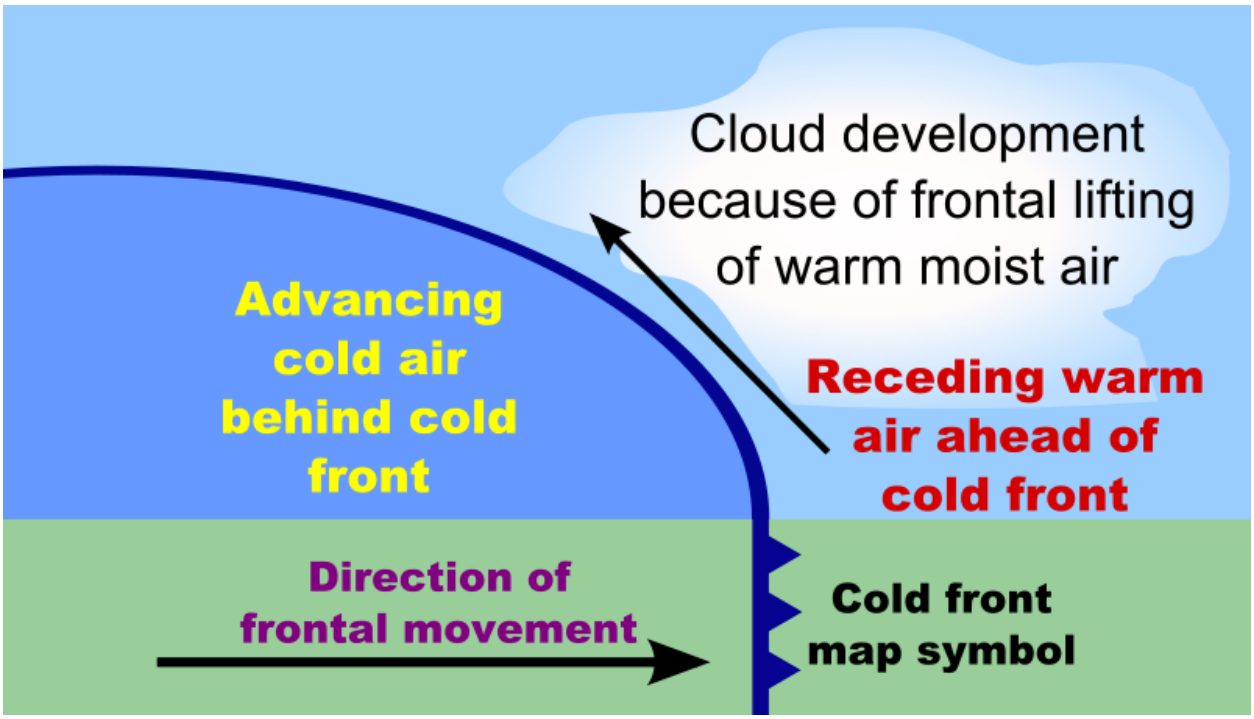
Hazard/Problem Description

Storms in the Placer County Planning Area are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in the Placer County area falls mainly in the fall, winter, and spring months.

Heavy Rain and Thunderstorms

The NWS reports that thunderstorms result from the rapid upward movement of warm, moist air (see Figure 4-15). They can occur inside warm, moist air masses and at fronts. As the warm, moist air moves upward, it cools, condenses, and forms cumulonimbus clouds that can reach heights of greater than 35,000 ft. As the rising air reaches its dew point, water droplets and ice form and begin falling the long distance through the clouds towards earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdraft of air that spreads out at Earth's surface and causes strong winds associated with thunderstorms.

Figure 4-15 Formation of a Thunderstorm



Source: NASA. http://rst.gsfc.nasa.gov/Sect14/Sect14_1c.html

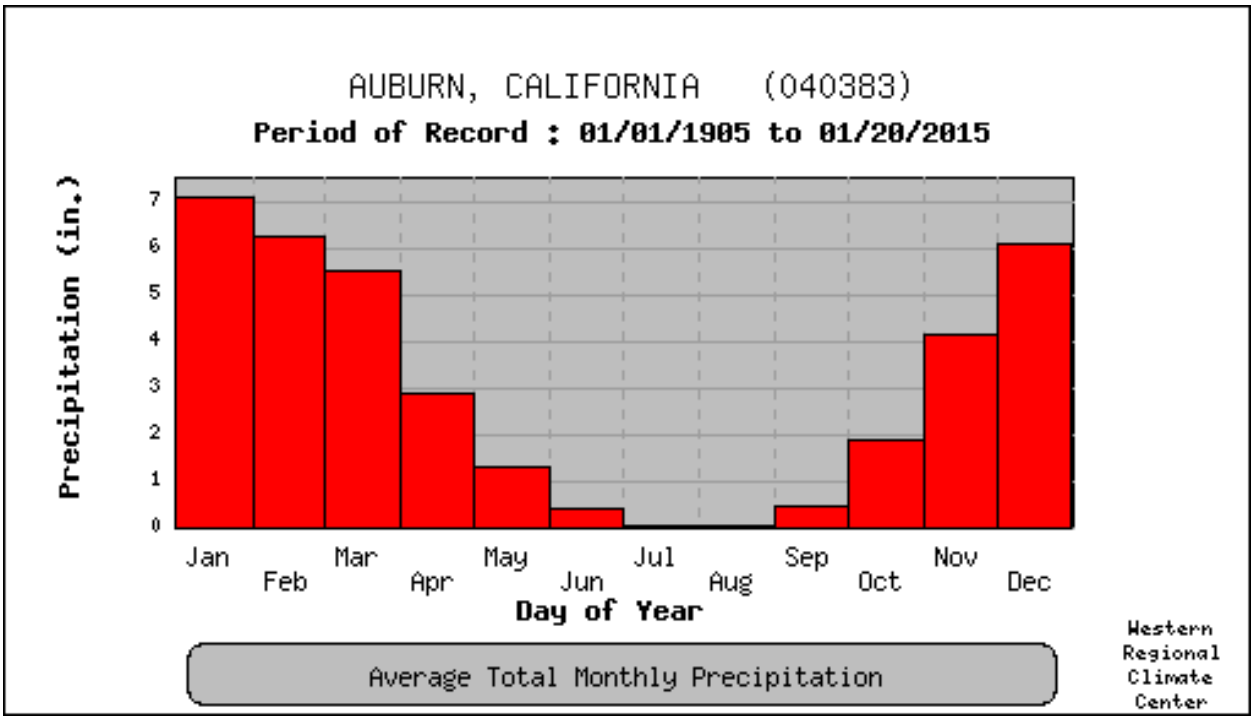
According to the HMPC, short-term, heavy storms can cause both widespread flooding as well as extensive localized drainage issues. With the increased growth of the area, the lack of adequate drainage systems has become an increasingly important issue. In addition to the flooding that often occurs during these storms, strong winds, when combined with saturated ground conditions, can down very mature trees.

Information from the two representative weather stations introduced in Section 4.2.1 Severe Weather: General, is summarized below.

Placer County—West (Auburn Weather Station, Period of Record 1905 to 2015)

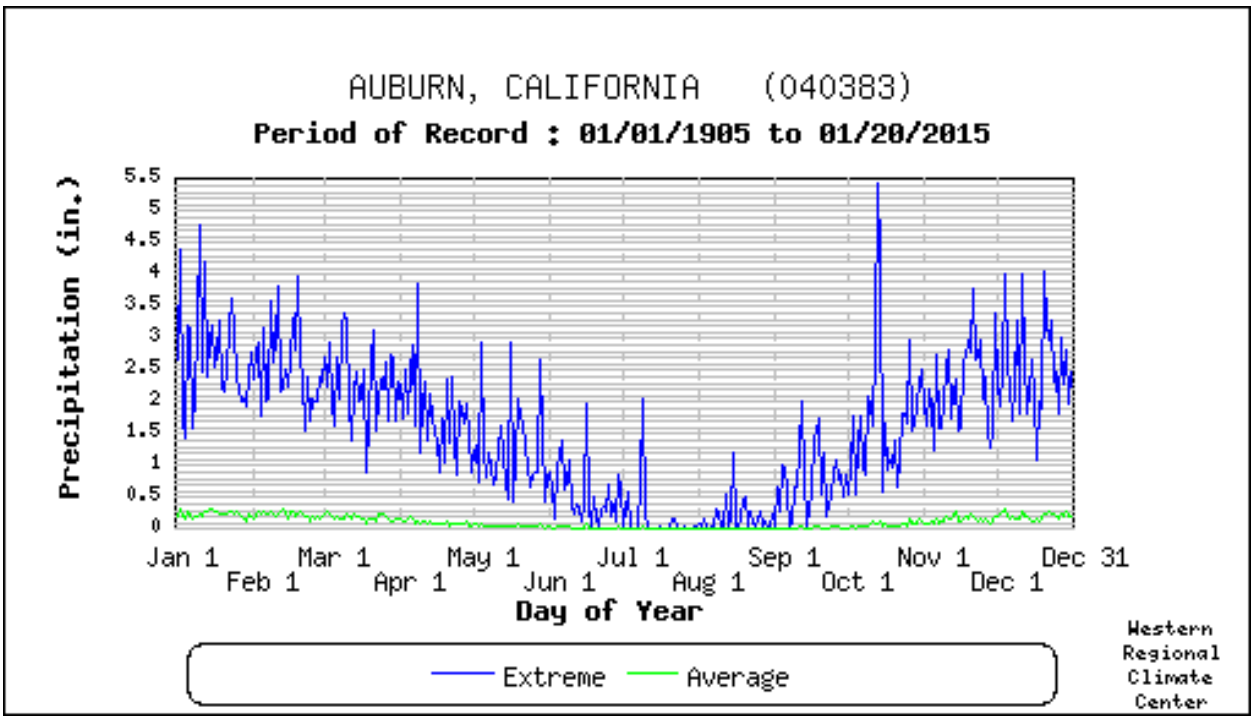
According to the WRCC, average annual precipitation in the western side of Placer County is 34.39 inches per year. The highest recorded annual precipitation is 64.87 inches in 1983; the highest recorded precipitation for a 24-hour period is 5.41 inches on October 13, 1962. The lowest recorded annual precipitation was 11.76 inches in 1976. Average monthly precipitation for western Placer County is shown in Figure 4-16. Daily average and extreme precipitations are shown in Figure 4-17.

Figure 4-16 Placer County—West Monthly Average Total Precipitation



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-17 Placer County—West Daily Average and Extreme Precipitation

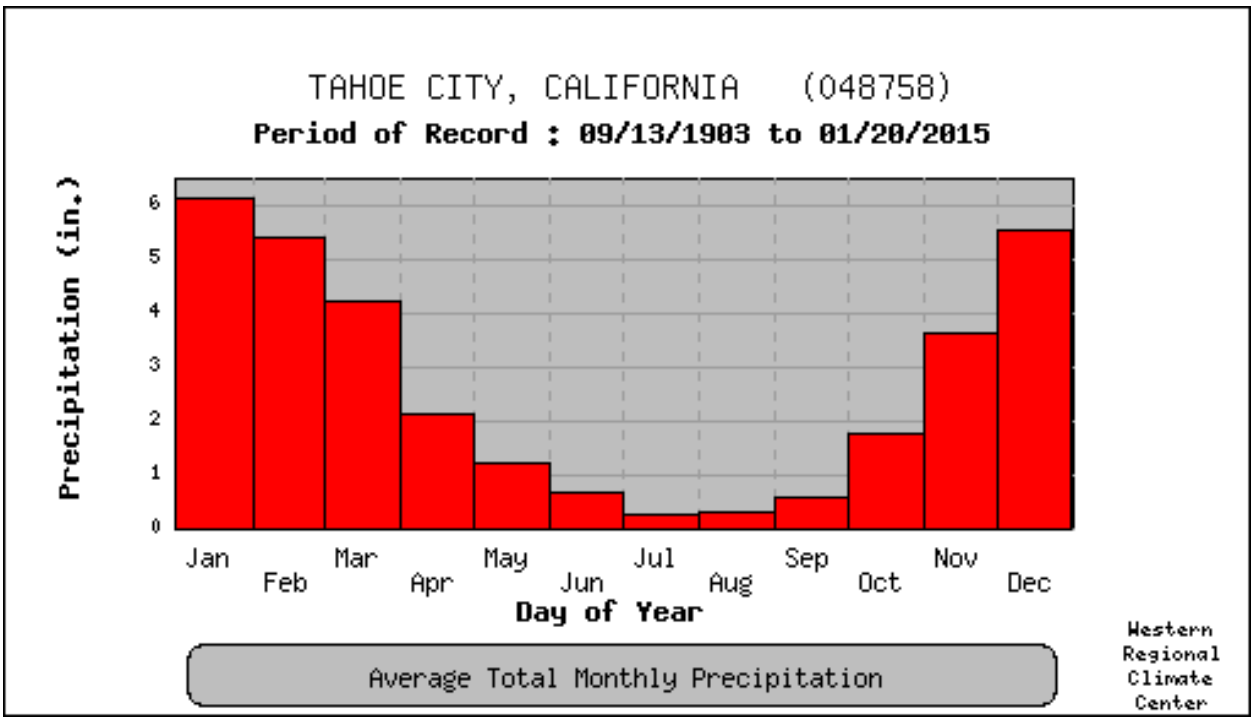


Source: Western Regional Climate Center, www.wrcc.dri.edu/

Placer County—East (Tahoe Weather Station, Period of Record 1903 to 2015)

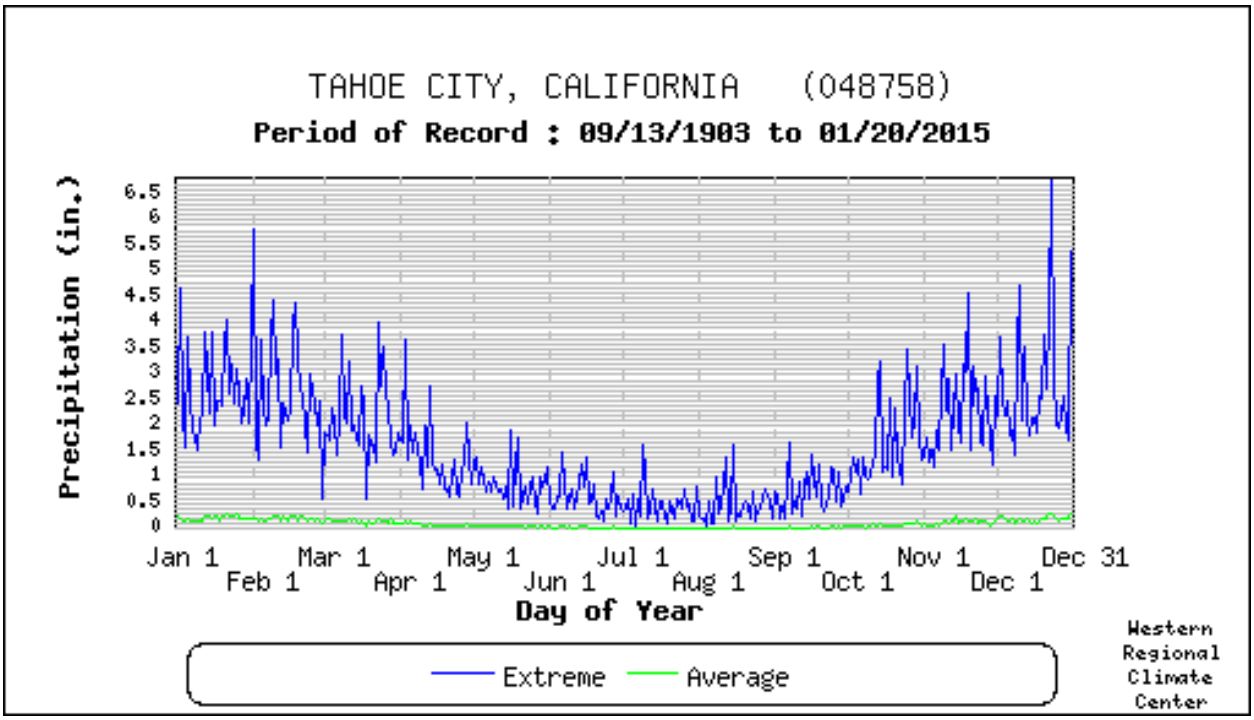
According to the WRCC, average annual precipitation in the western portion of Placer County is 31.46 inches per year. The highest recorded annual precipitation is 66.41 inches in 1996; the highest recorded precipitation for a 24-hour period is 7.00 inches on November 4, 1903. The lowest recorded annual precipitation is 9.34 inches in 1976. Average yearly precipitation for eastern Placer County is shown in Figure 4-18. Daily average and extreme precipitations are shown in Figure 4-19.

Figure 4-18 Placer County—East Monthly Average Total Precipitation



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Figure 4-19 Placer County—East Daily Average and Extreme Precipitation



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Hail

Hail is formed when water droplets freeze and thaw as they are thrown high into the upper atmosphere by the violent internal forces of thunderstorms. Hail is sometimes associated with severe storms within the Placer County Planning Area. Hailstones are usually less than two inches in diameter and can fall at speeds of 120 miles per hour (mph). Severe hailstorms can be quite destructive, causing damage to roofs, buildings, automobiles, vegetation, and crops.

The National Weather Service classifies hail by diameter size, and corresponding everyday objects to help relay scope and severity to the population. Table 4-8 indicates the hailstone measurements utilized by the National Weather Service.

Table 4-8 Hailstone Measurements

Average Diameter	Corresponding Household Object
.25 inch	Pea
.5 inch	Marble/Mothball
.75 inch	Dime/Penny
.875 inch	Nickel
1.0 inch	Quarter
1.5 inch	Ping-pong ball
1.75 inch	Golf-Ball

Average Diameter	Corresponding Household Object
2.0 inch	Hen Egg
2.5 inch	Tennis Ball
2.75 inch	Baseball
3.00 inch	Teacup
4.00 inch	Grapefruit
4.5 inch	Softball

Source: National Weather Service

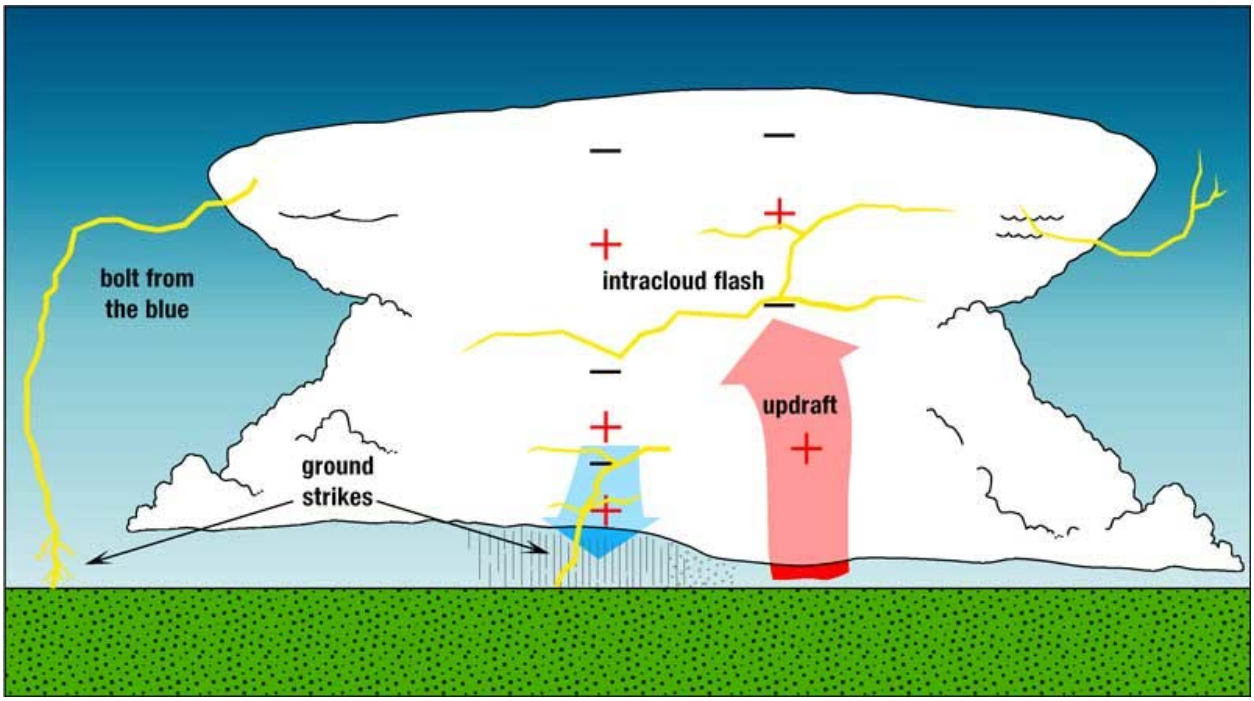
Lightning

Lightning is defined by the NWS as any and all of the various forms of visible electrical discharge caused by thunderstorms. Thunderstorms and lightning are usually (but not always) accompanied by rain. Cloud-to-ground lightning can kill or injure people by direct or indirect means. Objects can be struck directly, which may result in an explosion, burn, or total destruction. Or, damage may be indirect, when the current passes through or near an object, which generally results in less damage.

Intra-cloud lightning is the most common type of discharge. This occurs between oppositely charged centers within the same cloud. Usually it takes place inside the cloud and looks from the outside of the cloud like a diffuse brightening that flickers. However, the flash may exit the boundary of the cloud, and a bright channel, similar to a cloud-to-ground flash, can be visible for many miles.

Cloud-to-ground lightning is the most damaging and dangerous type of lightning, though it is also less common. Most flashes originate near the lower-negative charge center and deliver negative charge to earth. However, a large minority of flashes carry positive charge to earth. These positive flashes often occur during the dissipating stage of a thunderstorm's life. Positive flashes are also more common as a percentage of total ground strikes during the winter months. This type of lightning is particularly dangerous for several reasons. It frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike as far as 5 or 10 miles from the storm in areas that most people do not consider to be a threat (see Figure 4-20). Positive lightning also has a longer duration, so fires are more easily ignited. And, when positive lightning strikes, it usually carries a high peak electrical current, potentially resulting in greater damage.

Figure 4-20 Cloud to Ground Lightning



Source: National Weather Service

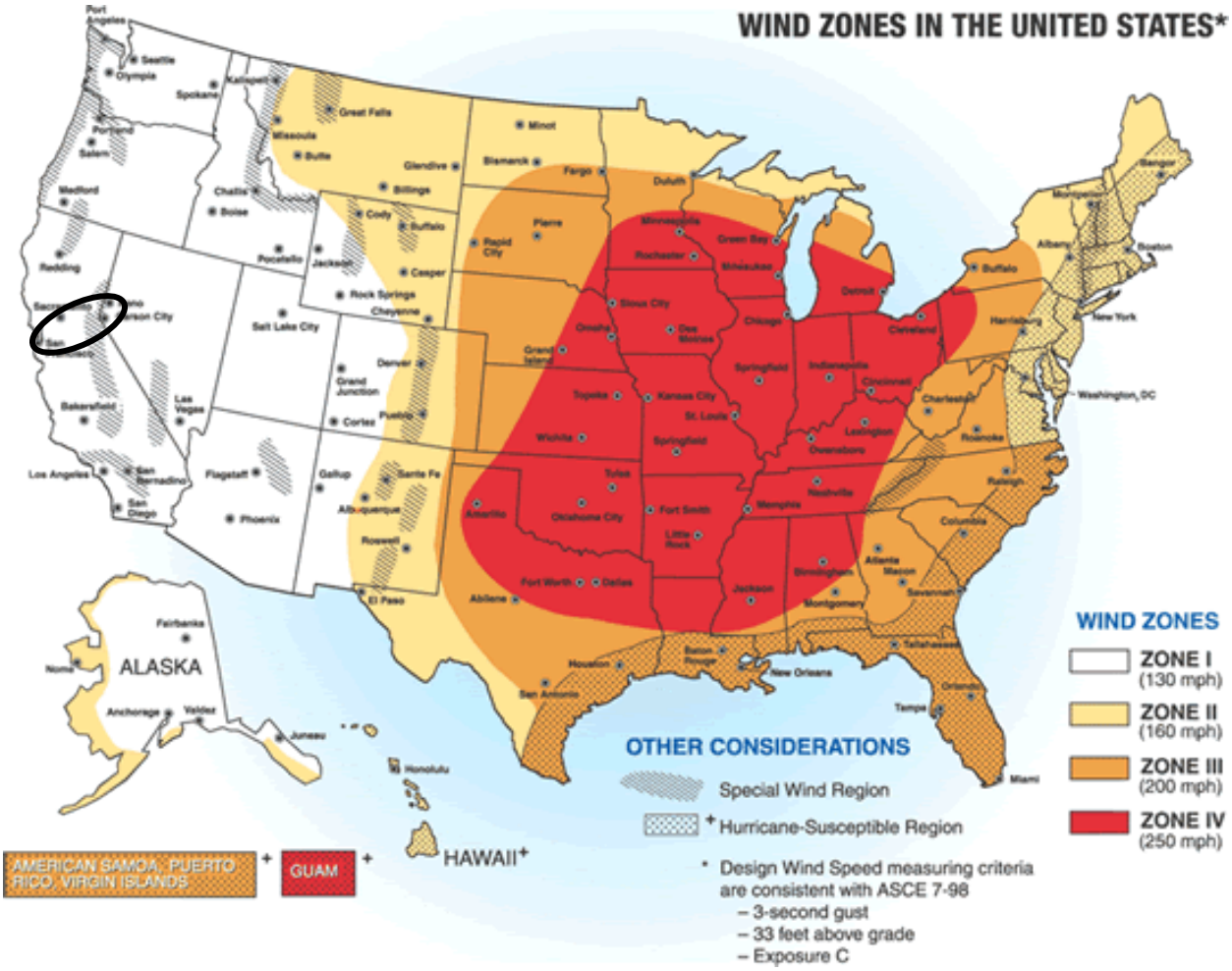
Winds

High winds, often accompanying severe thunderstorms, can cause significant property and crop damage, threaten public safety, and have adverse economic impacts from business closures and power loss.

The Planning Area is subject to significant, non-tornadic (straight-line), winds. High winds, as defined by the NWS glossary, are sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. These winds may occur as part of a seasonal climate pattern or in relation to other severe weather events such as thunderstorms. Straight-line winds may also exacerbate existing weather conditions by increasing the effect on temperature and decreasing visibility due to the movement of particulate matters through the air, as in dust and snow storms. The winds may also exacerbate fire conditions by drying out the ground cover, propelling fuel around the region, and increasing the ferocity of exiting fires. These winds may damage crops, push automobiles off roads, damage roofs and structures, and cause secondary damage due to flying debris.

Figure 4-21 depicts wind zones for the United States. The map denotes that Placer County falls into Zone I, which is characterized by high winds of up to 130 mph. Portions of the County also fall into a Special Wind Region.

Figure 4-21 Wind Zones in the United States

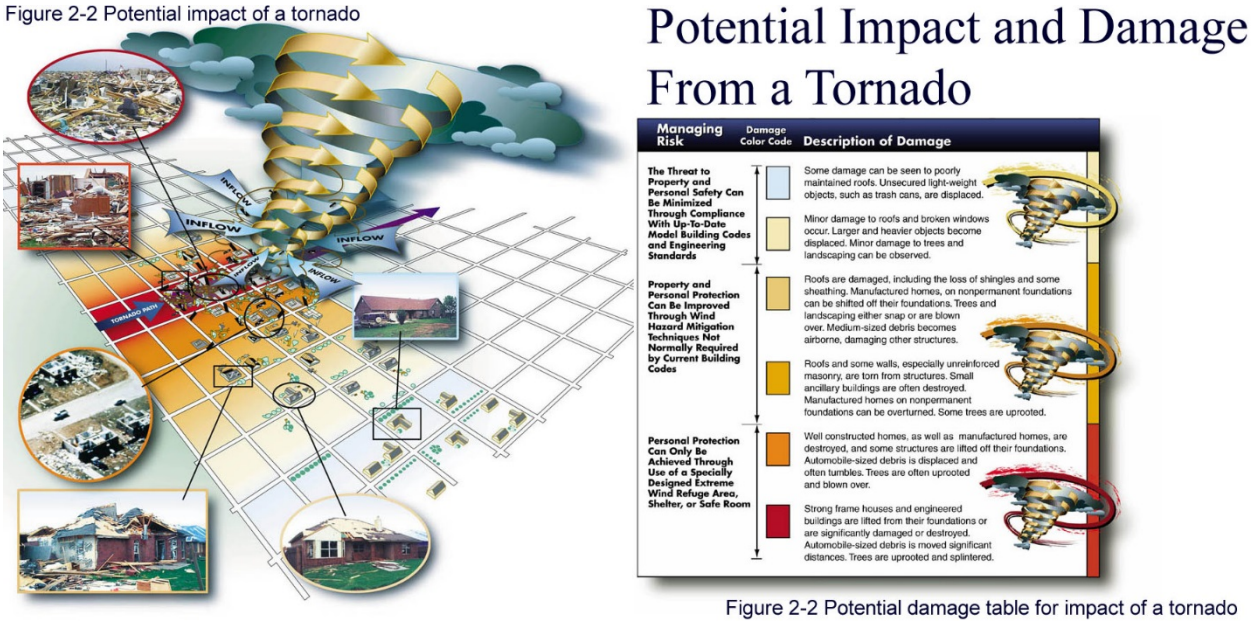


Source: Federal Emergency Management Agency

Tornadoes

Tornadoes and funnel clouds can also occur during these types of storms. Tornadoes are another severe weather hazard that can affect the Placer County Planning Area, primarily during the rainy season in the late fall and early spring. Tornadoes form when cool, dry air sits on top of warm, moist air. Tornadoes are rotating columns of air marked by a funnel-shaped downward extension of a cumulonimbus cloud whirling at destructive speeds of up to 300 mph, usually accompanying a thunderstorm. Tornadoes are the most powerful storms that exist. They can have the same pressure differential across a path only 300 yards wide or less as 300 mile wide hurricanes. Figure 4-22 illustrates the potential impact and damage from a tornado.

Figure 4-22 Potential Impact and Damage from a Tornado



Source: FEMA: Building Performance Assessment: Oklahoma and Kansas Tornadoes

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis and better correlation between damage and wind speed. It is also more precise because it takes into account the materials affected and the construction of structures damaged by a tornado. Table 4-9 shows the wind speeds associated with the original Fujita scale ratings and the damage that could result at different levels of intensity. Table 4-10 shows the wind speeds associated with the Enhanced Fujita Scale ratings.

Table 4-9 Original Fujita Scale

Fujita (F) Scale	Fujita Scale Wind Estimate (mph)	Typical Damage
F0	< 73	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.

Fujita (F) Scale	Fujita Scale Wind Estimate (mph)	Typical Damage
F5	261-318	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

Source: National Oceanic and Atmospheric Administration Storm Prediction Center, www.spc.noaa.gov/faq/tornado/f-scale.html

Table 4-10 Enhanced Fujita Scale

Enhanced Fujita (EF) Scale	Enhanced Fujita Scale Wind Estimate (mph)
EF0	65-85
EF1	86-110
EF2	111-135
EF3	136-165
EF4	166-200
EF5	Over 200

Source: National Oceanic and Atmospheric Administration Storm Prediction Center, www.spc.noaa.gov/faq/tornado/ef-scale.html

Tornadoes can cause damage to property and loss of life. While most tornado damage is caused by violent winds, the majority of injuries and deaths generally result from flying debris. Property damage can include damage to buildings, fallen trees and power lines, broken gas lines, broken sewer and water mains, and the outbreak of fires. Agricultural crops and industries may also be damaged or destroyed. Access roads and streets may be blocked by debris, delaying necessary emergency response.

Past Occurrences

Disaster Declaration History

A search of FEMA and Cal OES disaster declarations turned up multiple events. State disaster declarations occurred in 1958 (twice), 1964 (twice), 1969, 1973, 1983, 1986, 1993, 1997, 2006 (twice), and 2008. Federal disaster declarations occurred in 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997, and twice in 2006.

NCDC Events

The NCDC data recorded 103 hail, heavy rain, wind, and tornado incidents for Placer County since 1950. A summary of these events are shown in Table 4-11 Specific events in the NCDC database showing damages, deaths, or injuries are detailed below the table. HMPC details are captured below the table as well.

Table 4-11 NCDC Severe Weather Events in Placer County 1950-12/31/2014

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Hail	6	0	0	0	0	$1,000	$0

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Heavy Rain	10	2	0	0	0	$10,000	$0
High Wind	61	1	0	2	0	$12,681,000	$48,000
Strong Wind	18	0	2	0	1	$3,176,600	$0
Thunderstorm Wind	3	0	0	0	0	$0	$0
Tornado	5	0	0	0	0	$252,530	$0
Total	**103**	**3**	**2**	**2**	**1**	**$16,121,130**	**$48,000**

Source: NCDC

- **March 22, 1983** – An F0 tornado touched down in Roseville. Witnesses felt rapid pressure drop and witnessed objects being carried into the air. No injuries or deaths were reported. $250,000 of damage was reported.
- **December 9, 1996** – Damage was observed in South Lake Tahoe from strong gusty winds during the morning hours. Trees fell on a couple of homes, causing $50,000 in damage. From surrounding data, winds were estimated in the 55 to 65 mph range. No deaths or injuries were reported.
- **January 18, 1998** – 0.75 inches of rain in 6 hours in downtown Sacramento was one of the lighter rainfall totals as a Pacific storm brought brief but heavy rain to the Sacramento and Northern San Joaquin Valleys and surrounding foothills. 27,000 customers across the area lost power at sometime during the storm. Numerous traffic accidents also occurred, including one near Loomis, CA in which two teens were drowned as their car flipped into a flooded ditch.
- **November 7, 2002** – Wind gusts estimated at over 80 mph blew down trees in the South Lake Tahoe, CA area. Falling trees severely damaged one home and two vehicles. Tree limbs damaged four other homes and downed several power lines, causing scattered power outages. Sparking electric lines caused two brush fires, the largest of which scorched 30 acres. No injuries or deaths were reported. Damages of $300,000 were reported.
- **November 8, 2002** – Strong winds blew a 3 foot diameter pine tree onto a garage in the Tahoe Donner area just north of Truckee, CA. The garage was destroyed, causing $50,000 in damages.
- **December 14, 2002** – strong cold front moving through northern California on December 14 brought near-record high winds to northeast California and western Nevada. Wind gusts reports in the 60-80 mph range were common throughout the day across the entire region, with a few gusts near 100 mph. Remote wind sensors along the Sierra Crest measured wind gusts in excess of 130 mph. The strongest winds occurred just before the cold front moved into the area at about 5:30 p.m. Hundreds of trees and thousands of tree limbs were blown down across the region. In addition, there was widespread damage to roofs, fences, commercial billboards and signs, and power lines. Numerous power outages occurred, some lasting for several days after the event in rural areas. A few relatively minor traffic accidents resulted from the low visibilities. From these, a few minor injuries were reported but fortunately no serious injuries or deaths were reported. The regional electric utility lost 140 power poles and 18 transmission line due to the strong winds, with damages and repair costs estimated at over $3M. Total regional wind damage costs were estimated at nearly $10M.
- **December 26, 2006** – A wind gust estimated at 61 knots (70 mph) knocked over a 6-ft diameter pine tree in South Lake Tahoe. The high winds also took down power lines across the area.
- **January 4, 2008** – A 72 mph wind gust was reported at Blue Canyon. Numerous buildings were damaged due directly to the wind and/or to flying debris and falling trees and branches. Hundreds of customers were without power for up to seven days. Total storm damages were estimated at $726,000.

- **June 11, 2010** – High pressure building into northern California and Nevada on the 11th and 12th created gusty east to northeast winds and choppy conditions on the west side of Lake Tahoe. A boat rescue operator on Lake Tahoe reported four 22 to 25 foot boats sunk from Dollar Point (near Tahoe City) south to Rubicon Bay. $60,000 in damages were reported.
- **August 18, 2010** – South-southwest to southwest winds on Lake Tahoe were sustained between 20 to 25 mph from late morning to early evening on the 18th. The winds (and waves it generated) were sufficient to sink 3 boats. $100,000 in damages were reported.
- **December 11, 2014** – Winds gusted to 60 and 70 mph at the Truckee and South Lake Tahoe airports, respectively, on the morning of the 11th. Over the Sierra ridges, winds gusted as high as 135 mph. Numerous trees and power lines were downed, along with damage to several homes and vehicles due to fallen trees. The power outages, some lasting up to 2 days, caused South Lake Tahoe schools to be closed through the 12th. Finally, winds downed a tree which caused the death of a teenager in a heavily wooded area. Damages from this event were estimated at $700,000.

HMPC Events

- **February 1, 1990** – A rain storm caused water damage to a floor in the Foresthill Union School District causing $4,680 in damages.
- **February 20/21, 1990** – Excessive rain and wind closed the schools in Colfax and Iowa Hill; damages unknown.
- **March 4, 1991** – High winds caused a roof to blow off a building in the Foresthill Union School District causing $10,629 in damages.
- **January 10/11, 1995-** Excessive rain and wind closed the school in Colfax; damages unknown.
- **1995 Winter Storms** – The roof drains of the Placer Union High School gymnasium became clogged, damaging the roof and flooding the gymnasium. Damages were incurred and FEMA paid out disaster monies in the amount of $7,108.33.
- **December 12, 1995** – High winds caused a power outage resulting in the closure of Franklin Elementary, Placer Elementary, and Loomis Grammar School (Loomis Union School District).
- **1996** – Heavy rain clogged storm drains causing flooding in the Cavitt School gymnasium in southern Placer County. Total damage was $85,976 covered by Emergency Services under a disaster declaration.
- **December 16, 2002** – Excessive rain and wind closed the school in Colfax; damages unknown.
- **December 20, 2002** – High winds caused a power outage resulting in the Franklin Elementary School closure (Loomis Union School District).
- **October 31, 2003 -** Winds associated with heavy storms caused a power outage and closure of Truckee Elementary School. The area affected Donner Pass Road in the city of Truckee. Costs associated with the closure were paid for by the State insurance program.
- **December 2005/January 2006 –** Flooding occurred in the County as a result of heavy rains and stormwater runoff caused by severe winter storms. Storms impacted transit on public roads and caused some business closures.
- **March/April 2006** – Spring storm resulted in local disaster proclamation from extended rain and wind storm. Placer County roadways in unincorporated areas, particularly Foresthill Road and Ophir Road, were significantly damaged due to rain and mudslides. Costs to public agencies were in excess of $1 million.
- **January 2008** –Severe winter storms brought massive snow, rain, and near record winds to Northern California over the first weekend in January, 2008 beginning on Friday January 4, 2008. It resulted in the temporary loss of power to some 2.5 million Pacific Gas & Electric (PG&E) customers throughout

Northern California; approximately 45,000 in Placer County alone. In some cases, power outages lasted up to six days; and, in addition to the power outages, extensive physical damage was recorded in the foothill area between Alta/Dutch Flat and Foresthill due primarily to falling trees or large tree limbs. Numerous other houses and businesses throughout the foothills and western portions of the County were damaged by falling trees, flying debris, water or wind. As a result, Placer County declared a local emergency. The initial damage assessment provided to the State Office of Emergency Services indicated damages of over $410,000 in the public sector, and an estimated $600,000 of private, residential damage. Businesses losses were much smaller and initial estimates were in the range of only $205,000 total for five businesses.

- **January 2016** – Flash flood warnings were issued for burn zone areas in the Sierra foothills, as heavy rains pummeled the area. Drivers were also urged not to not use area roadways in the area because of the possibility of debris flows and mudslides on hillsides that might be unstable because of the fires.

Likelihood of Future Occurrence

Highly Likely – Based on NCDC data and HMPC input, 103 heavy rain, hail, lightning, and thunderstorm wind incidents over a 65-year period (1950-2014) equates to a severe storm event every year and a 100 percent chance of a severe storm in any given year. This database doesn't report all heavy rain, hail, lightning, and wind events. Severe weather is a well-documented seasonal occurrence that will continue to occur annually in the Placer County Planning Area.

Climate Change and Heavy Rains and Storms

According to the CAS, while average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. This may bring stronger thunderstorm winds. It is unlikely that hail will become more common in the County. The amount of lightning and tornadoes is not projected to change.

4.2.6. Agricultural Hazards

Hazard/Problem Description

Before its rapid population growth in the 1970s and 1980s, Placer County was known as an agricultural and timber-producing county. Agriculture and timber production are still important sectors of the County's economy; however, manufacturing, recreation, and service industries have increased in economic importance. Agricultural lands continue to be at risk to development based on population growth projections for the County. In western Placer County, land traditionally used for agricultural purposes lies near existing cities and is expected to accommodate much of this population increase. While its agricultural land is threatened, Placer County retains a significant amount of agricultural land where the economy is intact and where farmers are a real presence in the community.

According to the California Department of Conservation's Farmland Mapping and Monitoring Program (FMPP), the County has approximately 7,340 acres of prime farmland, 4,068 acres of farmland of statewide importance, 18,060 acres of farmland of local importance, and 24,193 acres of grazing land. These numbers have been reduced quite considerably since 2004 due to increased development in the County. (see Table 4-12).

Table 4-12 Placer County Farmland Inventory, 2010

Soil Category	2004 Acres	2010 Acres
Prime Farmland	9,236	7,340
Farmland of Statewide Importance	5,509	4,068
Unique Farmland	23,283	18,060
Farmland of Local Importance	86,234	103,273
Grazing Land	46,000	24,193
Urban and Built-Up Land	42,181	58,714
Water	5,027	5,011
Other Land	184,058	190,803
Total Area Inventoried	**411,528**	**411,462**

Source: State of California Department of Conservation Farmland Mapping and Monitoring Program, www.conservation.ca.gov/

According to the 2013 crop report, the 2013 total gross value of agricultural products in the County was $82,625,000. The total gross value for 2007 was $64,297,934. This represents an increase of $9,428,000, or 12.9% above 2012's value of $73,197,000. This report reflects the gross value of agricultural crops and products and not the net income producers receive.

Rice remained Placer County's top grossing crop in 2013 with a value of $22,968,000. Cattle and calves were second in total value at $11,894,000 followed by timber with total value of $8,998,000. Nursery Stock ranked as Placer County's fourth most valuable crop with a gross value of $8,854,000. Walnuts rounded out the top five crops with a total value of $5,349,000. These values fluctuate over time, due to both weather and market conditions. A summation of crop values from 2009-2013 is shown in Table 4-13.

Table 4-13 Placer County Crop Values 2009 to 2013

INDUSTRY	2009	2010	2011	2012	2013
Fruit & Nut Crops	$6,795,268	$6,419,206	$6,168,167	$7,738,000	$10,811,000
Field Crops	$33,075,940	$34,213,673	$24,575,064	$30,700,000	$30,407,000
Vegetable Crops	$500,000	$800,000	$1,000,000	$1,250,000	$1,500,000
Livestock/Poultry	$17,632,000	$12,908,482	$20,087,757	$21,520,000	$20,397,000
Livestock/Poultry Products	$1,500,000	$1,600,000	$1,600,000	$1,300,000	$1,430,000
Nursery Products	$6,901,690	$5,048,712	$8,667,785	$7,178,000	$8,854,000
Apiary Products	$76,250	$39,601	$50,120	$60,000	$56,000
Subtotals	$66,481,148	$61,029,674	$62,148,893	$69,746,000	$73,455,000
Timber Harvest/Christmas Trees	$782,451	$4,659,958	$5,409,338	$3,451,000	$9,170,000
GRAND TOTALS	**$67,263,599**	**$65,689,632**	**$67,558,231**	**$73,197,000**	**$82,625,000**

Source: Placer County Agricultural Commissioner's Reports, 2009-2013

According to the HMPC, agricultural losses occur on an annual basis and are usually associated with severe weather events, including heavy rains, floods, heat, and drought. The 2013 State of California Multi-Hazard

Mitigation Plan attributes most of the agricultural disasters statewide to drought, freeze, and insect infestations. Other agricultural hazards include fires, crop and livestock disease, and noxious weeds.

Placer County is threatened by a number of insects that, under the right circumstances, can cause severe economic and environmental harm to the agricultural industry. Insects of concern to plants and crops include the melon fruit fly, Oriental fruit fly, Mediterranean fruit fly, gypsy moth, light brown apple moth, Japanese beetle, European grapevine moth, Asian citrus psyllid, and glassy-winged sharpshooter. The Placer County Department of Agriculture traps and monitors all of these agricultural pests. Pest detection is a proactive program that seeks to identify exotic, invasive insects. These pests have a wide host ranges and are difficult and costly to manage once established. Early detection is essential for quick and efficient eradication. Public participation is critical to the success of this program, since staff relies on the goodwill of property owners who allow traps to be placed on their properties. The Agriculture Department deploys over 1,300 traps annually between spring and fall.

Noxious weeds, defined as any plant that is or is liable to be troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, are also of concern. Noxious weeds within the Planning Area include yellow starthistle, citrus red scale, Italian thistle, klamathweed, puncturevine, red gum lerp psyllid, and skeletonweed. The Placer County Department of Agriculture uses biological control measures to contain all of these agricultural pests. In cooperation with the California Department of Food and Agriculture, Agricultural Inspectors actively conduct surveys for invasive pest species. Pest eradication efforts in Placer County are currently focused on noxious weeks such as spotted knapweed, Scotch thistle, and yellow starthistle.

Noxious weeds have been introduced in the Planning Area by a variety of means, including through commercial nurseries. An absence of natural controls, combined with the aggressive growth characteristics and unpalatability of many of these weeds, allows these weeds to dominate and replace more desirable native vegetation. Negative effects of weeds include the following:

- Loss of wildlife habitat and reduced wildlife numbers;
- Loss of native plant species;
- Reduced livestock grazing capacity;
- Increased soil erosion and topsoil loss;
- Diminished water quality and fish habitat;
- Reduced cropland and farmland production; and
- Reduced land value and sale potential.

According to the HMPC, the consequences of agricultural disasters to the Planning Area include ruined plant crops, dead livestock, ruined feed and agricultural equipment, monetary loss, job loss, and possible multi-year effects (i.e., trees might not produce if damaged, loss of markets, food shortages, increased prices, possible spread of disease to people, and loss or contamination of animal products). When these hazards cause a mass die-off of livestock, other issues occur that include the disposal of animals, depopulation of affected herds, decontamination, and resource problems. Those disasters related to severe weather may also require the evacuation and sheltering of animal populations. Overall, any type of severe agricultural disaster can have significant economic impacts on both the agricultural community and the entire Placer County Planning Area.

According to the US Department of Agriculture (USDA), every year natural disasters, such as droughts, earthquakes, extreme heat and cold, floods, fires, earthquakes, hail, landslides, and tornadoes, challenge agricultural production. Because agriculture relies on the weather, climate, and water availability to thrive, it is easily impacted by natural events and disasters. Agricultural impacts from natural events and disasters most commonly include: contamination of water bodies, loss of harvest or livestock, increased susceptibility to disease, and destruction of irrigation systems and other agricultural infrastructure. These impacts can have long lasting effects on agricultural production including crops, forest growth, and arable lands, which require time to mature.

Past Occurrences

Disaster Declaration History

The Placer County Department of Agriculture provided information on disaster declarations from 2002 through 2015. All but one of the declarations were associated with severe weather events.

Table 4-14 Placer County USDA Designations: 2002-2015

Year	Incident Type
2002	Drought Event
2002	Rain/Wind Event
2003	Hail/Freeze Event
2003	Excessive/Late Rain Event
2003	Drought Event
2003	Late Rain/Heat Event
2004	Drought Event
2004	Unseasonably Early Heat Event
2004	Fire Event
2005	Freeze Event
2005	Unseasonably Late Rain Event
2005	Heat Event
2006	Heat Event
2006	Severe Weather Event (Rain/Hail)
2007	Heat Event
2007	Freeze Event
2007	Drought Event
2008	Drought Event
2008	Freeze Event
2008	Wind Event
2009	Drought
2012	Drought (Declared 2 times)

Year	Incident Type
2013	Drought
2014	Drought (Declared 3 times)
2015	Drought (Declared 2 times)

Source: Placer County Department of Agriculture

NCDC Events

The NCDC does not track agriculture events.

HMPC Events

The HMCP noted that agriculture events occur yearly, though with varying levels of damages.

Likelihood of Future Occurrence

Highly Likely—As long as severe weather events continue to be an ongoing concern to the Placer County Planning Area, the potential for agricultural losses remains.

Climate Change and Agricultural Hazards

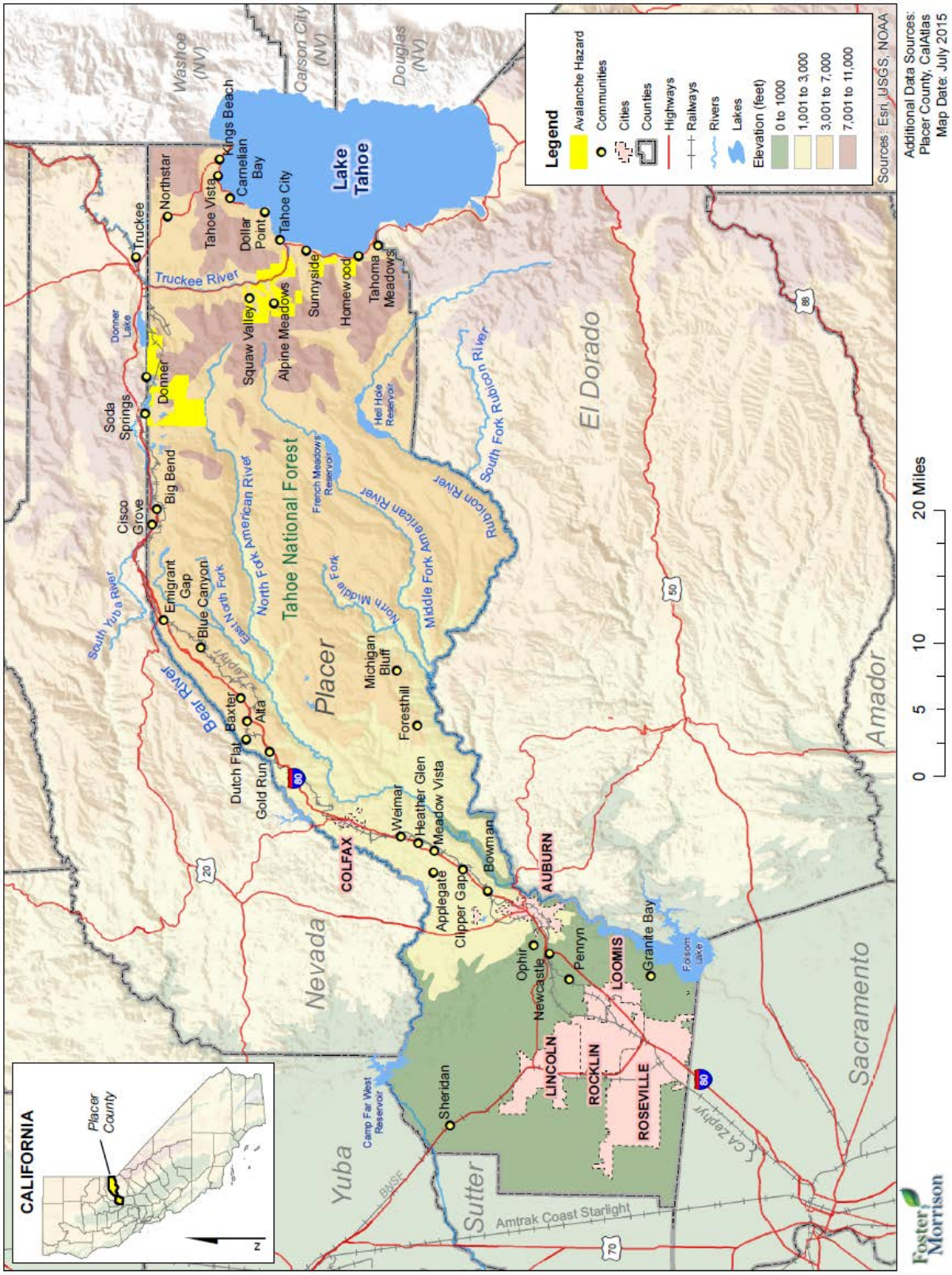
According to the CAS, addressing climate change in agriculture will encompass reducing vulnerability through adapting to the ongoing and predicted impacts of climate. Agriculture in California is vulnerable to predicted impacts of climate change, including less reliable water supplies, increased temperatures, and increased pests.

4.2.7. Avalanche

Hazard/Problem Description

Avalanches occur when loading of new snow increases stress at a rate faster than strength develops, and the slope fails. Critical stresses develop more quickly on steeper slopes and where deposition of wind-transported snow is common. The vast majority of avalanches occur during or shortly after storms. This hazard generally affects a small number of people, such as snowboarders, skiers, and hikers, who venture into backcountry areas during or after winter storms. Roads and highway closures, damaged structures, and destruction of forests are also a direct result of avalanches. The combination of steep slopes, abundant snow, weather, snowpack, and an impetus to cause movement creates avalanches. Areas prone to avalanche hazards include hard to access areas deep in the backcountry. Avalanche hazards exist in eastern Placer County where combinations of the above criteria occur. This is shown on Figure 4-23.

Figure 4-23 Placer County – Avalanche Hazard Areas



Past Occurrences

Disaster Declaration History

There have been no disasters related to avalanche in Placer County.

NCDC Events

There have been no NCDC avalanche events in Placer County.

HMPC Events

Historically, avalanches occur within the County between the months of December and March, following snowstorms. Although avalanches have occurred on slopes of many angles, they most often occur on slopes ranging between 30 degrees and 45 degrees. Therefore ski resorts, residences, roads, businesses, and other structures and activities in these areas are vulnerable. Areas where the potential for avalanches to exist are zoned as moderate or high avalanche hazard zones and have been identified. Moderate hazard zones are usually on shallow slopes and located immediately downhill of high zones. These high and moderate zones are located near the Nevada County line, south of Donner Lake and Lake Van Norden, east of Tahoe City, near Twin Peaks and McKinney Bay, and in areas near Squaw Valley, Alpine Meadows, and Sugar Bowl. According to the 2004 Placer Operational Area, Emergency Operations Plan, areas of particular concern include:

- Alpine Meadows, Bear Creek drainage;
- West shore of Donner Lake;
- Donner Summit/Norden Area;
- West shore of Lake Tahoe (Homewood & Ward Creek tract);
- Serene Lakes, Onion Creek drainage;
- Squaw Valley;
- Sugar Bowl Ski Resort and Onion Creek;
- Truckee River Corridor/Highway 89 Corridor; and
- Northstar Ski Resort.

The following avalanche incidents have resulted in fatalities within Placer County:

- **March 31, 1982** – At Alpine Meadows, a 30-foot high wall of snow plowed through a ski lodge and other buildings at 80 mph, killing seven people. SHELDUS estimated the cost of the damages at $5 million.
- **February 11, 199**8 – Donner Summit backcountry, one fatality - snowboarder.
- **February 6, 1999 –** Donner Summit, one fatality.
- **February 21, 2001** – Squaw Valley, two fatalities, Class II Avalanche. A storm resulted in 20 inches of snow and winds out of the SSW were in the 40-50 mile per hour range with gusts up to 60-70 miles per hour.
- **March 8, 2002** – Sugarbowl Resort, one fatality. A storm hit with 34 inches of snow and winds were up to 100 miles per hour.
- **January 1, 2004** – Donner Summit near Castle Peak, one fatality.

- **December 25, 2008** – The Sacramento Bee newspaper reported that a 21-year-old skier died in an avalanche in the Sierra on Christmas morning. The newspaper reported that the skier's body was found buried following an avalanche in the Red Dog area at Squaw Valley Ski Resort. The victim was a resident of Tahoe City.
- **March 3, 2009** – A ski patrolman was partially buried in an avalanche at Squaw Valley Ski Resort while he was working avalanche controls. He was dug out of the avalanche by another member of the ski patrol. He was transferred to Renown Regional Medical Center in Reno but later died from his injuries.
- **March 1, 2012** – A Sierra Avalanche Center report indicated that three skiers were skiing in the backcountry near Alpine Meadows when one of the skiers triggered an avalanche about 300 ft wide by 500 feet long and one foot deep. The skier was buried under 3 feet of snow. The other two skiers found the victim within several minutes. However, the victim sustained severe injuries due to impact with trees and debris and died in the hospital that night.
- **December 24, 2012** – One fatality occurred when a male snowboarder, age 49, was caught in an avalanche at Donner Ski Ranch. The man's body was found under 2-3 feet of snow at the base of the avalanche. The wind had blown snow to depths of 7 ft or more where the man was snowboarding.
- **December 24, 2012** – Avalanche control activities (explosives) at the Alpine Meadows Ski resort resulted in the death of an experienced ski patroller. The avalanche broke much wider and higher than expected based on past experience. The man was found and uncovered within 8 minutes of the avalanche. He was airlifted via CareFlight helicopter to Renown Medical Center in Reno where he died.

Likelihood of Future Occurrence

Likely—Injuries and loss of life from an avalanche are usually due to people recreating in remote areas at the wrong time. Given the topography and amount of snow falling on an annual basis in eastern Placer County, avalanches and resulting damages, including injuries and loss of life, will continue to occur.

Climate Change and Avalanche

According to the CAS, climate change may exacerbate the avalanche hazard in the County. Avalanches stemming from a weather pattern of heavy snowfalls followed by thawing may increase – a dangerous combination that can be expected with climate change.

4.2.8. Dam Failure

Hazard/Problem Description

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped and fail. Overtopping is the primary cause of earthen dam failure in the United States.

Dam failures can also result from any one or a combination of the following causes:

- Earthquake;
- Inadequate spillway capacity resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage, or piping or rodent activity;
- Improper design;
- Improper maintenance;
- Negligent operation; and/or
- Failure of upstream dams on the same waterway.

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major loss of life could result as well as potentially catastrophic effects to roads, bridges, and homes. Electric generating facilities and transmission lines could also be damaged and affect life support systems in communities outside the immediate hazard area. Associated water supply, water quality and health concerns could also be an issue. Factors that influence the potential severity of a full or partial dam failure are the amount of water impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

In general, there are three types of dams: concrete arch or hydraulic fill, earth and rockfill, and concrete gravity. Each type of dam has different failure characteristics. A concrete arch or hydraulic fill dam can fail almost instantaneously; the flood wave builds up rapidly to a peak then gradually declines. An earth-rockfill dam fails gradually due to erosion of the breach; a flood wave will build gradually to a peak and then decline until the reservoir is empty. And, a concrete gravity dam can fail instantaneously or gradually with a corresponding buildup and decline of the flood wave.

Dams and reservoirs have been built throughout California to supply water for agriculture and domestic use, to provide capacity for flood management, as a source of hydroelectric power, and to serve as recreational facilities. The largest reservoir in Placer County is Folsom Lake. Folsom Lake was built by the U.S. Army Corps of Engineers and it is now operated by the U.S. Bureau of Reclamation. It has a capacity of 976,000 acre-feet and it surface extends into both El Dorado and Sacramento Counties. Folsom Lake is contained by and series of dams and dikes. Failure of some of the dikes could pose a hazard to areas in Placer County.

The California Department of Water Resources Division of Safety of Dams has jurisdiction over impoundments that meet certain capacity and height criteria. Embankments that are less than six feet high and impoundments that can store less than 15 acre-feet are non-jurisdictional. Additionally, dams that are less than 25 feet high can impound up to 50 acre-feet without being jurisdictional. The California Department of Water Resources (Cal DWR) Division of Safety of Dams assigns hazard ratings to large dams within the State. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in three categories that identify the potential hazard to life and property:

- High hazard indicates that a failure would most probably result in the loss of life
- Significant hazard indicates that a failure could result in appreciable property damage

- Low hazard indicates that failure would result in only minimal property damage and loss of life is unlikely

According to data provided by Placer County, Cal DWR, and Cal OES, there are 47 dams in Placer County constructed for flood control, storage, electrical generation, and recreational purposes. Of the 47 dams, 4 are rated as High Hazard, 8 as Significant Hazard, 27 as Low Hazard, and 8 were not rated.

Table 4-15 identifies the 47 dams located in the Placer County Planning Area. Figure 4-24 illustrates the locations of identified dams.

Table 4-15 Placer County Dam Inventory

Name	Significance	Owner	River	Nearest City/ Distance (mi)	Mapped	Structural Height (ft)	Maximum Storage (acre-ft)
Auburn Dam	N/A	N/A	N/A	N/A	N	N/A	N/A
Auburn Valley #3	L	Golf Resources of Auburn	Tributary of the Bear River	Auburn 4	Y	39	270
Auburn Valley #2	N/A	N/A	N/A	N/A	Y	N/A	N/A
Baldwin	Low	N/A	N/A	N/A	Y	N/A	N/A
Boole	Low	Our Lady of the Oaks	Tributary of American River	Applegate 1	Y	28	106
Christian Valley	Significant	Pac Gas and Electric	South Fork of Dry Creek	Bowman 0	Y	18	165
City Of Lincoln # 2	Low	City of Lincoln	Tributary of Markham Ravine	Lincoln 1	Y	21	301
City Of Lincoln # 4	Low	City of Lincoln	Offstream	–	Y	18	301
City Of Lincoln WWTP	Low	City of Lincoln	Tributary of Markham Ravine	Lincoln 2	Y	33	454
Clover Valley	Low	Placer County Water Agency	Tributary of Antelope Creek	Rocklin 5	Y	35	53
Columbian	N/A	Private	Tributary of Auburn Ravine	Lincoln 5	N	44	132
Drum Forebay	Significant	Pacific Gas and Electric	Drum Canal	Baxter 3	Y	65	621
Halsey Forebay	Significant	Pacific Gas and Electric	Dry Creek	Auburn 1	Y	42	250

Name	Significance	Owner	River	Nearest City/ Distance (mi)	Mapped	Structural Height (ft)	Maximum Storage (acre-ft)
Hinkle	Significant	San Juan Suburban Water Dist.	Tributary of American River	Orangevale 2	Y	20	200
Ice Lakes	Low	Sierra Lakes Co Water Dist.	Serena Creek	Soda Springs 2	Y	12	340
Interbay	Low	Placer County Water Agency	Middle Fork Interbay	Auburn 30	Y	71	14,360
Kelly Lake	Low	Pacific Gas and Electric	North Fork American River	Washington 8	Y	24	360
Kidd Lake Main	Low	Pacific Gas and Electric	South Yuba River - Tributary	Washington	25	43	1,520
Kokila	Low	Private	Tributary of Miners Ravine	Roseville 6	Y	18	94
LL Anderson	Low	N/A	N/A	N/A	Y	N/A	N/A
Lake Alta Dam	Low	Placer County Water Agency	Tributary of the North Fork of the American River	Dutch Flat 1	Y	22	318
Lake Arthur	Low	Placer County Water Agency	South Fork of Dry Creek	Auburn 3	Y	44	137
Lake Mary	Low	Sugar Bowl Corporation	Tributary of the South Fork of Yuba River	Soda Springs 3	Y	22	232
Lake Tahoe	N/A	Department of the Interior	Truckee River	Truckee 17	Y	18	840,000
Lake Theodore	Low	Placer County Water Agency	South Fork of Dry Creek	Bowman 4	Y	40	265
Lake Valley	Significant	Pacific Gas & Electric	North Fork of American River	Washington 25	Y	28	7,960
Lakewood	Low	Private	Dry Creek	Auburn 2	Y	33	285
Lower Hell Hole	High	Placer County Water Agency	Rubicon River	N/A	Y	41	208,400

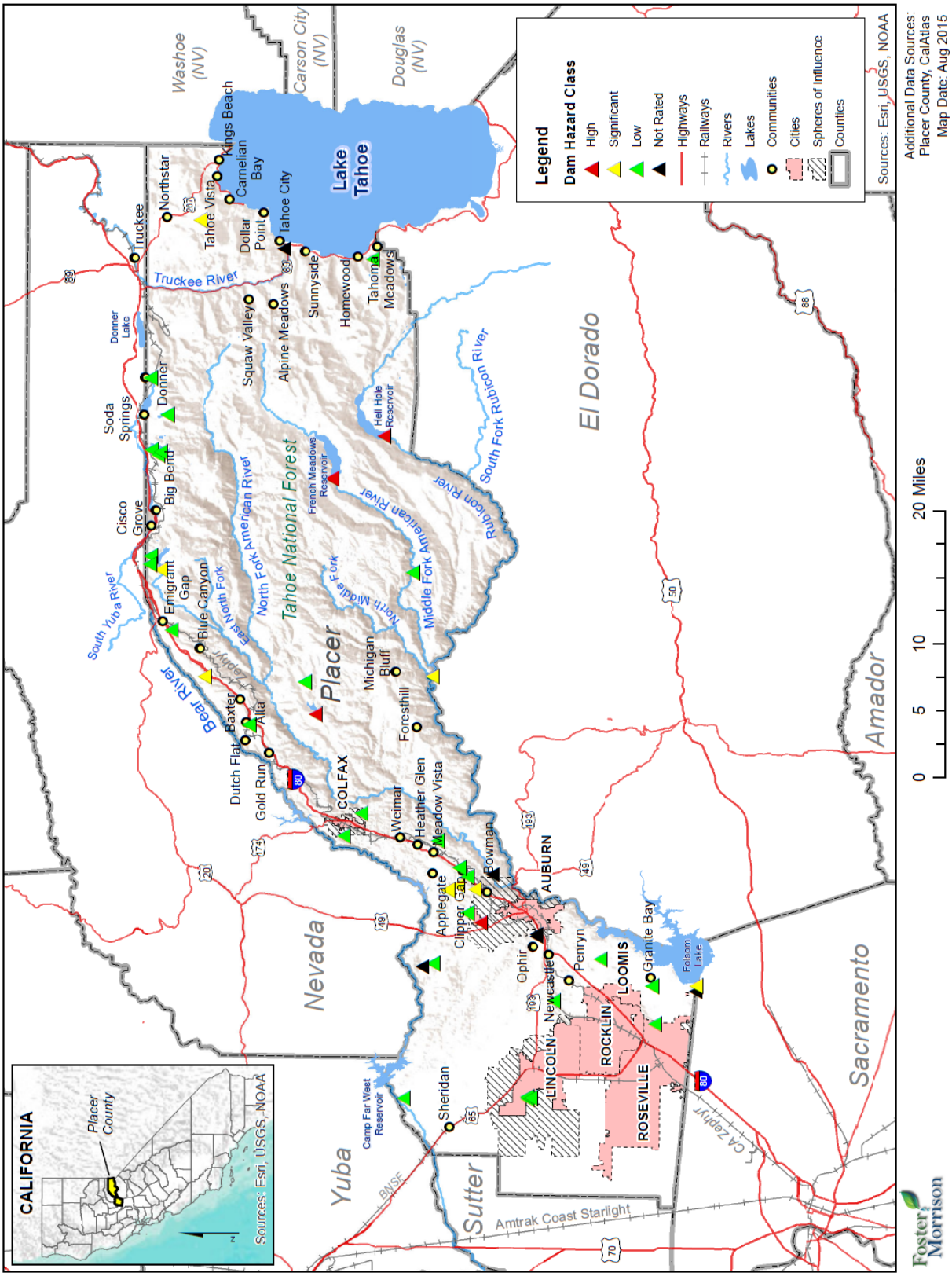
Name	Significance	Owner	River	Nearest City/ Distance (mi)	Mapped	Structural Height (ft)	Maximum Storage (acre-ft)
Lower Peak Lake	Low	Pacific Gas & Electric	Tributary of South Yuba River	Washington 25	Y	31	484
Mammoth Res	Low	Placer County Water Agency	Offstream	Hidden Valley 4	Y	23	150
Miners Ravine Detention	Low	Placer County Flood Control District	Miners Ravine	N/A	Y	23	120
Morning Star Res	Low	De Anza Placer Gold Mining	North Forbes Cr	Auburn 30	Y	44	2,000
North Fork Dam	N/A	Cespk	North Fork American River	Folsom 22	Y	155	14,700
Patterson Sec 29	Low	Private	Tributary of Bear River	Wheatland 5	Y	22	151
Putts Lake	Low	Private	Blue Canyon Creek	Blue Canyon 2	Y	19	388
Quail Lake	Low	Tahoe City PUD	Tributary of Lake Tahoe	Tahoma 2	Y	14	160
Ralston Afterbay	Significant	Placer County Water Agency	Rubicon River	Auburn 20	Y	89	2,800
Reservoir A	Significant	Northstar Comm Svc, Dist.	West Martis Creek	Truckee	5	93	216
Rock Creek		Pacific Gas & Electric	Rock Creek	Auburn 1	Y	36	550
Sewer Stab Pond #3	N/A	N/A	N/A	N/A	Y	N/A	N/A
Sewer Stab Pond #5	N/A	N/A	N/A	N/A	Y	N/A	N/A
Snowflower	Low	Naco West of California	Kelly Creek	Auburn 42	Y	-	380
Spring Vy Ranch	Low	Private	Tributary of Campbell Creek	Pinecroft 2	Y	-	95
Sugar Pine	High	Department of the Interior	North Shirttail Creek	None	Y	205	10,964

Name	Significance	Owner	River	Nearest City/ Distance (mi)	Mapped	Structural Height (ft)	Maximum Storage (acre-ft)
Upper Peak Lake	Low	Pacific Gas and Electric	South Yuba River	Washington 25	Y	39	1,740
Wastewater Storage	Low	City of Colfax	Tributary of Smuthers Ravine	Illinois Town 1	Y	75	248
Winchester	Significant	Private	Tributary of Orr Creek	N/A	Y	39	58

Source: Cal OES and the National Performance of Dams Program

*One Acre Foot=326,000 gallons

Figure 4-24 Placer County Dam Inventory



There are several dams, which, if they fail, may impact the people and resources of Placer County. 7 dams in Placer County are at least 75 feet tall or have a capacity of 10,000 acre-feet of water. Failure of any one of these dams would flood downstream areas and could cause loss of life and property. Both unincorporated and incorporated areas of the County are identified on dam failure inundation maps prepared for the County. The inundation areas for each of the dams are generally downstream and include large rural and urban areas on the valley floor below the dams.

There are four additional facilities, Mark Edson Dam (rated a significant hazard dam) in El Dorado County, Lake Angela (rated a significant hazard dam) in Nevada County, Rollins Reservoir (rated a high hazard dam) in Nevada County, and Stumpy Meadows (rated as a significant hazard dam) in El Dorado County with the potential to impact the Placer County Planning Area.

Past Occurrences

Disaster Declaration History

There have been no disasters declarations related to dam failure in Placer County.

NCDC Events

There have been no NCDC dam failure events in Placer County.

HMPC Events

According to the HMPC, there have been five uncontrolled releases from area dams:

- **Hell Hole Dam** - In 1964 construction of the Hell Hole dam was underway and the contractor had stopped operations for the winter. A major storm event (rains) occurred during December 1964 causing the Hell Hole Reservoir to fill and since the dam was not completed, it failed sending a considerable amount of water towards Auburn. 30,000 acre-feet of water washed out a bridge on Highway 49 over the American River at the confluence of the North and Middle Forks and flooded a quarry. Due to the way the construction contract was worded, the contractor had to rebuild the dam at his own expense. As a result, Placer County incurred no costs related to this event. No claims for damages were filed against PCWA by either the quarry owner or the state.
- **1986 Auburn Coffer Dam** – As a result of area flooding, the Coffer Dam at Auburn breached and partially washed away. The U.S. Bureau of Reclamation had designed the Coffer Dam for a controlled failure by building a soft earthen plug into the dam for this purpose. It appears the dam failed as designed.
- **August 2004 Ralston Dam Release Gate Break** – A broken release gate on Ralston Dam in the Middle Fork of the American River prompted the National Weather Service to issue a flash flood warning in Placer County. According to the PCWA, the gate near the Ralston Powerhouse malfunctioned at 6 a.m. The sudden release of water from Ralston Reservoir south of Auburn sent a "wall of water three to four-feet high" down the river. About 800 to 1,000 acre-feet of water were released, with flows peaking between 10-11 a.m. It was expected to reach Folsom Dam by 12 noon. Sheriff's deputies and California Highway Patrol officers alerted campers in the Auburn State Recreation Area to move to higher ground. The CHP was monitoring the muddy water as it approached Highway 49. There were no immediate

reports of injuries or damage along the river, which is popular with rafters, kayakers and residents fleeing the summer heat.

- **August 2009 Cottonwood Dam** – a privately owned and constructed dam on Miners Ravine located within the Hidden Valley Estates subdivision (Auburn Folsom Rd and Twin Rocks Rd area of Granite Bay), failed and leached flows and sediment into Miners Ravine. NOAA/NMFS quickly became involved because of the impacts to critical fish species. A temporary fix (notch) in the concrete portion of the dam was approved and made while the HOA and interested agencies determined next steps. A dam removal project with creek restoration is now being proposed.
- **January 2016 Folsom Dam -** On 1/20/2016 there was a seepage of the Folsom cofferdam during final construction. The incident involved a seepage in the spillway basin. At no time was there a threat of an actual dam failure.

Likelihood of Future Occurrence

Jurisdictional Dams: Unlikely/Smaller, non-jurisdictional Dams: Occasional—The County remains at risk to dam breaches/failures from numerous dams under a variety of ownership and control and of varying ages and conditions. Given the number and types of dams in the County and the history of past uncontrolled releases to dams, the potential exists for future dam issues in the Placer County Planning Area.

Climate Change and Dam Failure

Increases in both precipitation and heat causing snow melt could increase the potential for dam failure and uncontrolled releases in Placer County.

4.2.9. Drought and Water Shortage

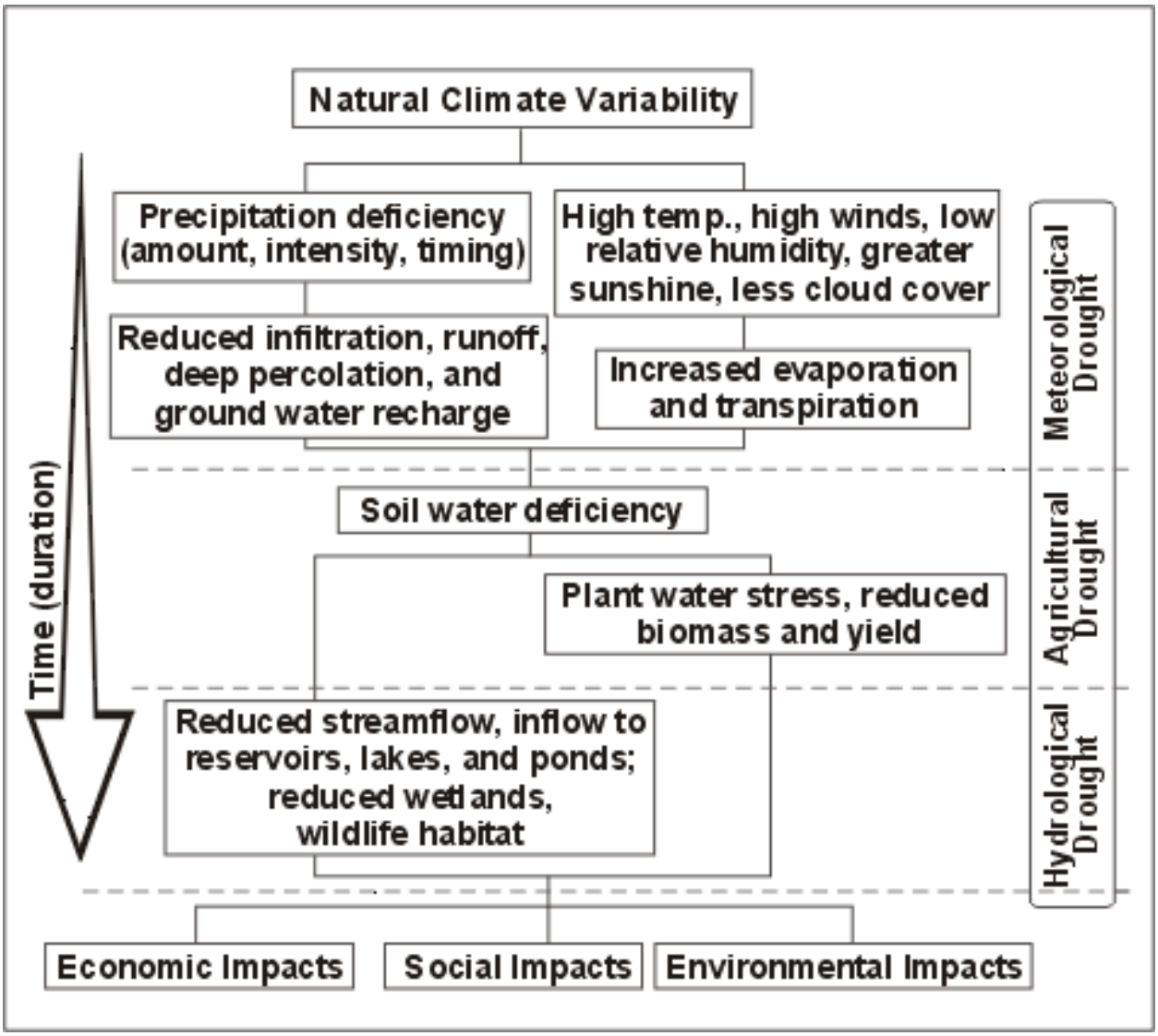
Hazard/Problem Description

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends. Water districts normally require at least a 10 year planning horizon to implement a multiagency improvement project to mitigate the effects of a drought and water supply shortage.

Drought is a complex issue involving (see Figure 4-25) many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects:

- Meteorological drought is usually defined by a period of below average water supply.
- Agricultural drought occurs when there is an inadequate water supply to meet the needs of the state's crops and other agricultural operations such as livestock.
- Hydrological drought is defined as deficiencies in surface and subsurface water supplies. It is generally measured as streamflow, snowpack, and as lake, reservoir, and groundwater levels.
- Socioeconomic drought occurs when a drought impacts health, well-being, and quality of life, or when a drought starts to have an adverse economic impact on a region.

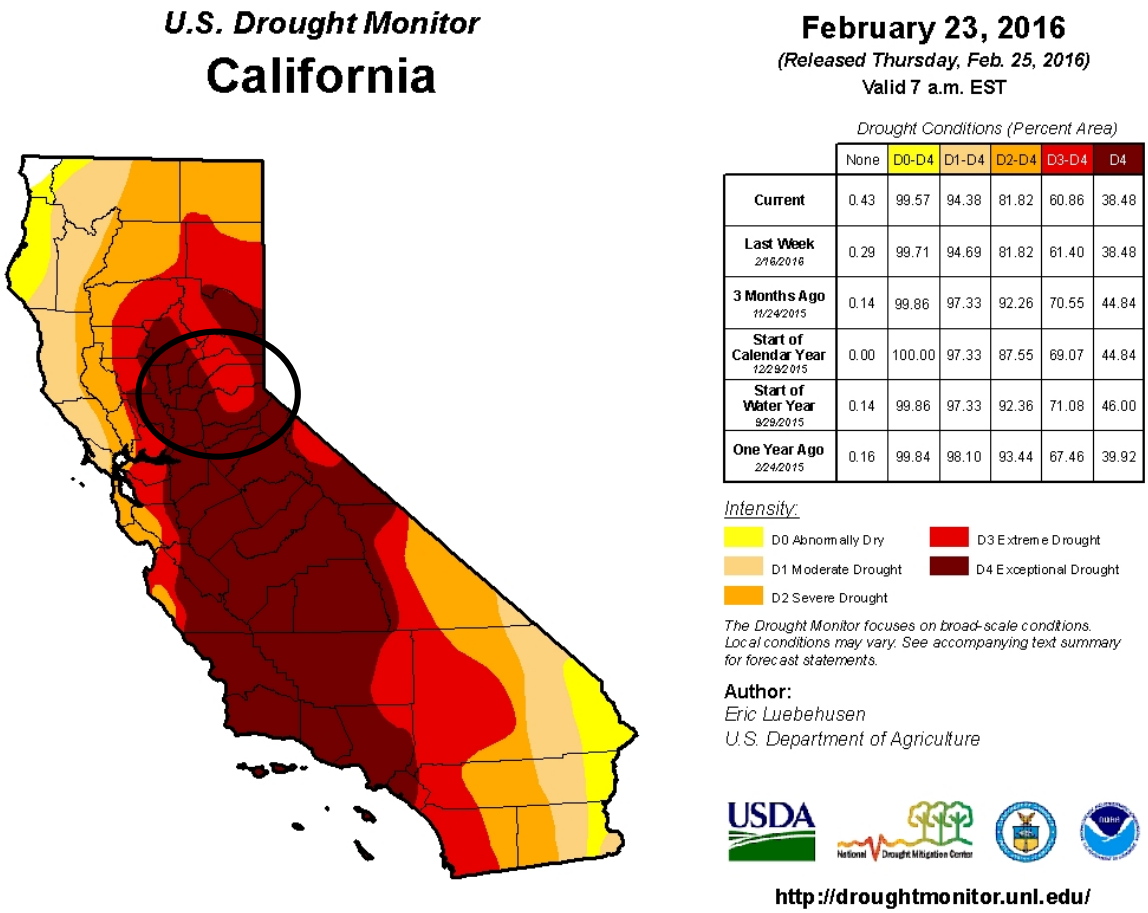
Figure 4-25 Causes and Impact of Drought



Source: National Drought Mitigation Center

Drought in the United States is monitored by the National Integrated Drought Information System (NIDIS). A major component of this portal is the U.S. Drought Monitor. The Drought Monitor concept was developed jointly by the NOAA's Climate Prediction Center, the NDMC, and the USDA's Joint Agricultural Weather Facility in the late 1990s as a process that synthesizes multiple indices, outlooks and local impacts, into an assessment that best represents current drought conditions. The final outcome of each Drought Monitor is a consensus of federal, state, and academic scientists who are intimately familiar with the conditions in their respective regions. A snapshot of the drought conditions in California and the Planning Area can be found in Figure 4-26.

Figure 4-26 Current Drought Status in Placer County



	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.43	99.57	94.38	81.82	60.86	38.48
Last Week 2/16/2016	0.29	99.71	94.69	81.82	61.40	38.48
3 Months Ago 11/24/2015	0.14	99.86	97.33	92.26	70.55	44.84
Start of Calendar Year 12/29/2015	0.00	100.00	97.33	87.55	69.07	44.84
Start of Water Year 9/29/2015	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago 2/24/2015	0.16	99.84	98.10	93.44	67.46	39.92

Source: US Drought Monitor

The California Department of Water Resources (DWR) says the following about drought:

> *One dry year does not normally constitute a drought in California. California's extensive system of water supply infrastructure—its reservoirs, groundwater basins, and inter-regional conveyance facilities—mitigates the effect of short-term dry periods for most water users. Defining when a drought begins is a function of drought impacts to water users. Hydrologic conditions constituting a drought for water users in one location may not constitute a drought for water users elsewhere, or for water users having a different water supply. Individual water suppliers may use criteria such as rainfall/runoff, amount of water in storage, or expected supply from a water wholesaler to define their water supply conditions.*

The drought issue in California is further compounded by water rights. Water is a commodity possessed under a variety of legal doctrines. The prioritization of water rights between farming and federally protected fish habitats in California contributes to this issue

Drought is not initially recognized as a problem because it normally originates in what is considered good weather, which typically includes a dry late spring and summer in Mediterranean climates, such as in California. This is particularly true in Northern California where drought impacts are delayed for most of

the population by the wealth of stored surface and ground water. The drought complications normally appear more than a year after a drought begins. In most areas of California, ranchers that rely on rainfall to support forage for their livestock are the earliest and most affected by drought. Even below normal water years could affect ranchers depending on the timing and duration of precipitation events. It is difficult to quantitatively assess drought impacts to Placer County because not many county-specific studies have been conducted. Some factors to consider include the impacts of fallowed agricultural land, habitat loss and associated effects on wildlife, and the drawdown of the groundwater table. The most direct and likely most difficult drought impact to quantify is to local economies, especially agricultural economies. The State has conducted some empirical studies on the economic effects of fallowed lands with regard to water purchased by the State's Water Bank; but these studies do not quantitatively address the situation in Placer County. It can be assumed, however, that the loss of production in one sector of the economy would affect other sectors.

The drawdown of the groundwater table is one factor that has been recognized to occur during repeated dry years. Lowering of groundwater levels results in the need to deepen wells, which subsequently lead to increased pumping costs. These costs are a major consideration for residents relying on domestic wells and agricultural producers that irrigate with groundwater and/or use it for frost protection. Some communities in higher elevations with shallow bedrock do not have a significant source of groundwater.

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. The most significant impacts associated with drought in the Planning Area are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. Also, during a drought, allocations go down and water costs increase, which results in reduced water availability. Voluntary conservation measures are a normal and ongoing part of system operations and actively implemented during extended droughts. A reduction of electric power generation and water quality deterioration are also potential problems. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding and erosion.

Water Shortage

Northern Sacramento Valley counties, including Placer County, generally have sufficient groundwater and surface water supplies to mitigate even the severest droughts of the past century. Many other areas of the State, however, also place demands on these water resources during severe drought. For example, Northern California agencies, including those from Placer County, were major participants in the Governor's Drought Water Bank of 1991, 1992 and 1994.

Past Occurrences

Disaster Declaration History

There has been one state disaster related to drought and water shortage in Placer County issued in 2014.

NCDC Events

There has been one NCDC drought event in Placer County. It was an event on 1/1/2014, but no damages, injuries, or losses were reported in the NCDC database.

HMPC Events

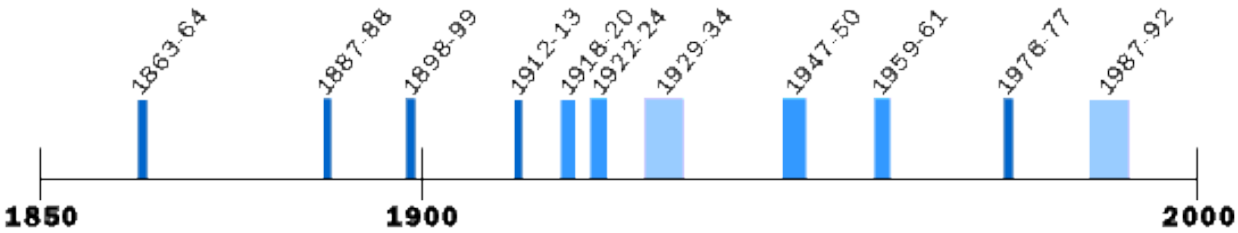
Historically, California has experienced multiple severe droughts. According to the DWR, droughts exceeding three years are relatively rare in Northern California, the source of much of the State's developed water supply. The 1929-34 drought established the criteria commonly used in designing storage capacity and yield of large northern California reservoirs. Table 4-16 compares the 1929-34 drought in the Sacramento and San Joaquin Valleys to the 1976-77, 1987-92, and 2007-09 droughts. Figure 4-27 depicts California's Multi-Year Historical Dry Periods, 1850-2000.

Table 4-16 Severity of Extreme Droughts in the Sacramento and San Joaquin Valleys

Drought Period	Sacramento Valley Runoff		San Joaquin Valley Runoff	
	(maf*/yr)	(percent Average 1901-96)	(maf*/yr)	(percent Average 1906-96)
1929-34	9.8	55	3.3	57
1976-77	6.6	37	1.5	26
1987-92	10.0	56	2.8	47
2007-09	11.2	64	3.7	61

Source: California's Drought of 2007-2009, An Overview. State of California Natural Resources Agency, California Department of Water Resources. Available at: http://www.water.ca.gov/drought/docs/DroughtReport2010.pdf
*maf=million acre feet

Figure 4-27 California's Multi-Year Historical Dry Periods, 1850-2000



Source: California Department of Water Resources, www.water.ca.gov/
Notes: Dry periods prior to 1900 estimated from limited data; covers dry periods of statewide or major regional extent

The HMPC identified the following droughts as having significant impacts on the Planning Area:

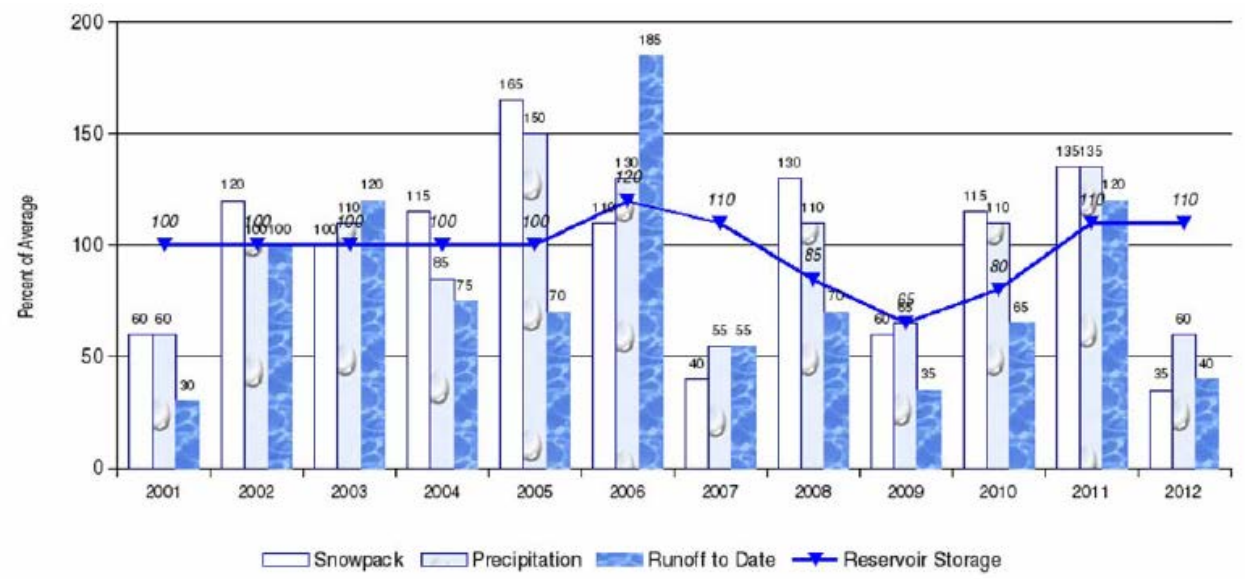
- **1977** – A federal disaster declaration was declared as a result of a drought affecting surrounding counties. While Placer County was not named in the disaster declaration, the Placer County Water Agency (PCWA) declared a water shortage and restricted water use for both irrigation and treated water users. The restrictions included a 50 percent reduction in water usage by customers and rate increases. This shortage lasted until January 1978 when the board terminated the water shortage restrictions.
- **1988** – The next water shortage occurred in 1988. Again the PCWA board passed a resolution declaring a water emergency. All customers had their water use reduced by 25 percent and rates were again increased for excessive usage. The countywide emergency prohibited washing of sidewalks, driveways, parking lots and other hard surfaces, restricted the washing of vehicles, airplanes, and trailers to 3 gallons of water, prohibited fire hydrant flushing and drills, prohibited filling of pools, and prohibited new agricultural land irrigation.

- **1991** – The most recent drought emergency declared by the PCWA board was in February 1991. Raw water customers had their water usage reduced by 50 percent annually and by 25 percent seasonally. Treated water users were given most of the same restrictions and prohibitions as in 1988. Due to a very late storm season, the emergency was lifted by April 1991.
- **2008** – The Governor of California declared a drought on June 4, 2008. As of July 2009, PCWA reports that they are implementing normal ongoing conservation measures. As a result of these drought conditions, it is anticipated that Lake Tahoe's water level will drop to near its natural rim. The last time it dropped below its natural rim was in 2004.
- **2014** – On January 17, 2014 the governor declared a State of Emergency for drought throughout California. This declaration came on the heels of a report that stated that California had the least amount of rainfall in its 163 year history. Californians were asked to voluntarily reduce their water consumption by 20 percent. Drought conditions worsened through 2014 and into 2015. On April 1, 2015, following the lowest snowpack ever recorded, Governor Brown announced actions that will save water, increase enforcement to prevent wasteful water use, streamline the State's drought response, and invest in new technologies that will make California more drought resilient. The governor directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent. This savings amounts to approximately 1.5 million acre-feet of water through the end of 2015.

Water Shortage

Figure 4-28 illustrates several indicators commonly used to evaluate water conditions in California. The percent of average values are determined by measurements made in each of the ten major hydrologic regions. The chart describes water conditions in California between 2001 and 2012. The chart illustrates the cyclical nature of weather patterns in California. Snow pack and precipitation increased between 2005 and 2006, began decreasing in late 2006, and began to show signs of recovery in 2009.

Figure 4-28 Water Supply Conditions, 2001 to 2012



Source: 2013 State of California Hazard Mitigation Plan

Since 2012, snowpack levels in California have dropped dramatically. 2015 estimates place snowpack as 5 percent of normal levels. Snowpack measurements have been kept in California since 1950 and nothing in the historic record comes close to 2015's severely depleted level. The previous record for the lowest snowpack level in California, 25 percent of normal, was set both in 1976-77 and 2013-2014. In "normal" years, the snowpack supplies about 30 percent of California's water needs, according to the California Department of Water Resources.

With a reduction in water, water supply issues based on water rights becomes more evident. Some agricultural uses, such as grapes and walnuts, are severely impacted through limited water supply. Drought and water supply issues will continue to be a concern to the Planning Area. Irrigation of agricultural lands continues to be a concern in the Planning Area.

Likelihood of Future Occurrence

Drought

Likely—Historical drought data for the Placer County Planning Area and region indicate there have been 5 significant droughts in the last 84 years. This equates to a drought every 16.8 years on average or a 6.0 percent chance of a drought in any given year. However, based on this data and given the multi-year length of droughts, the HMPC determined that future drought occurrence in the Planning Area are likely.

Water Shortage

Occasional — Recent historical data for water shortage indicates that Placer County may at some time be at risk to both short and prolonged periods of water shortage. Based on this it is possible that water shortages will affect the County in the future should extreme drought conditions continue. However, to date, Placer County has continued to have good, consistent water supply

Climate Change and Drought and Water Shortage

Climate scientists studying California find that drought conditions are likely to become more frequent and persistent over the 21st century due to climate change. The experiences of California during recent years underscore the need to examine more closely the state's water storage, distribution, management, conservation, and use policies. The Climate Adaptation Strategy (CAS) stresses the need for public policy development addressing long term climate change impacts on water supplies. The CAS notes that climate change is likely to significantly diminish California's future water supply, stating that:

> *California must change its water management and uses because climate change will likely create greater competition for limited water supplies needed by the environment, agriculture, and cities.*

The regional implications of declining water supplies as a long-term public policy issue are recognized in a Southern California Association of Governments July 2009 publication of essays examining climate change topics. In one essay, Dan Cayan observes:

> *In one form or another, many of Southern California's climate concerns radiate from efforts to secure an adequate fresh water supply…Of all the areas of North America, Southern California's annual receipt of precipitation*

is the most volatile – we only occasionally see a "normal" year, and in the last few we have swung from very wet in 2005 to very dry in 2007 and 2008….Southern California has special challenges because it is the most urban of the California water user regions and, regionwide, we import more than two-thirds of the water that we consume.

4.2.10. Earthquake

Hazard/Problem Description

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales. One of the first was the Richter Scale, developed in 1932 by the late Dr. Charles F. Richter of the California Institute of Technology. The Richter Magnitude Scale is used to quantify the magnitude or strength of the seismic energy released by an earthquake. Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface (see Table 4-17). Seismic shaking is typically the greatest cause of losses to structures during earthquakes.

Table 4-17 Modified Mercalli Intensity (MMI) Scale

MMI	Felt Intensity
I	Not felt except by a very few people under special conditions. Detected mostly by instruments.
II	Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
III	Felt noticeably indoors. Standing automobiles may rock slightly.
IV	Felt by many people indoors; by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.
VIII	Damage is slight in specially designed structures, considerable in ordinary buildings, and great in poorly built structures. Heavy furniture is overturned.
IX	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.
X	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.
XI	Few, if any, masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.
XII	Virtually total destruction. Waves are seen on the ground surface. Objects are thrown in the air.

Source: Multi-Hazard Identification and Risk Assessment, FEMA 1997

California is seismically active because it sits on the boundary between two of the earth's tectonic plates. Most of the state - everything east of the San Andreas Fault - is on the North American Plate. The cities of Monterey, Santa Barbara, Los Angeles, and San Diego are on the Pacific Plate, which is constantly moving northwest past the North American Plate. The relative rate of movement is about two inches per year. The San Andreas Fault is considered the boundary between the two plates, although some of the motion is taken up on faults as far away as central Utah.

Faults

A fault is defined as "a fracture or fracture zone in the earth's crust along which there has been displacement of the sides relative to one another." For the purpose of planning there are two types of faults, active and inactive. Active faults have experienced displacement in historic time, suggesting that future displacement may be expected. Inactive faults show no evidence of movement in recent geologic time, suggesting that these faults are dormant. This does not mean, however, that faults having no evidence of surface displacement within the last 11,000 years are necessarily inactive. For example, the 1975 Oroville earthquake, the 1983 Coalinga earthquake, and the 1987 Whittier Narrows earthquake occurred on faults not previously recognized as active. Potentially active faults are those that have shown displacement within the last 1.6 million years (Quaternary). An inactive fault shows no evidence of movement in historic (last 200 years) or geologic time, suggesting that these faults are dormant.

Two types of fault movement represent possible hazards to structures in the immediate vicinity of the fault: fault creep and sudden fault displacement. Fault creep, a slow movement of one side of a fault relative to the other, can cause cracking and buckling of sidewalks and foundations even without perceptible ground shaking. Sudden fault displacement occurs during an earthquake event and may result in the collapse of buildings or other structures that are found along the fault zone when fault displacement exceeds an inch or two. The only protection against damage caused directly by fault displacement is to prohibit construction in the fault zone.

Placer County lies between two seismically active regions in the western United States. Tectonic stresses associated with the North American-Pacific Plate boundary can generate damaging earthquakes along faults 30 to 100 miles to the west of the County. Extreme eastern Placer County borders the Basin and Range province that entails most of Nevada and western Utah. This area is riddled with active faults that are responsible for and form the boundary between each basin or valley and the neighboring mountain range.

Placer County itself is traversed by a series of northwest-trending faults, called the Foothill Fault Zone, that are related to the Sierra Nevada uplift. This was the source of Oroville's 1975 earthquake (and an earlier event in the 1940s). Subsequent research of these events led to the identification and naming of the zone and questions about the siting and design of the proposed Auburn Dam. Earthquakes on nearby fault segments in the zone could be the source of ground shaking in the Placer County Planning Area.

Although portions of western and eastern Placer County are located in a seismically active region, no known faults actually go through any of the cities or towns. However, the Bear Mountain and the Melones faults are situated approximately three to four miles west and east of the City of Auburn respectively. Earthquakes on these two faults would have the greatest potential for damaging buildings in Auburn, especially the unreinforced masonry structures in the older part of the city and homes built before 1960 without adequate

anchorage of framing and foundations. Similar lower magnitude but nearby earthquakes are capable of producing comparable damages in other Placer County communities.

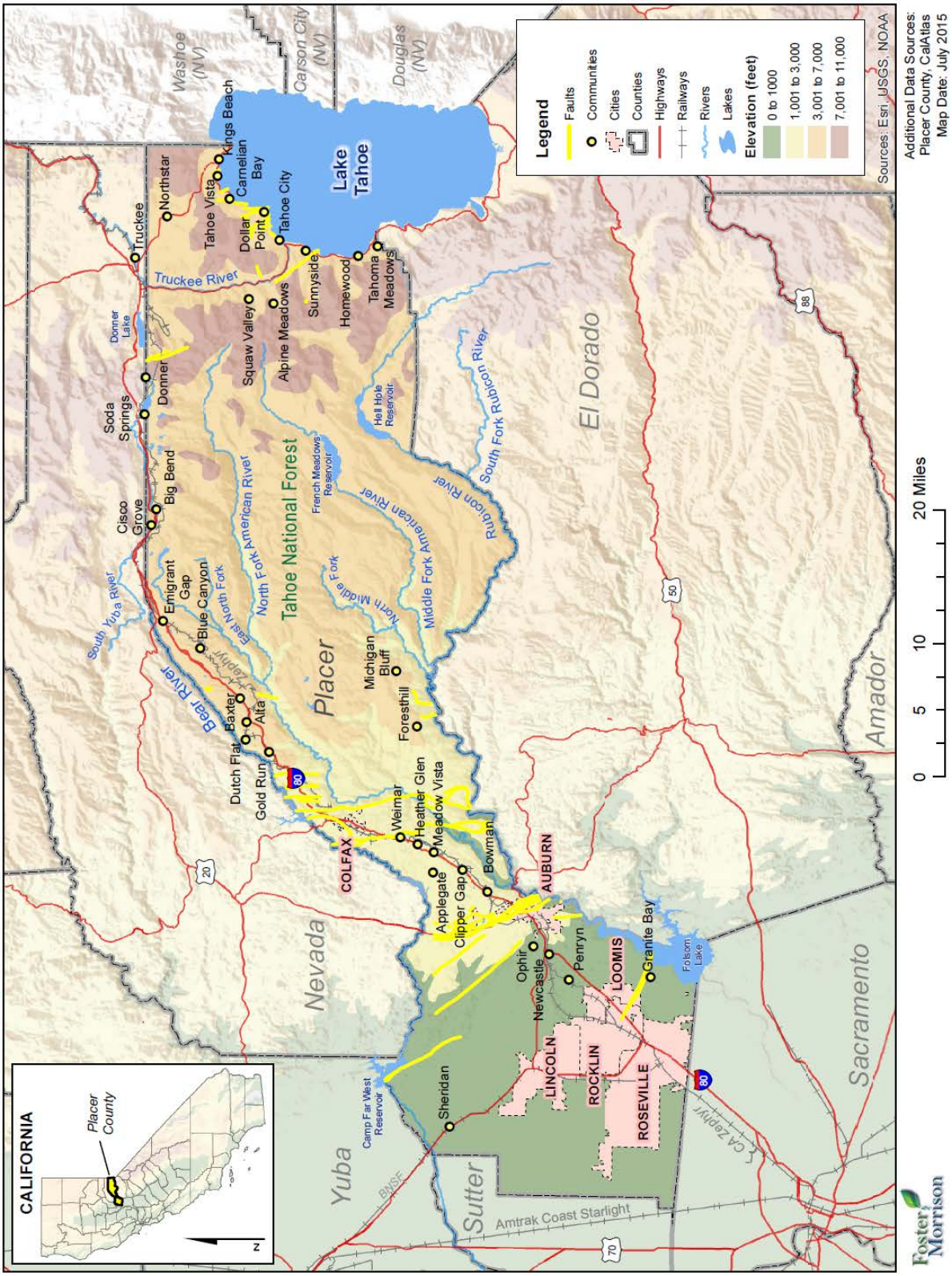
The closest recently active fault in the western Sierra Nevada foothills is the Cleveland Hills fault, which is situated approximately 36 miles northwest of Auburn. Another potential earthquake source is the Midland Fault Zone on the western side of the Sacramento Valley. This was the source of the 1892 Vacaville-Winters earthquake.

Further analysis using FEMA's HAZUS-MH (nationally applicable loss estimation software) shows that there are several potentially active faults east of the Placer County line in Nevada. The closest faults and estimated maximum earthquakes are the North Tahoe Fault (6.5 estimated maximum magnitude), Incline Village Fault (6.5 estimated maximum magnitude), and the East Tahoe Fault (7.0 estimated maximum magnitude).

Additionally, western Placer County may experience ground shaking from distant major to great earthquakes on faults to the west and east. For example, to the west, both the San Andreas Fault (source of the 8.0 estimated Richter magnitude San Francisco earthquake that caused damage in Sacramento in 1906, including the State Capitol, the full extent of which was not discovered until the mid-1970s) and the closer Hayward fault have the potential for experiencing major to great events. The US Geological Survey recently (February 2004) estimated that there is a 62 percent probability of at least one 6.7 or greater magnitude earthquake occurring that could cause widespread damage in the greater San Francisco Bay area before 2032.

Figure 4-29 shows fault locations in and near Placer County.

Figure 4-29 Active Faults in the County



Earthquake Hazards

Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction. This section briefly discusses issues related to types of seismic hazards.

Ground Shaking

Groundshaking is motion that occurs as a result of energy released during faulting. The damage or collapse of buildings and other structures caused by groundshaking is among the most serious seismic hazards. Damage to structures from this vibration, or groundshaking, is caused by the transmission of earthquake vibrations from the ground to the structure. The intensity of shaking and its potential impact on buildings is determined by the physical characteristics of the underlying soil and rock, building materials and workmanship, earthquake magnitude and location of epicenter, and the character and duration of ground motion. Much of the County is located on alluvium which increases the amplitude of the earthquake wave. Ground motion lasts longer and waves are amplified on loose, water-saturated materials than on solid rock. As a result, structures located on alluvium typically suffer greater damage than those located on solid rock.

Seismic Structural Safety

Older buildings constructed before building codes were established, and even newer buildings constructed before earthquake-resistance provisions were included in the codes, are the most likely to be damaged during an earthquake. Buildings one or two stories high of wood-frame construction are considered to be the most structurally resistant to earthquake damage. Older masonry buildings without seismic reinforcement (unreinforced masonry) are the most susceptible to the type of structural failure that causes injury or death.

The susceptibility of a structure to damage from ground shaking is also related to the underlying foundation material. A foundation of rock or very firm material can intensify short-period motions which affect low-rise buildings more than tall, flexible ones. A deep layer of water-logged soft alluvium can cushion low-rise buildings, but it can also accentuate the motion in tall buildings. The amplified motion resulting from softer alluvial soils can also severely damage older masonry buildings.

Other potentially dangerous conditions include, but are not limited to: building architectural features that are not firmly anchored, such as parapets and cornices; roadways, including column and pile bents and abutments for bridges and overcrossings; and above-ground storage tanks and their mounting devices. Such features could be damaged or destroyed during strong or sustained ground shaking.

Liquefaction Potential

Liquefaction is a process whereby soil is temporarily transformed to a fluid form during intense and prolonged ground shaking. Areas most prone to liquefaction are those that are water saturated (e.g., where the water table is less than 30 feet below the surface) and consist of relatively uniform sands that are loose to medium density. In addition to necessary soil conditions, the ground acceleration and duration of the earthquake must be of sufficient energy to induce liquefaction.

Liquefaction during major earthquakes has caused severe damage to structures on level ground as a result of settling, titling, or floating. Such damage occurred in San Francisco on bay-filled areas during the 1989 Loma Prieta earthquake, even though the epicenter was several miles away. If liquefaction occurs in or under a sloping soil mass, the entire mass may flow toward a lower elevation. Also of particular concern in terms of developed and newly developing areas are fill areas that have been poorly compacted.

Settlement

Settlement can occur in poorly consolidated soils during ground shaking. During settlement, the soil materials are physically rearranged by the shaking to result in a less stable alignment of the individual minerals. Settlement of sufficient magnitude to cause significant structural damage is normally associated with rapidly deposited alluvial soils or improperly founded or poorly compacted fill. These areas are known to undergo extensive settling with the addition of irrigation water, but evidence due to ground shaking is not available.

Other Hazards

Earthquakes can also cause seiches, landslides, and dam failures. A seiche is a periodic oscillation of a body of water resulting from seismic shaking or other factors that could cause flooding. Earthquakes may cause landslides (discussed in Section 4.2.12), particularly during the wet season, in areas of high water or saturated soils. Finally, earthquakes can cause dams to fail (see Section 4.2.8 Dam Failure).

Past Occurrences

Disaster Declaration History

There have been no disaster declarations in the County.

NCDC Events

Earthquake events are not tracked by the NCDC database.

USGS Events

The USGS National Earthquake Information Center database contains data on earthquakes in the Placer County area. Table 4-18 shows the approximate distances earthquakes can be felt away from the epicenter. According to the table, a magnitude 5.0 earthquake could be felt up to 90 miles away. The USGS database

was searched for magnitude 5.0 or greater on the Richter Scale within 90 miles of the City of Auburn in Placer County. These results are detailed in Table 4-18

Table 4-18 Approximate Relationships between Earthquake Magnitude and Intensity

Richter Scale Magnitude	Maximum Expected Intensity (MM)*	Distance Felt (miles)
2.0 - 2.9	I – II	0
3.0 - 3.9	II – III	10
4.0 - 4.9	IV – V	50
5.0 - 5.9	VI – VII	90
6.0 - 6.9	VII – VIII	135
7.0 - 7.9	IX – X	240
8.0 - 8.9	XI – XII	365

*Modified Mercalli Intensity Scale.

Source: United State Geologic Survey, Earthquake Intensity Zonation and Quaternary Deposits, Miscellaneous Field Studies Map 9093, 1977.

*Table 4-19 Magnitude 5.0 Earthquakes within 90 Miles of Placer County**

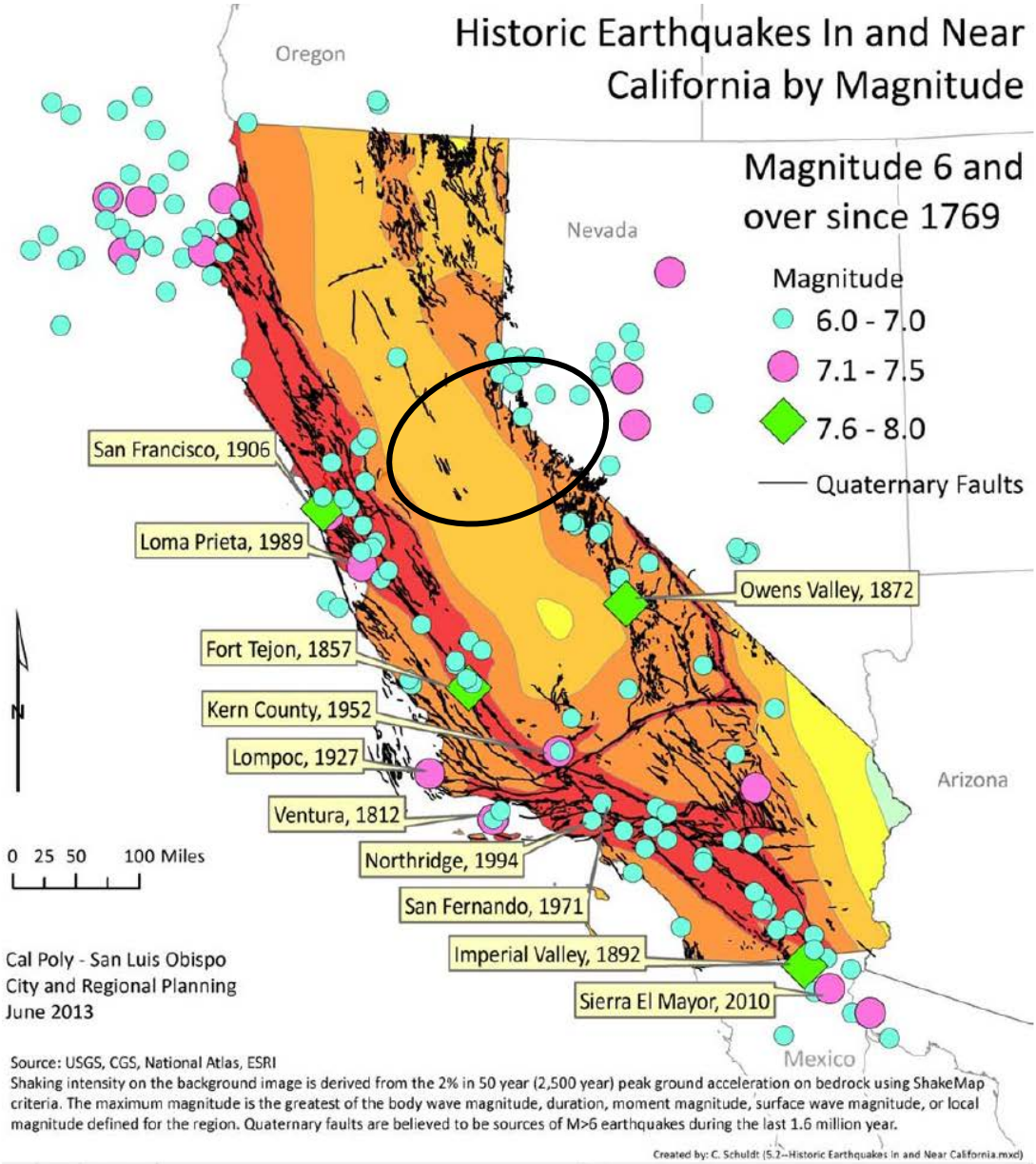
Date	Richter Magnitude	Location
8/24/2014	6.0	6km NW of American Canyon, California
5/24/2013	5.7	10km WNW of Greenville, California
4/26/2008	5	Nevada
8/10/2001	5.2	Northern California
9/3/2000	5	Northern California
9/12/1994	6.1	Nevada
1/27/1980	5	San Francisco Bay area, California
1/24/1980	5.8	San Francisco Bay area, California
2/22/1979	5	Northern California
9/27/1975	5.3	Northern California
8/8/1975	5	Northern California
8/6/1975	5.2	Northern California
8/6/1975	5.1	Northern California
8/3/1975	5	Northern California
8/2/1975	5.2	Northern California
8/2/1975	5.3	Northern California
8/2/1975	5.3	Northern California
8/1/1975	5.8	Northern California
8/1/1975	5.7	Northern California
9/12/1966	5.9	Northern California

Source: USGS

*Search dates 19- May 2, 2015

Figure 4-30 shows major historical earthquakes in California from 1769 to 2010.

Figure 4-30 Historic Earthquakes in California and Placer County



MMI	Damage	Effects
X	Very Heavy	Some well-built, wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
IX	Heavy	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
VIII	Moderate to Heavy	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
VII	Moderate	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly-built or badly designed structures; some chimneys broken.
VI	Light	Felt by all, many frightened. Some heavy furniture moved; a few instance of fallen plaster. Damage slight.
V	Very Light	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.

Source: 2013 State of California Multi-Hazard Mitigation Plan

HMPC Events

Historically, major earthquakes have not been an issue for Placer County. However, minor earthquakes have occurred in the County in the past. The HMPC has identified several earthquakes that were felt by area residents and/or caused damaging shaking in Placer County. Details on some of these events follow.

- **1892** – The Midland Fault Zone, the source of an 1892 earthquake centered between the cities of Vacaville and Winters, caused minor damage in the City of Lincoln.
- **1908** – An estimated 4.0+ Richter magnitude earthquake occurred between Auburn and Folsom with an epicenter possibly associated with the Bear Mountain fault.
- **1975** – The Cleveland Hills fault was the source of the Oroville earthquake (Richter Magnitude: 5.7), which was felt strongly in Placer County and neighboring areas.
- **2003/2004** – Volcanic magma (molten rock) migrating about 20 miles below the surface of the Sierra Nevada mountains caused a swarm of about 1,600 small earthquakes in late 2003 and early 2004. The 20 mile depth is about twice as deep as earthquakes caused by normal faulting in the region measured during the last 30 years. Placer County did not report any damages associated with these small earthquakes.
- **2008, 2013, 2014** – There were earthquakes in the Placer County vicinity in these years. No significant issues were reported in the County. Groundshaking was the primary concern.

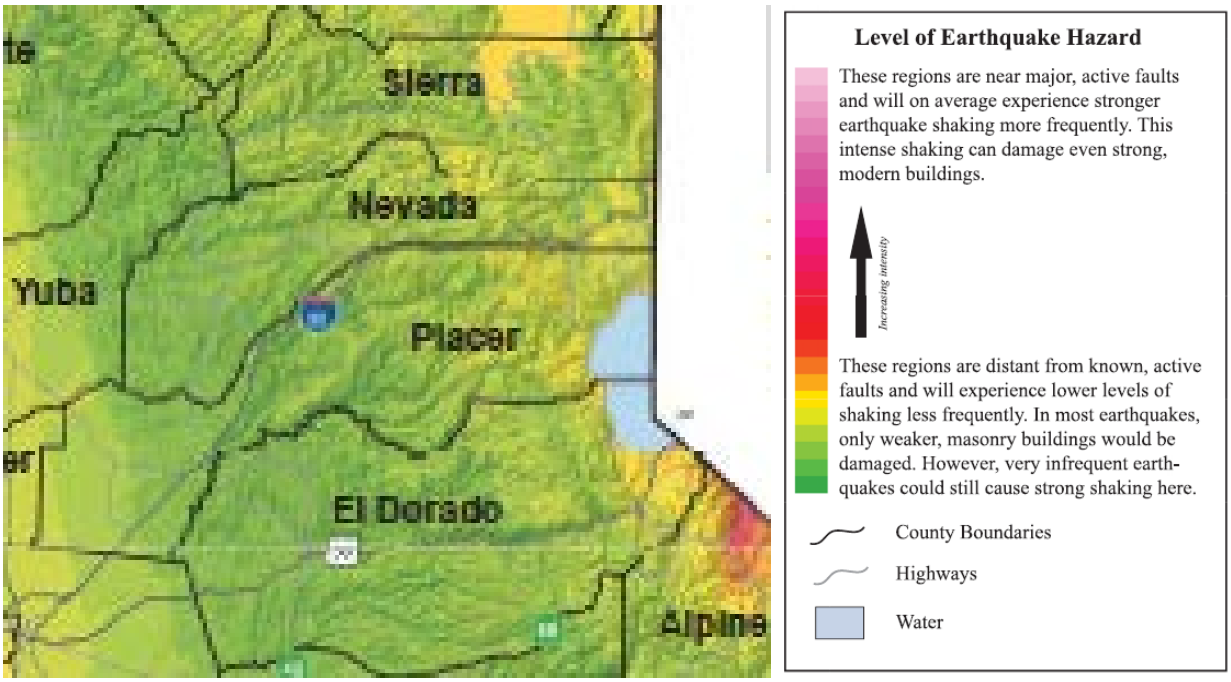
Likelihood of Future Occurrence

Occasional—No major earthquakes have been recorded within the county; although the county has felt ground shaking from earthquakes with epicenters located elsewhere. Based on historical data and the location of the Placer County Planning Area relative to active and potentially active faults, the Planning Area will experience a significantly damaging earthquake occasionally.

Mapping of Future Occurrences

Maps indicating the maximum expectable intensity of groundshaking for the County are available through several sources. Figure 4-31, prepared by the California Division of Mines and Geology, shows the expected relative intensity of ground shaking and damage in California from anticipated future earthquakes. The shaking potential is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years, which is the same as the level of ground-shaking with about a 2,500 year average repeat time. Although the greatest hazard is in areas of highest intensity as shown on the map, no region is immune from potential earthquake damage.

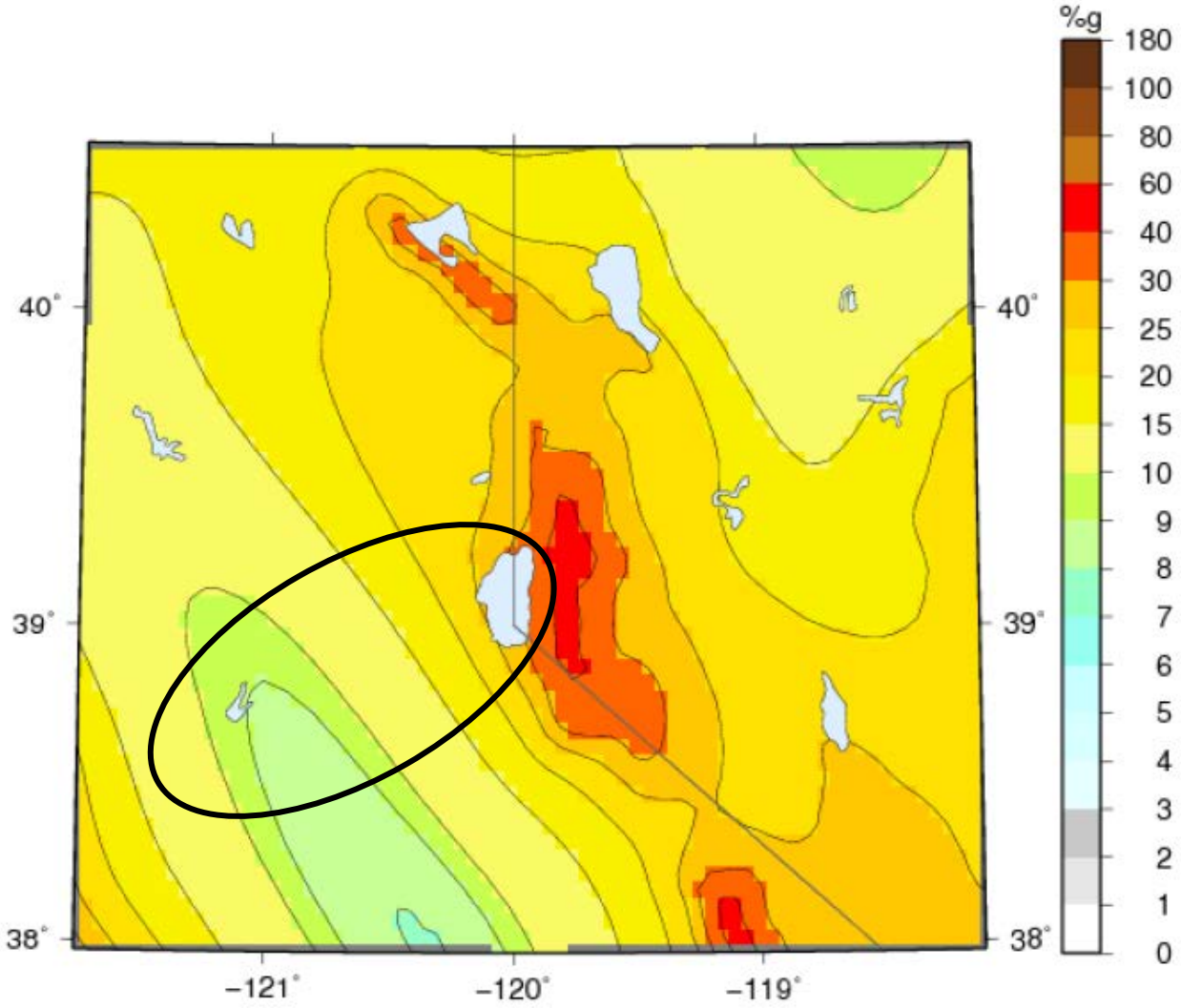
Figure 4-31 Maximum Expectable Earthquake Intensity



Source: California Division of Mines and Geology

The U.S. Geological Survey (USGS) issues National Seismic Hazard Maps as reports every few years. These maps provide various acceleration and probabilities for time periods. Figure 4-32 depicts the peak horizontal acceleration (%g) with 10% probability of exceedance in 50 years (a 500-year event) for the planning region. The figure demonstrates that the County falls in the 9%g (light green) in the west, 20%g (darker yellow) in the central, and in the 30%g area (tan) in the extreme eastern portion of the County. This data indicates that the expected severity of earthquakes in the region is somewhat limited, as damage from earthquakes typically occurs at peak accelerations of 30%g or greater.

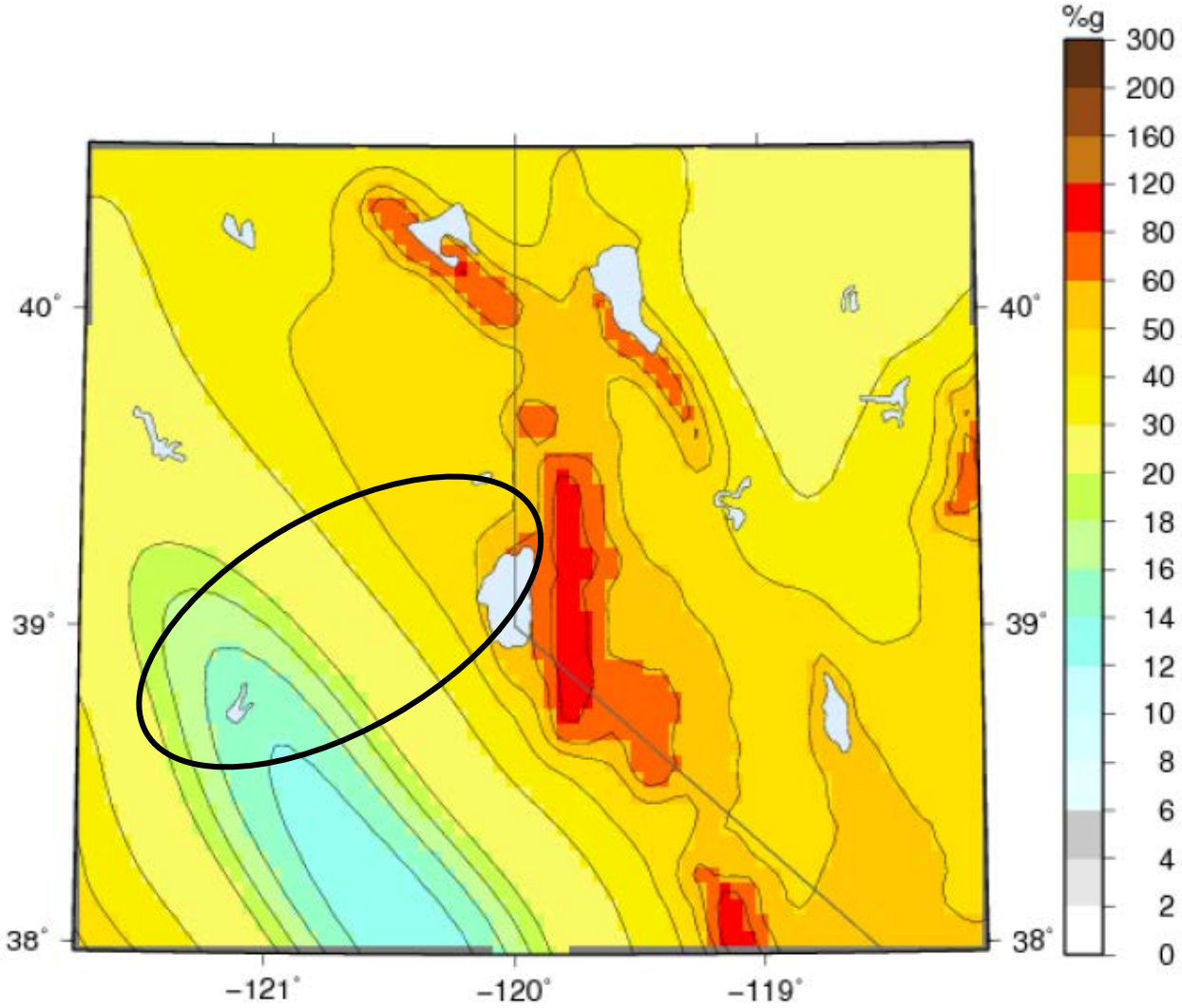
Figure 4-32 Peak Horizontal Acceleration with 10% Probability of Occurrence in 50 Years



Source: USGS National Seismic Hazard Maps

Figure 4-33 depicts the peak horizontal acceleration (%g) with 2% probability of exceedance in 50 years (a 2,500-year event) for the County. The figure demonstrates that the County falls in the 14%g (lighter blue) in the west, 30%g (darker yellow) in the central, and in the 60%g area (tan) in the extreme eastern portion of the County. This data indicates that the expected severity of earthquakes in the region is moderate, as damage from earthquakes typically occurs at peak accelerations of 30%g or greater.

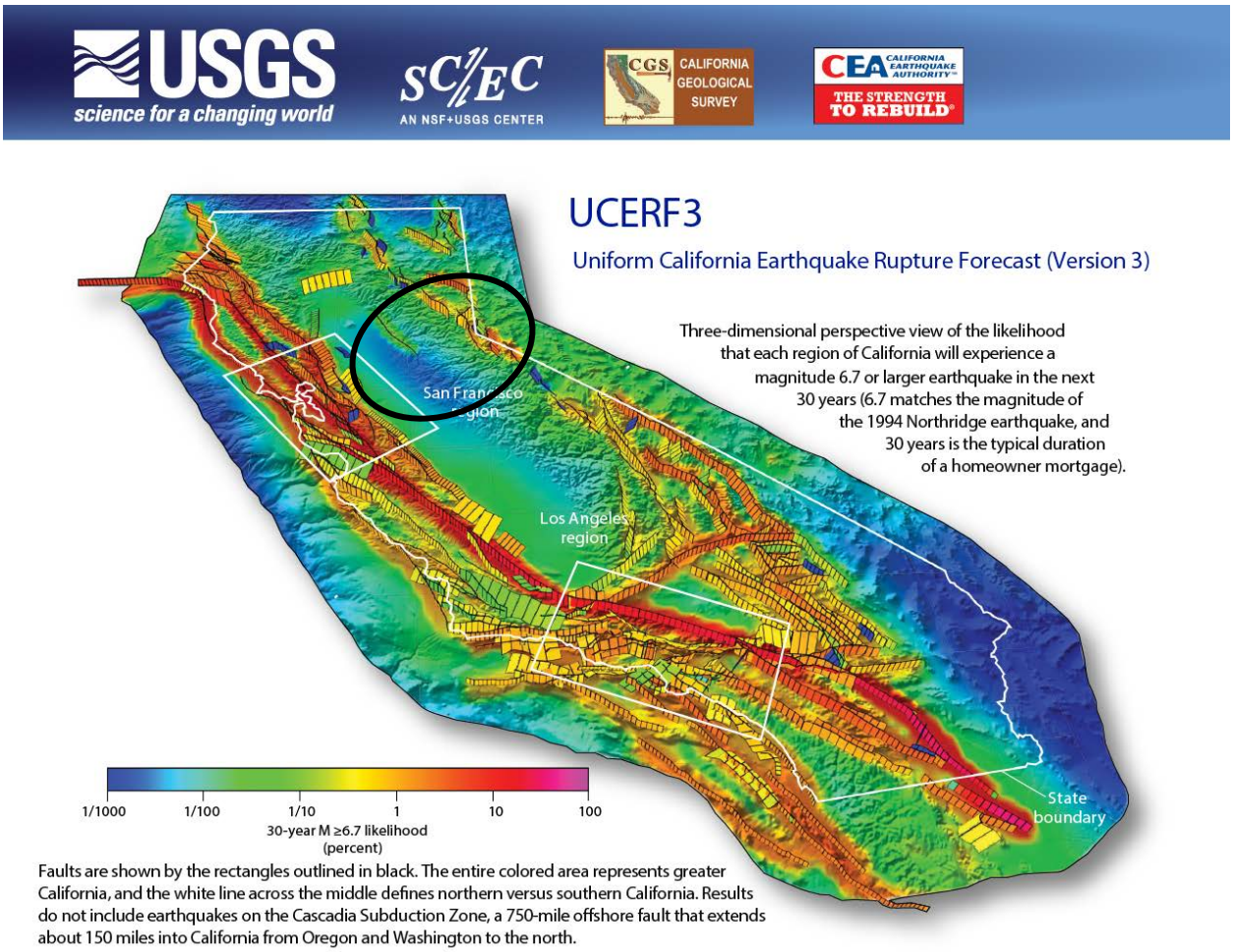
Figure 4-33 Peak Horizontal Acceleration with 2% Probability of Occurrence in 50 Years



Source: USGS National Seismic Hazard Maps

In 2014, the United States Geological Survey (USGS) and the California Geological Survey (CGS) released the time-dependent version of the Uniform California Earthquake Rupture Forecast (UCERF III) model. The UCERF III results have helped to reduce the uncertainty in estimated 30-year probabilities of strong ground motions in California. The UCERF map is shown in Figure 4-34 and indicates that Placer County has a low to moderate risk of earthquake occurrence, which coincides with the likelihood of future occurrence rating of occasional.

Figure 4-34 Probability of Earthquake Magnitudes Occurring in 30 Year Time Frame



Source: United States Geological Survey Open File Report 2015-3009

Climate Change and Earthquake

Climate changes is unlikely to increase earthquake frequency or strength.

4.2.11. Flood: 100/500 year

Hazard/Problem Description

Flooding is the rising and overflowing of a body of water onto normally dry land. History clearly highlights floods as one of the most frequent natural hazards impacting Placer County. Floods are among the most costly natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floods can be extremely dangerous, and even six inches of moving water can knock over a person given a strong current. A car will float in less than two feet of moving water and can be swept downstream into deeper waters. This is one reason floods kill more people trapped in vehicles than anywhere else. During a flood, people can also suffer heart attacks or electrocution due to electrical equipment short outs. Floodwaters can

transport large objects downstream which can damage or remove stationary structures, such as dam spillways. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utility lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Where flooding occurs in populated areas, warning and evacuation will be of critical importance to reduce life and safety impacts from any type of flooding.

Health Hazards from Flooding

Certain health hazards are also common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where cattle and hogs are kept or their wastes are stored can contribute polluted waters to the receiving streams.

Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as e. coli and other disease causing agents.

The second type of health problem arises after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been properly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

Another health hazard occurs when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If a city or county water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one's home damaged and irreplaceable keepsakes destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Warning and Evacuation Procedures

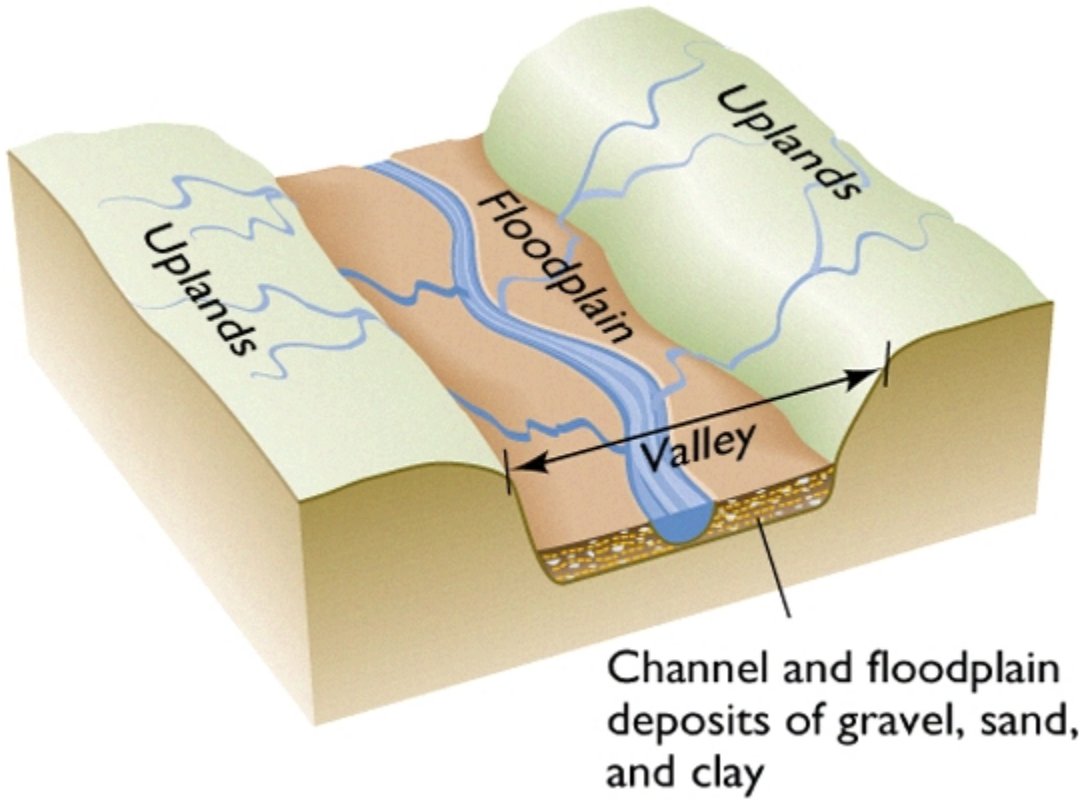
Placer County and its incorporated communities have a variety of systems and procedures established to protect its residents and visitors to plan for, avoid, and respond to a hazard event including those associated with floods and wildfires. This includes Pre-Disaster Public Awareness and Education information which is major component in successfully reducing loss of life and property in a community when faced with a potentially catastrophic incident. Much of this information is not specific to a given hazard event and is

always accessible to the public on local County and City websites. Specific warning and evacuation systems and procedures include information relative to: Warning Systems, Everbridge, ALERT System, dam protocols, evacuation procedures, and sheltering in place. Additional information on these warning and evacuation procedures as well as post-disaster mitigation policies and procedures can be found in Section 4.4, Capabilities, of this Risk Assessment and in the Emergency Management discussions in Appendix C.

Floodplains

The area adjacent to a channel is the floodplain (see Figure 4-35). Floodplains are illustrated on inundation maps, which show areas of potential flooding and water depths. In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood, the flood that has a one percent chance in any given year of being equaled or exceeded. The 100-year flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance Program. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

Figure 4-35 Floodplain Schematic



Source: FEMA

The Placer County Planning Area is susceptible to various types of flood events as described below.

- **Riverine flooding** – Riverine flooding, defined as when a watercourse exceeds its "bank-full" capacity, generally occurs as a result of prolonged rainfall, or rainfall that is combined with already saturated soils from previous rain events. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include one or more independent river basins. The onset and duration of riverine floods may vary from a few hours to many days. Factors that directly affect the amount of flood runoff include precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth, and water-resistance of the surface due to urbanization. In the Placer County Planning Area, riverine flooding is largely caused by heavy and continued rains, often combined with snowmelt, increased outflows from upstream dams, and heavy flow from tributary streams. These intense storms can overwhelm the local waterways as well as the integrity of flood control structures. The warning time associated with slow rise floods assists in life and property protection.
- **Flash flooding** – Flash flooding describes localized floods of great volume and short duration. This type of flood usually results from a heavy rainfall on a relatively small drainage area. Precipitation of this sort usually occurs in the winter and spring. Flash floods often require immediate evacuation within the hour and thus early threat identification and warning is critical for saving lives
- **Localized/Stormwater flooding** – Localized flooding problems are often caused by flash flooding, severe weather, or an unusual amount of rainfall. Flooding from these intense weather events usually occurs in areas experiencing an increase in runoff from impervious surfaces associated with development and urbanization as well as inadequate storm drainage systems.
- **Dam failure flooding** – Flooding from failure of one or more upstream dams is also a concern to the Placer County Planning Area. A catastrophic dam failure could easily overwhelm local response capabilities and require mass evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major loss of life could result, and there could be associated health concerns as well as problems with the identification and burial of the deceased. Dam failure is further addressed in Section 4.2.8 Dam Failure.

Placer County encompasses multiple rivers, streams, creeks, and associated watersheds. The County is situated in a region that dramatically drops in elevation from the eastern portion (Sierra Nevada) to the western portion, where excess rain on snow can contribute to downstream flooding. Damaging floods in Placer County occur primarily in the developed areas of the County extending westward from Colfax to Sacramento and Sutter Counties. Flood flows generally follow defined stream channels, drainages, and watersheds. Because flows within many of the creeks and rivers within Placer County can vary substantially from one another, the estimate for the average depth of the 100-year floodplain also varies and ranges anywhere from 1 foot to as high as 15 to 20 feet depending on numerous criteria.

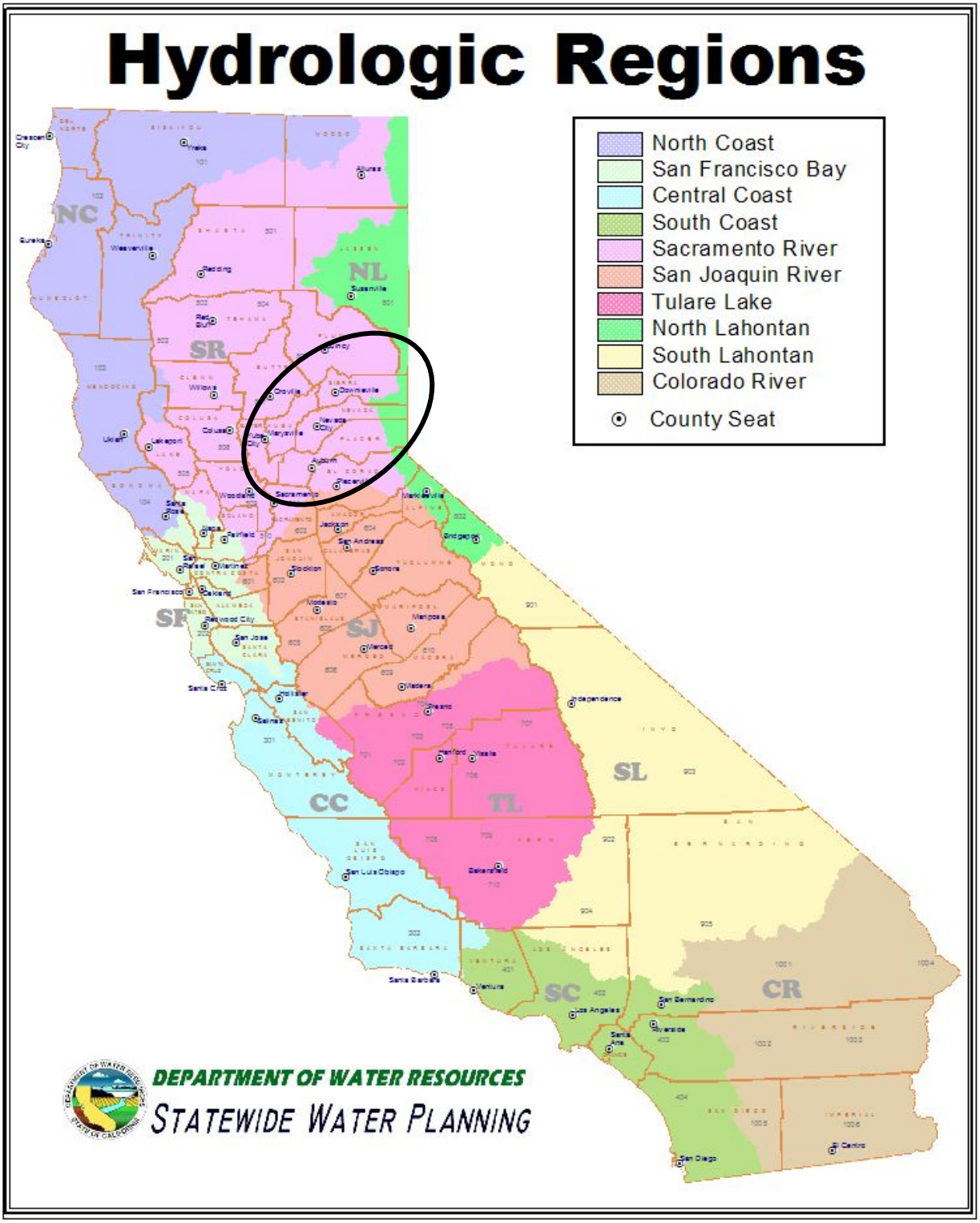
Various flood protection measures are either in place or planned to protect Placer County from future flood events. Existing flood protection measures include a comprehensive system of dams, levees, overflow weirs, pumping plants, channel improvements, floodway bypasses, detention and retention structures, and other improvements. In addition, both the Placer County Flood Control and Water Conservation District and the City of Roseville maintain a system of ALERT Flood Warning gages, including multiple precipitation gages and stream level gages located throughout western Placer County that provide real time monitoring information on current flood conditions.

Major Sources of Flooding

California has 10 hydrologic regions. Placer County sits in the Sacramento hydrologic region. The Sacramento River hydrologic region covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. The Sacramento metropolitan area and surrounding communities form the major population center of the region. With the exception of Redding, cities and towns to the north, while steadily increasing in size, are more rural than urban in nature, being based in major agricultural areas.

A map of the California's hydrological regions is provided in Figure 4-36.

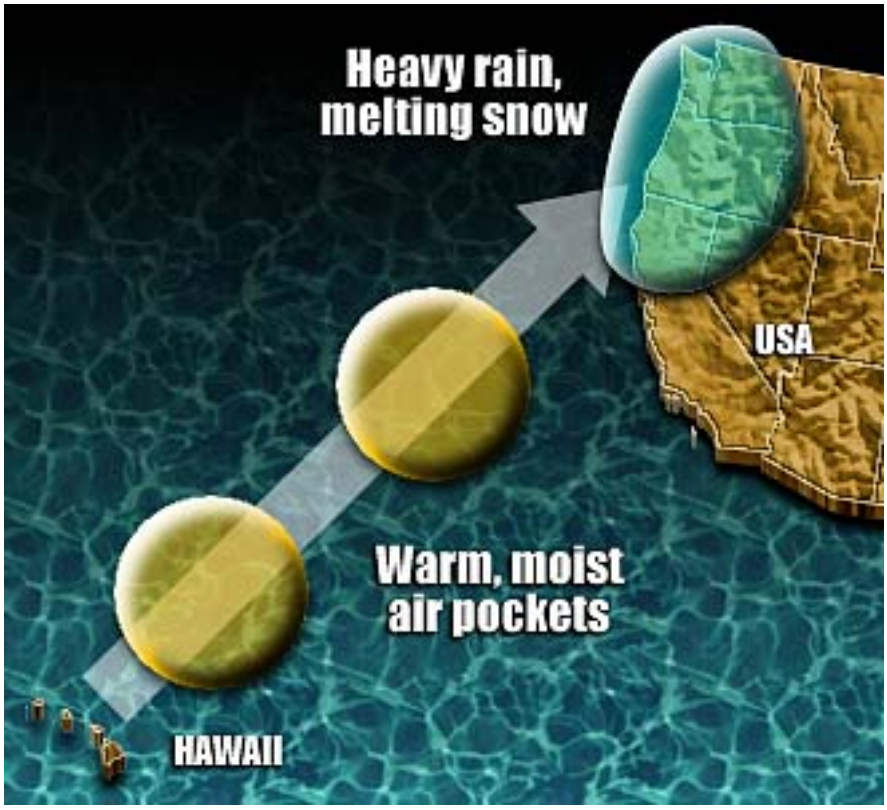
Figure 4-36 California Hydrologic Regions



Source: California Department of Water Resources

A weather pattern called the "Pineapple Express" contributes to the flooding potential of the area. A pineapple express brings warm air and rain to West. A relatively common weather pattern brings southwest winds to the Pacific Northwest or California, along with warm, moist air. The moisture sometimes produces many days of heavy rain, which can cause extensive flooding. The warm air also can melt the snow pack in the mountains, which further aggravates the flooding potential. In the colder parts of the year, the warm air can be cooled enough to produce heavy, upslope snow as it rises into the higher elevations of the Sierra Nevada or Cascades. Forecasters and others on the West Coast often refer to this warm, moist air as the "Pineapple Express" because it comes from around Hawaii where pineapples are grown. This is shown in Figure 4-37.

Figure 4-37 Pineapple Express Weather Pattern



Source: USA TODAY research by Chad Palmer http://www.usatoday.com/weatherwpinappl.htm

The Placer County Waterway System

Placer County encompasses multiple rivers, streams, creeks, and associated watersheds. The County is situated in a region that dramatically drops in elevation from the eastern portion (Sierra Nevada) to the western portion, where excess rain on snow can contribute to downstream flooding. Damaging floods in Placer County occur primarily in the developed areas of the county. Flood flows generally follow defined stream channels, drainages, and watersheds.

Placer County crosses 14 watersheds. The watersheds of Placer County include a combined drainage area of approximately 1,515 square miles. Of the 14 watersheds, there are four main watersheds or areas that are the primary source of flooding within the County. These include the following watersheds as further described in the following paragraphs:

- Dry Creek Watershed
- Cross Canal Watershed
- Auburn/Bowman Area
- Truckee River Watershed

Figure 4-38 illustrates the primary watersheds of Placer County. Figure 4-39 shows the primary waterways in the County.

Figure 4-38 Primary Watersheds of Placer County

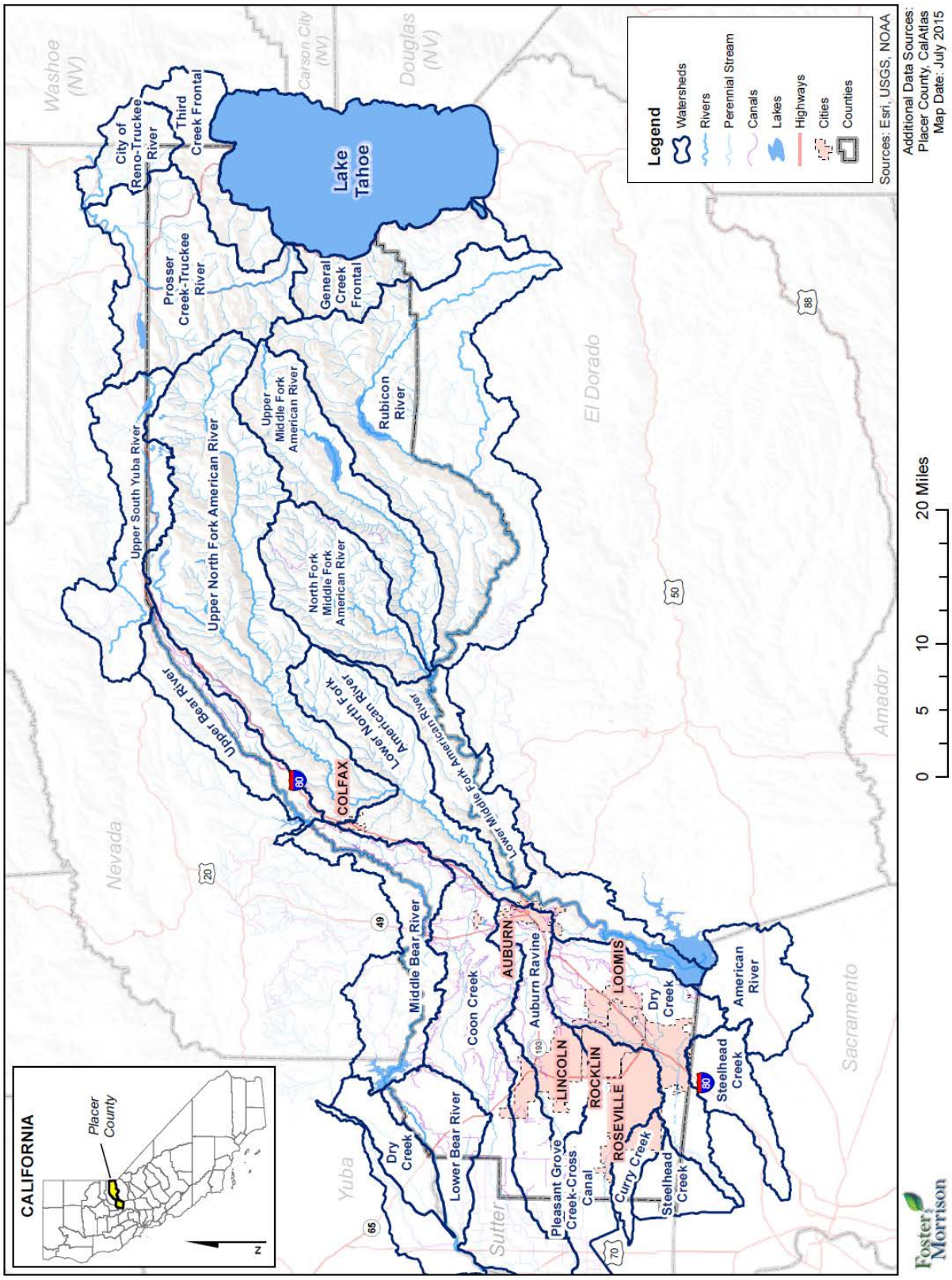
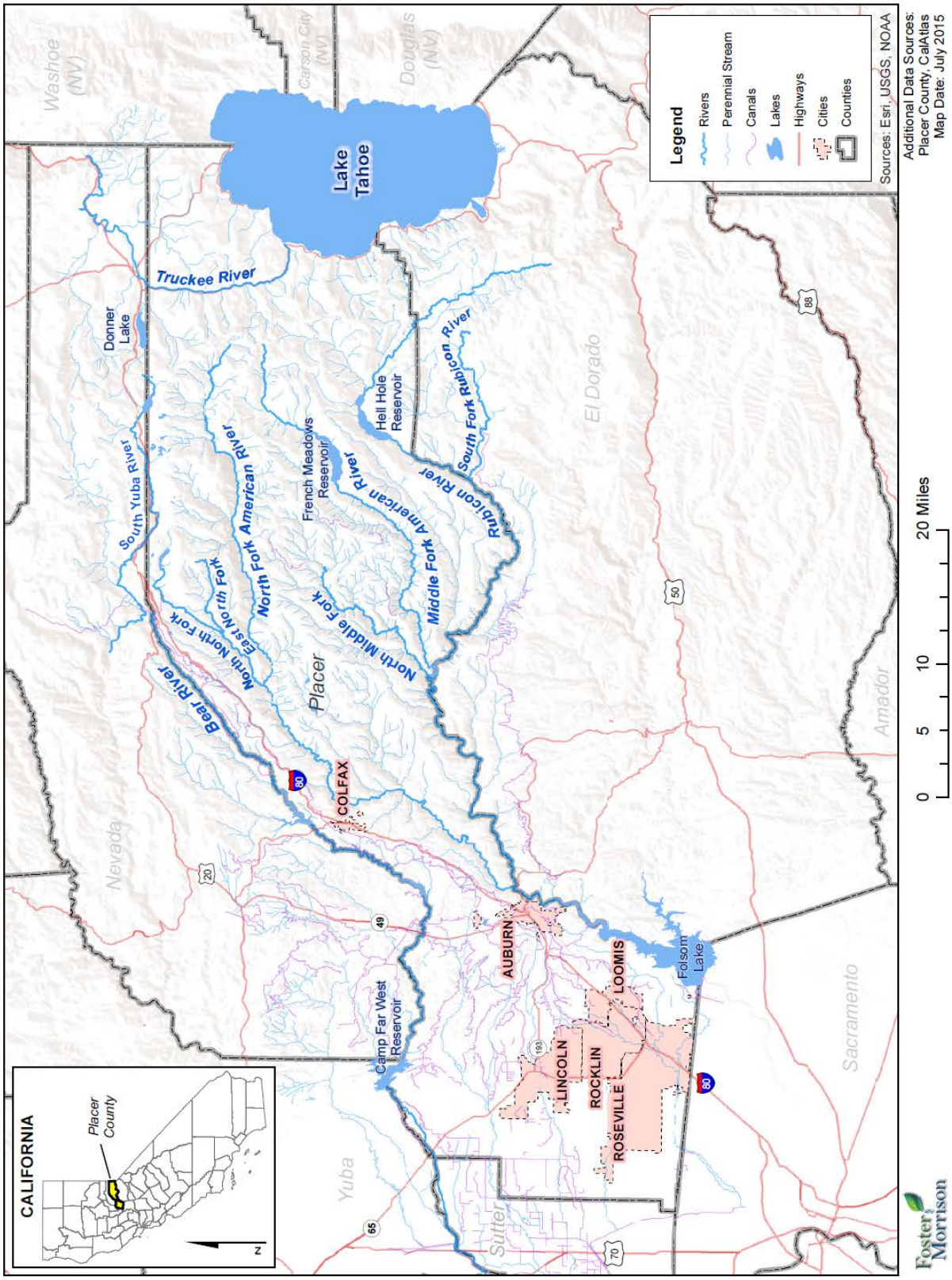


Figure 4-39 Placer County Waterways Map



Dry Creek Watershed. Dry Creek watershed encompasses approximately 116 square miles in Placer and Sacramento Counties. In Placer County the watershed is located in the southwestern portion of the County, and includes the City of Rocklin and Town of Loomis. The headwaters of Dry Creek are located in the upper portions of the Loomis Basin, in the vicinity of Penryn and Newcastle, in unincorporated Placer County, in the Granite Bay area near Folsom Lake, and in Orangevale in Sacramento County. The headwaters are located in the Sierra Nevada foothills at elevations of 900-1200 feet above msl. The mouth of Dry Creek, at its confluence with the Natomas East Main Drainage Canal, is at an elevation of about 30 feet above msl. Major tributaries to Dry Creek include Antelope Creek, Clover Valley Creek, Secret Ravine, Miners Ravine, Strap Ravine Creek, Linda Creek, and Cirby Creek. Dry Creek drains to Steelhead Creek. Land use in the Dry Creek watershed varies widely, from agricultural to residential to commercial. The watershed is located in an area of rapid urbanization and population growth.

Incidences of flooding along Dry Creek and its tributaries are well documented. Floods in the Dry Creek watershed occur from October through April. The major flooding problems within this drainage basin occur where the north and south branches of Dry Creek converge. Flooding occurs when heavy rains and saturated soils cause streams to overflow their banks, flooding property and structures located adjacent to the streams. Streams also back up at culverts and bridges, blocking roads or making them unsafe. Continued development in both the upper and lower reaches of the watershed will likely make flooding problems worse.

According to the 1992 Dry Creek Watershed Flood Control Plan, substantial flood damages will continue to occur under existing conditions. Areas with the most extensive and frequent damages include areas along Miners Ravine in the vicinity of Joe Rodgers Road and upstream of Sierra College Boulevard; Paragon Court near Antelope Creek in Rocklin; and areas along Cirby, Linda and Dry Creeks in Roseville. Some of these same areas are susceptible to flooding from storms as frequent as the 10-year storm. Many of the bridges and culverts in the watershed are inadequate to pass the 100-year event (70 percent). Nearly 50 percent of the stream crossings are inadequate for even the 25-year flood. Based on 1989 land use, structures that will be impacted by the 100-year flood are essentially those that were flooded by the February 1986 flood.

Floods generally caused by a combination of prolonged rainfall leading to saturated soils and a short period of intense precipitation occur from October through April. Dry Creek and its tributaries have an extensive record of historic flood, especially in the Roseville area. According to the 1992 report, damaging floods occurred in December 1955, April 1958, October 1962, December 1964, March 1983, and February 1986. The 1955, 1983, and 1986 floods were the largest and most damaging on record.

Cross Canal Watershed (Auburn Ravine/Coon Creek/Pleasant Grove Creek/Markham Ravine/Curry Creek). This watershed encompasses approximately 69,919 acres, and includes 6 dams. Auburn Ravine, Markham Ravine, Coon Creek, Pleasant Grove Creek, Curry Creek, and their tributaries drain approximately 292 square miles of northwestern and southeastern Sutter County (88 percent in Placer County and 12 percent in Sutter County) and are referred to as the Cross Canal Watershed. The Cross Canal, at the western portion of the watershed, carries the combined flow of the creeks to the Sacramento River. The watershed slopes from east to west with elevations ranging from 2,500 feet to 25 feet. The eastern portion of the watershed is located in the foothills of the Sierra Nevada. Stream channels in this area have slopes of several hundred feet per mile. The eastern portion of the watershed is typified by the much flatter

land of the Central Valley. Stream channels in this area have slopes of a few feet per mile. The City of Lincoln and portions of the Cities of Auburn, Rocklin, and Roseville are located within the watershed.

An extensive area upstream of the Cross Canal, in eastern Sutter County and western Placer County, is subject to periodic flooding. Major flooding in the watershed occurs as ponding and overland flow over many square miles of land east of the Cross Canal. Flooding also occurs adjacent to tributary streams where channel capacities are exceeded. Inadequately sized road crossings, land leveling, and channelization within the lower portion of the watershed have likely contributed to the frequency and degree of flooding. Future development in the watershed may also contribute to the flooding issue. The affected flooding area appears to be between 10,000 to 30,000 acres including the tributary streams. The Sutter-Placer Watershed Area Study by the Soil Conservation Service estimated approximately 31,000 acres of the watershed would be inundated during a 100-year frequency flood event. Approximately 95 percent of the potentially flooded area is west of Highway 65, in the flatter portion of the watershed. During major flooding, inundation along the individual streams combines upstream of the Cross Canal to form a continuous body of water approximately 10 miles by 3 miles. Several roads in the western portion of the watershed flood once or more each year on the average (Placer County Water Agency 2001). Several elements contribute to major flooding in the watershed including limited channel capacity, undersized bridges and culverts, high river stages in the Sacramento River, and historical land leveling and channel modifications.

Auburn/Bowman Area. The Auburn/Bowman area is a largely rural area located in the Sierra foothills in Placer County. The area covers approximately 41.5 square miles and is contained in portions of six different drainage basins (or watersheds): Bear River – 2.1 square miles, Orr Creek – 9.3 square miles, Dry Creek – 15.5 square miles (including Rock Creek – 4.3 square miles), Auburn Ravine – 10.8 square miles (including North Ravine – 4.6 square miles), Mormon Ravine – 1.4 square miles, Dutch Ravine – 1.0 square miles, the American River (North Fork) – 9.8 square miles, and Deadman's Canyon – 1.0 square miles. This area is characterized by relatively steep slopes and moderate relief. Elevations in the area range from approximately 800 feet above msl in the southern portion of the study area to over 2000 feet above msl in upper Dry Creek and Orr Creek watersheds. Overall, most of the Auburn/Bowman area has elevations ranging from 1000 to 1500 feet above msl.

Flooding occurs when heavy rains cause streams to overflow their banks, flooding property and structures located adjacent to the stream. Streams also back up at culverts and bridges, blocking roads or otherwise making them unsafe. Emergency services can also be restricted by the flooded roads. In addition, there are numerous open canals in the study area which can intercept sheet runoff from one area and spill it into another. Excessive spills from these canals may also increase the potential for downstream flooding. According to the 1992 Auburn/Bowman Community Plan Hydrology Study, approximately 70 percent of the bridges and culverts in the watershed are inadequate to pass the 100-year flows for both existing and future conditions, and flooding will occur with the 100-year flood under existing conditions along Dry Creek Road. Specifically, flooding of up to two to three feet has been known to occur on Dry Creek Road between Dry Creek Road Bridge and Twin Pines Trail Bridge during a major storm event (e.g., March 1986). The flood of 1986 caused the most severe flooding damage to date in the Auburn/Bowman area. In addition to the overtopping of bridges and culverts, at several locations, flooding of structures occurred in the floodplains. Over 60 percent of the stream crossings are inadequate for even the 25-year flood.

Truckee River Watershed. The Truckee River watershed, with an area of approximately 2,720 square miles, encompasses the entire Lake Tahoe, Truckee River, and Pyramid Lake systems. The major tributaries to the Truckee River in California include Bear Creek, Squaw Creek, Cabin Creek, Pole Creek, Donner Creek, Trout Creek, Prosser Creek, the Little Truckee River, Gray Creek, and Bronco Creek. Roughly the middle third of the Truckee River watershed is located within Placer County, in eastern Sierra Nevada, north of Lake Tahoe. A significant portion of the watershed is above 6,000 ft.

The overflowing and diversion of Squaw Creek (upper Truckee River Basin), is responsible for major flooding events, such as the January floods of 1997, in eastern Placer County. In the more urbanized areas, flood problems are intensified by the increased volume of water that must be carried away by streams. The volume is increased because rooftops of new homes and other structures, as well as new streets, driveways, parking lots, and other paved areas all decrease the amount of open land available to absorb rainfall and runoff.

Placer County Flood Mapping Efforts

As part of the County's ongoing efforts to identify and manage their flood prone areas, Placer County relies on a variety of different mapping efforts. What follows is a brief description of FEMA and DWR mapping efforts covering the Placer County Planning Area.

Flood Hazard Awareness Maps

Flood Hazard Awareness Maps (FHAM) have been created by the Placer County Flood Control and Water Conservation District for the purposes of identifying areas of the county where flood hazards from local creeks are known to exist. The maps delineate the established FEMA 100-year and 500-year floodplains (where established) including a 250 foot setback limit from the 100-year floodplain. The setback limit was selected to assist emergency responders and planners in identifying local flood hazard areas, but is not a regulatory limit. Critical emergency response facilities including police and fire stations are shown as are other facilities which may be useful during a flooding event including hospitals, schools, churches and miscellaneous public facilities. Street crossings potentially impacted by flooding are also highlighted in red and the locations of sand bags for flood fighting purposes are also shown. The District intends to update these maps periodically as new information becomes available. Figure 4-40 through Figure 4-44 depict the current FHAMs for the County.

Figure 4-40 FHAM for SW Placer County

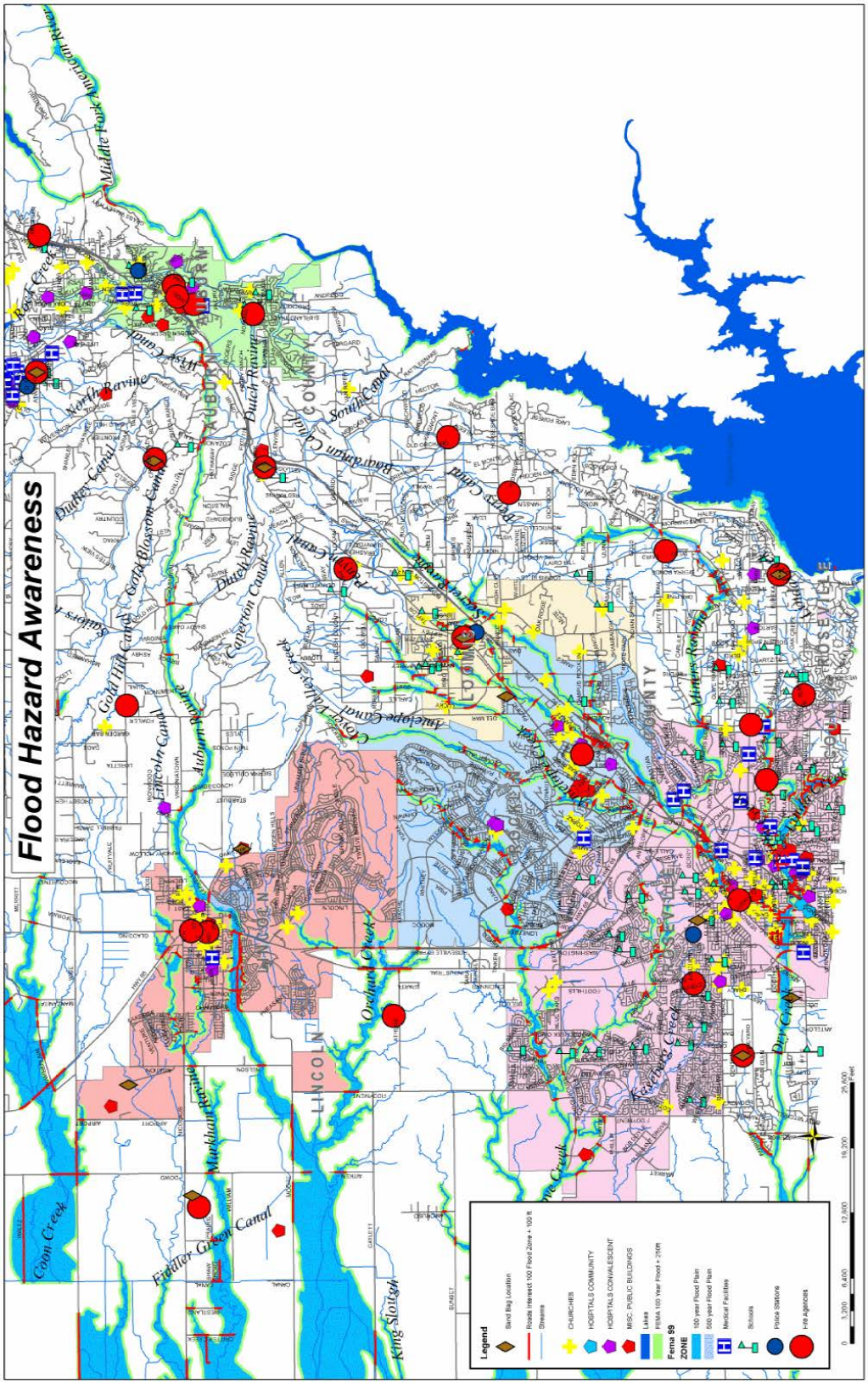


Figure 4-41 FHAM for the City of Auburn

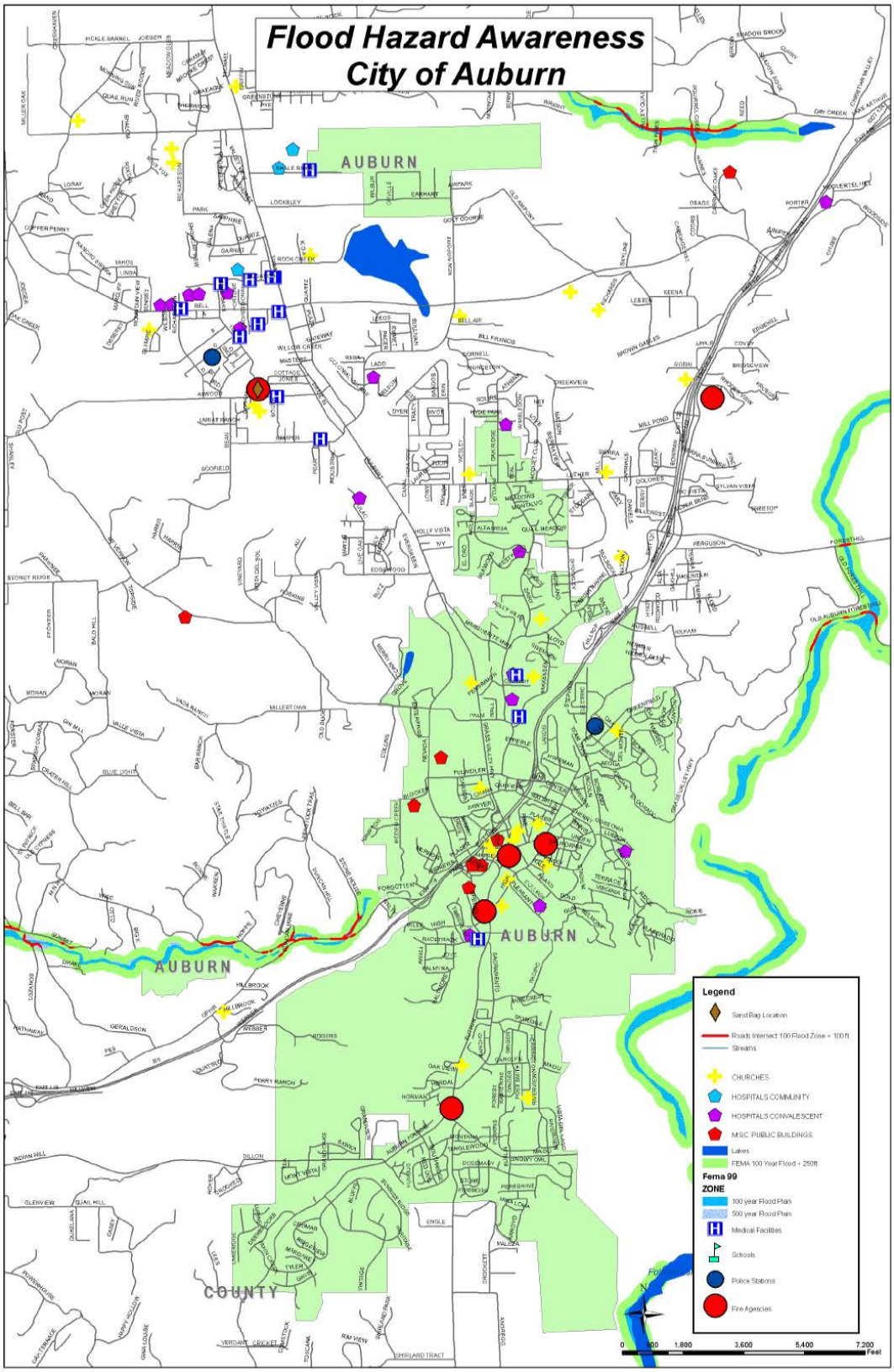


Figure 4-42 FHAM for the City of Lincoln

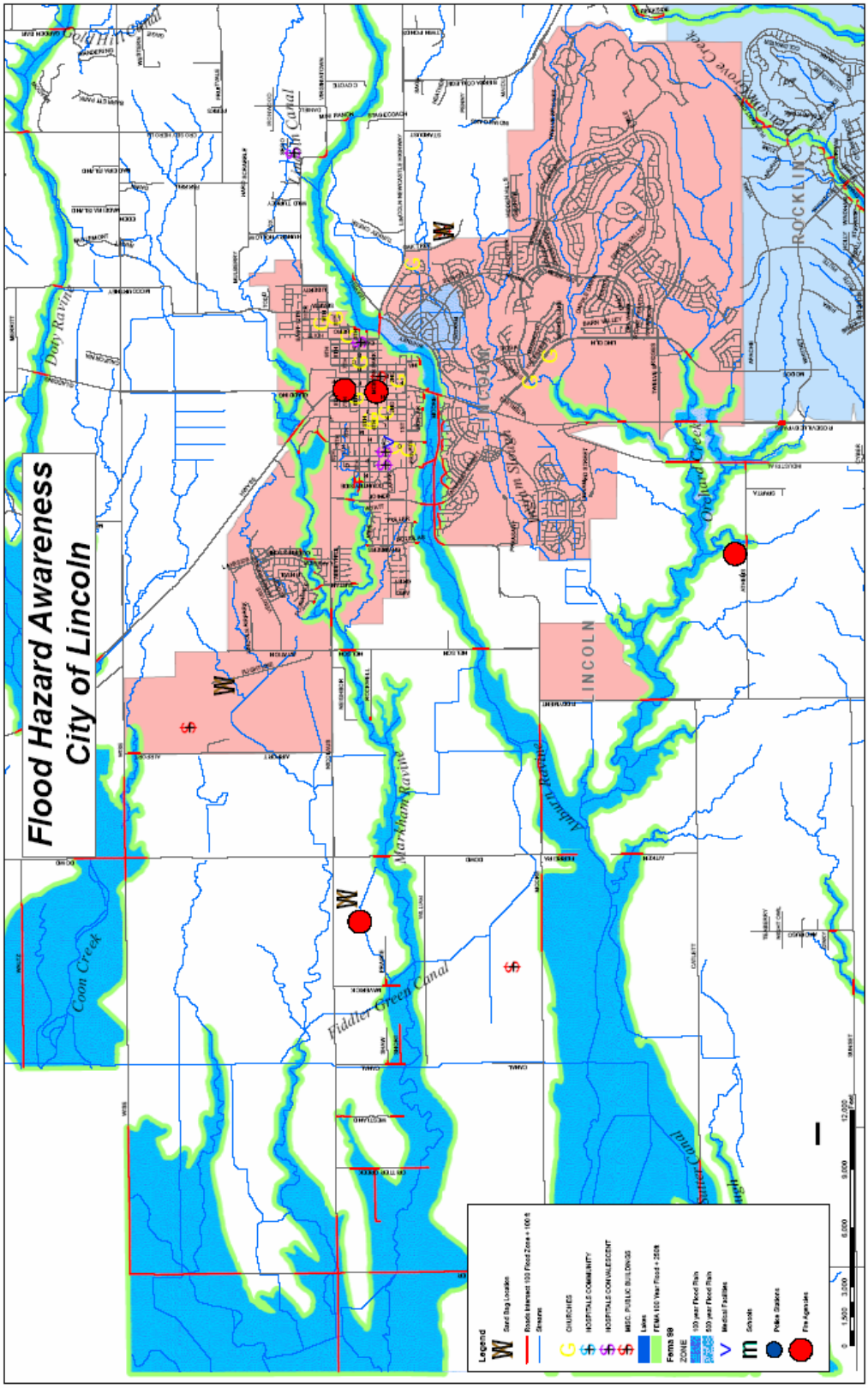


Figure 4-43 FHAM for the Town of Loomis

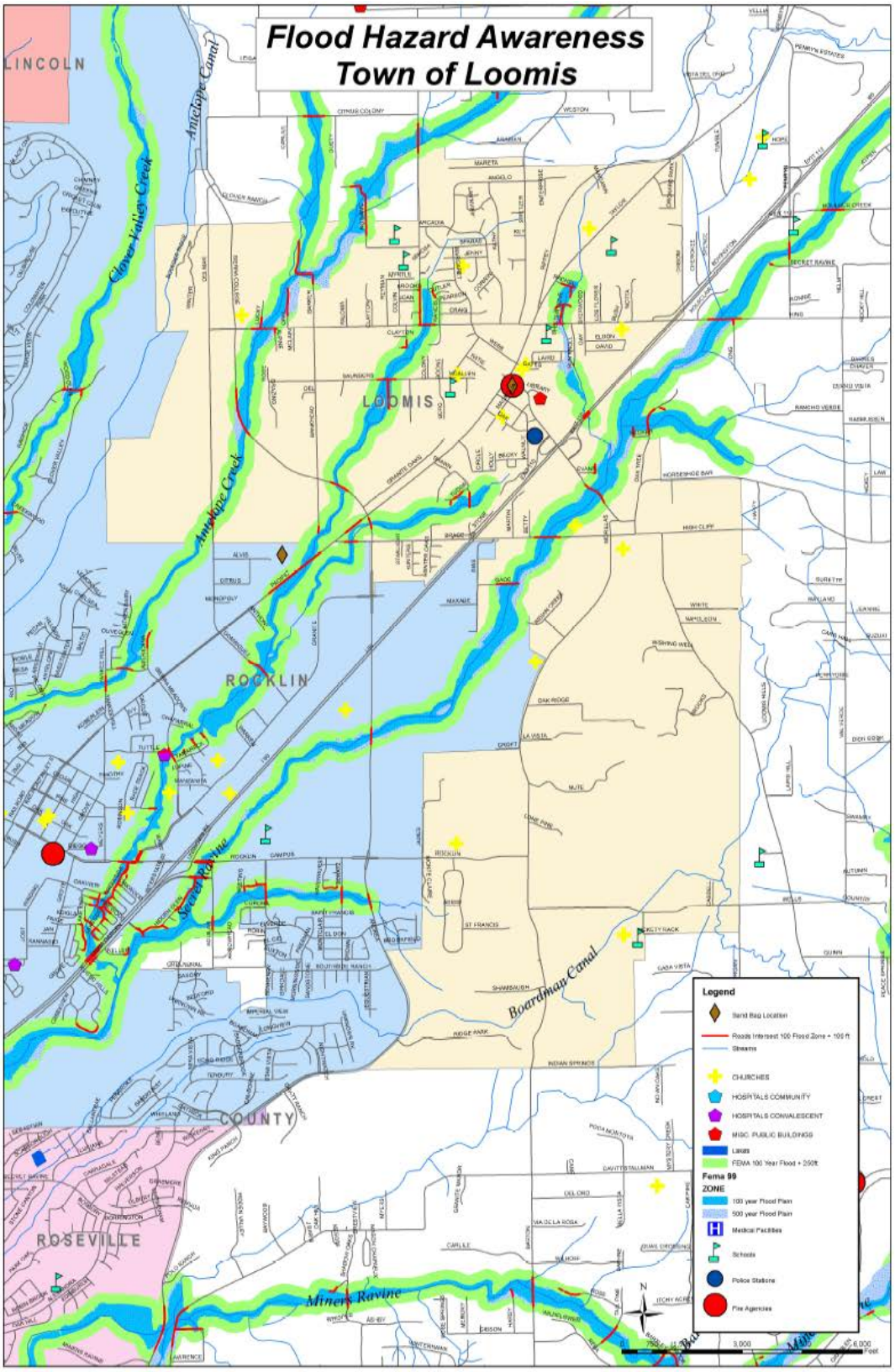
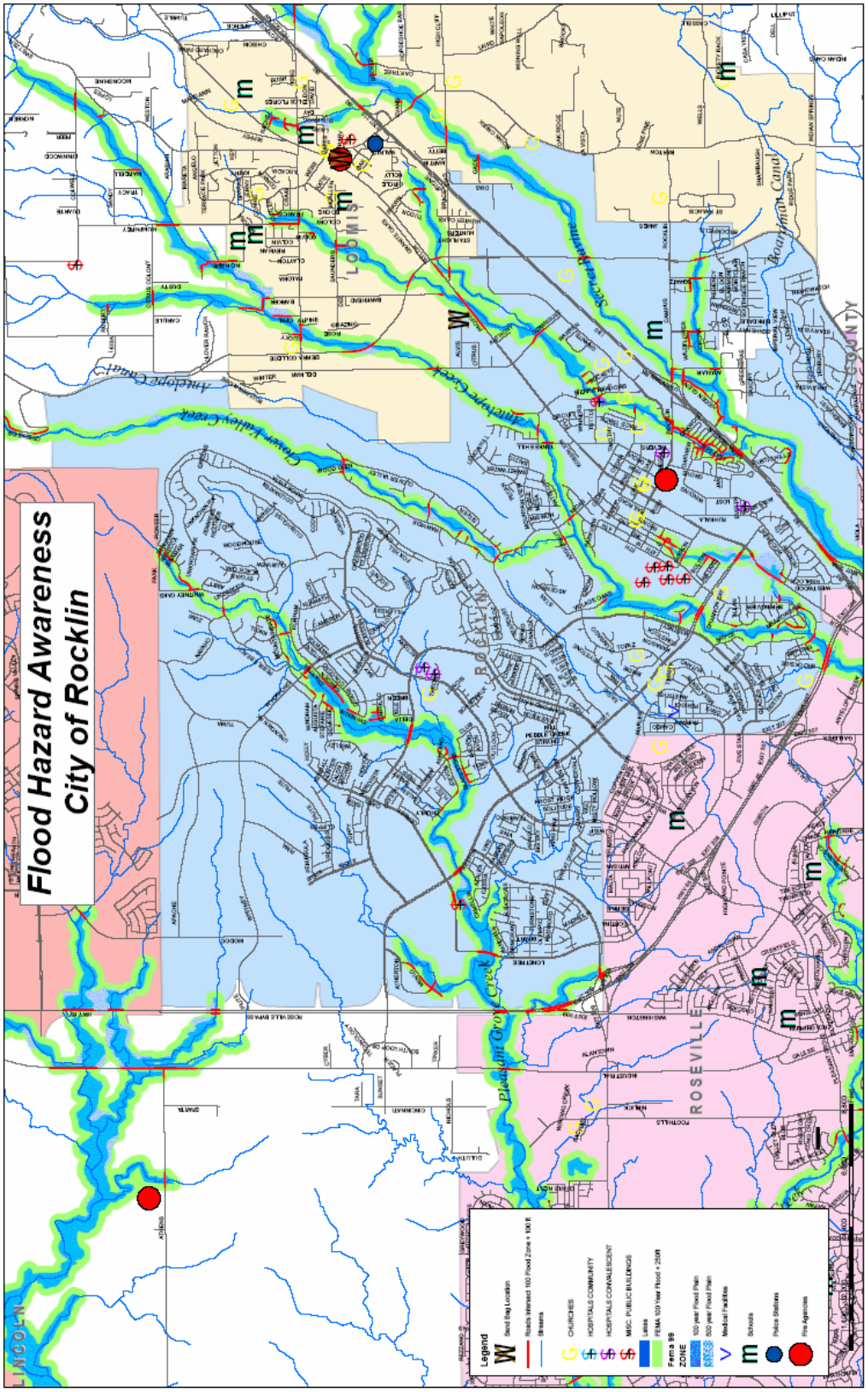


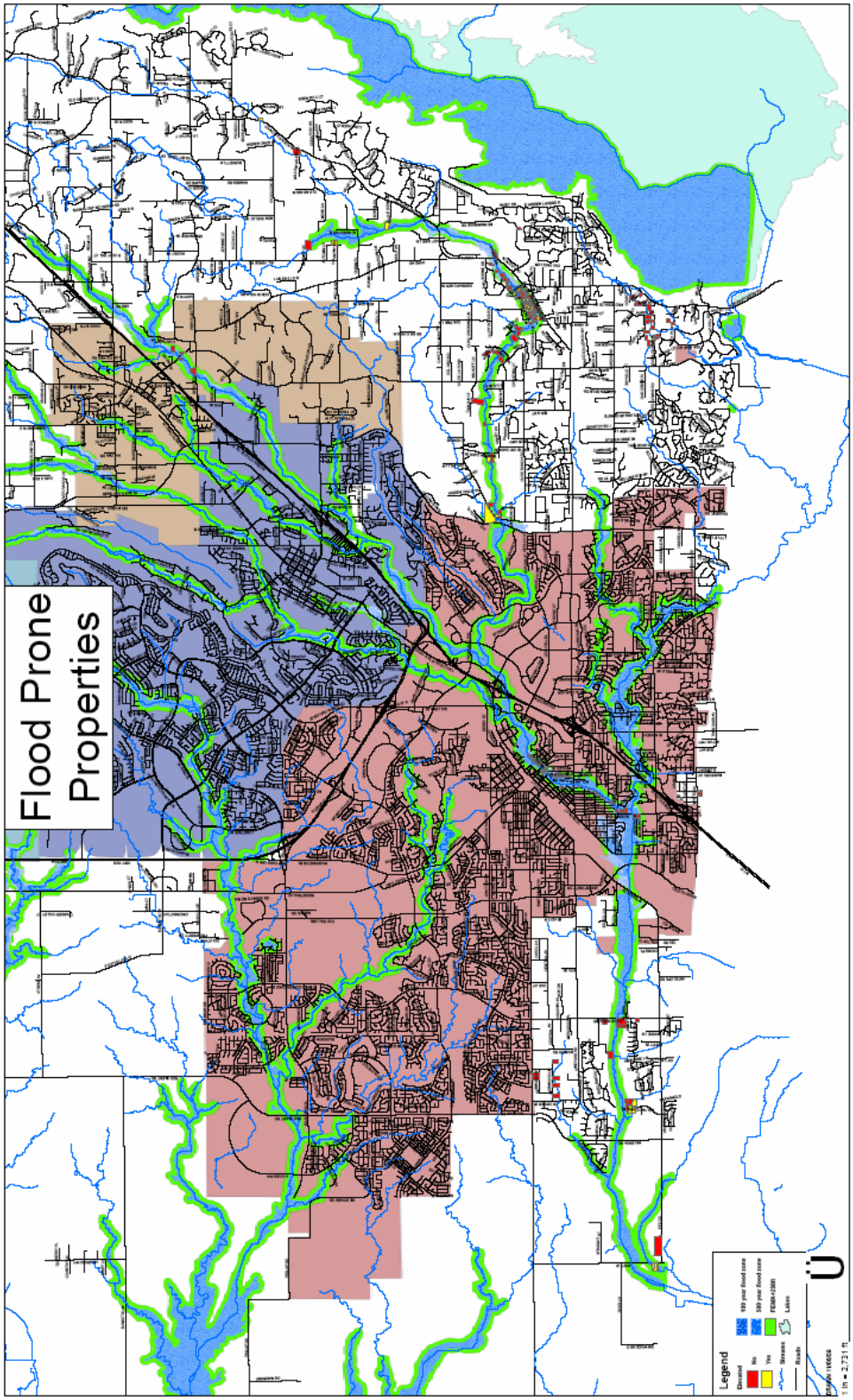
Figure 4-44 FHAM for the City of Rocklin



Flood Prone Maps

The Placer County Flood Control and Water Conservation District and its member agencies have developed a database and GIS mapping of both residential and commercial structures that are subject to damage from repeat flooding events. The database on these properties has been developed over the years beginning with the 1986 flood event and is helpful in identifying these properties and general flood hazard areas. The database includes information (where available and recorded) on high water, finished floor elevations, previous flooding impact, and whether or not the structure had been elevated or not through a FEMA sponsored HMGP grant program. A GIS based mapping of these flood prone properties has been created and is color coded to indicate structures that have already been elevated versus those that have not. The mapping is useful in identifying flood hazard areas where it can be expected that most of the flood fighting and emergency response efforts will be focused. It is also useful in planning future flood mitigation strategies, elevation projects and regional flood control projects. Figure 4-45 illustrates the Placer County Flood Prone Maps.

Figure 4-45 Placer County Flood Prone Properties



Source: Placer County Flood and Water Conservation District

FEMA Floodplain Mapping

FEMA established standards for floodplain mapping studies as part of the National Flood Insurance Program (NFIP). The NFIP makes flood insurance available to property owners in participating communities adopting FEMA-approved local floodplain studies, maps, and regulations. Floodplain studies that may be approved by FEMA include federally funded studies; studies developed by state, city, and regional public agencies; and technical studies generated by private interests as part of property annexation and land development efforts. Such studies may include entire stream reaches or limited stream sections depending on the nature and scope of a study. A general overview of floodplain mapping is provided in the following paragraphs. Details on the NFIP and mapping specific to the County and participating jurisdictions are in Section 4.3 Vulnerability Assessment and in the jurisdictional annexes.

Flood Insurance Study (FIS)

The FIS develops flood-risk data for various areas of the community that will be used to establish flood insurance rates and to assist the community in its efforts to promote sound floodplain management. The current Placer County FIS is dated 2001. A preliminary FIS update was completed March 29, 2010, but was not yet finalized as of the writing of this plan. This study covers both the unincorporated and incorporated areas of the County.

Flood Insurance Rate Map (FIRM)

The FIRM is designed for flood insurance and floodplain management applications. For flood insurance, the FIRM designates flood insurance rate zones to assign premium rates for flood insurance policies. For floodplain management, the FIRM delineates 100- and 500-year floodplains, floodways, and the locations of selected cross sections used in the hydraulic analysis and local floodplain regulation. The County FIRMs have been replaced by Preliminary digital flood insurance rate maps (DFIRMs) as part of FEMA's Map Modernization program, which is discussed further below.

Letter of Map Revision (LOMR) and Map Amendment (LOMA)

LOMRs and LOMAs represent separate floodplain studies dealing with individual properties or limited stream segments that update the FIS and FIRM data between periodic FEMA publications of the FIS and FIRM.

Digital Flood Insurance Rate Maps (DFIRM)

As part of its Map Modernization program, FEMA is converting paper FIRMS to digital FIRMs, DFIRMS. These digital maps:

- Incorporate the latest updates (LOMRs and LOMAs);
- Utilize community supplied data;
- Verify the currency of the floodplains and refit them to community supplied basemaps;
- Upgrade the FIRMs to a GIS database format to set the stage for future updates and to enable support for GIS analyses and other digital applications; and
- Solicit community participation.

DFIRMs for Placer County have been developed have been in preliminary draft form since 2010. These March 29, 2010 DFIRMs are anticipated to be final in 2017 and thus are being used for the flood analysis for this LHMP Update.

Mapping of Levees

Also as part of FEMA's Map Modernization program, FEMA is mapping levees within communities, with a primary focus on maps determined to provide a 100-year level of flood protection.

In August of 2005, FEMA Headquarters' issued Memo 34 Interim Guidance for Studies Including Levees. This memo recognizes the risk and vulnerability of communities with levees. The memo mandates the inclusion of levee evaluations for those communities that are undergoing map changes such as the conversion to DFIRMs. No maps can become effective without an evaluation of all levees within a community against the criteria set forth in 44 CFR 65.10 Mapping of Areas Protected by Levee Systems. Generally, these levee certification requirements include evaluations of freeboard, geotechnical stability and seepage, bank erosion potential due to currents and waves, closure structures, operations and maintenance, and wind wet and wave run-up. In short, these guidelines require certification of levees before crediting any levee with providing protection from the 1 percent annual event (e.g., the 100-year flood).

In Placer, similar to other locations in California, levees and flood control facilities have been built and are maintained variously by public and private entities, including water, irrigation and flood control districts, other state and local agencies, and private interests. Some of these facilities were constructed with flood control as secondary or incidental to their primary purpose, so are not considered as providing protection from the 100-year or greater flood. As part of the efforts to convert the Placer County Planning Area to DFIRMS, an inventory of levees has been undertaken within the Planning Area.

Levees in the County are discussed in Section 4.2.13 of this plan.

Other Floodplain Maps and Analyses: Department of Water Resources

Also to be considered when evaluating the flood risks in Placer County are various floodplain maps developed by the California Department of Water Resources (DWR) for various areas throughout California, and in the Sacramento-San Joaquin Valley cities and counties.

DWR Flood Awareness Maps

The Flood Awareness Maps, developed under the Flood Awareness Mapping Project, are designed to identify all pertinent flood hazard areas by 2015 for areas that are not mapped under the FEMA NFIP and to provide the community and residents an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. The awareness maps identify the 100-year flood hazard areas using approximate assessment procedures. The floodplains are shown on these maps simply as flood prone areas without specific depths and other flood hazard data. The Flood Awareness Maps can be accessed online at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/. These maps are included in the levee profile in Section 4.2.13.

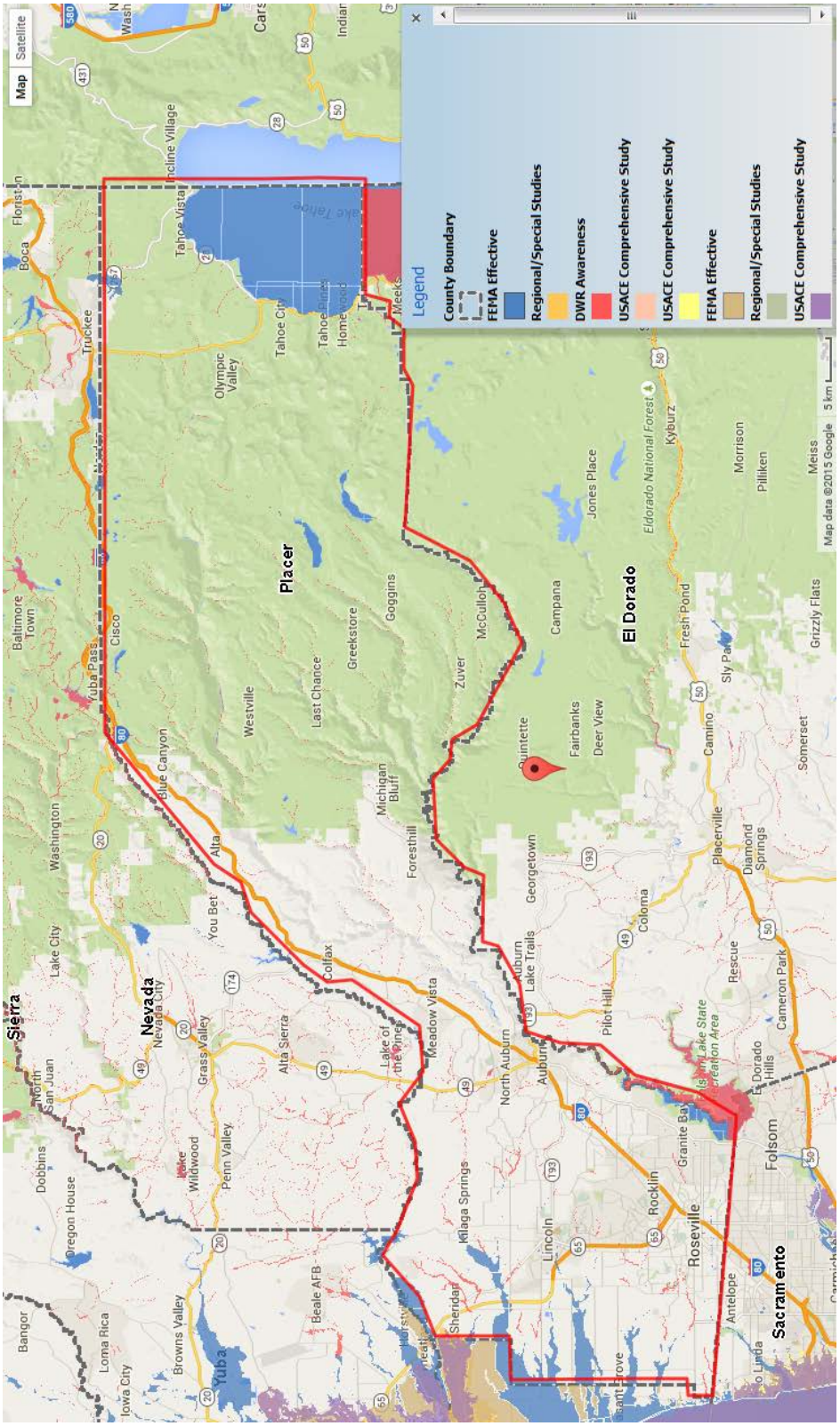
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the Placer County Planning Area than that provided in the FEMA DFIRMS. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. Figure 4-46 shows the BAM for the Placer County Planning Area. BAM maps for each jurisdiction are included in their respective annexes.

Figure 4-46 Placer County Planning Area – Flood Awareness (Best Available) Map



Source: California DWR

Central Valley Floodplain Evaluation and Delineation Maps (CVFED)

CVFED maps, required by Senate Bill 5, represent 100- and 200- year floodplains for urban and urbanizing areas within the Sacramento-San Joaquin Valley watershed. These maps are being developed based on more detailed hydrologic and hydraulic information, topographic data, and levee evaluations. CVFED maps are still in the development stage.

Localized/Stormwater Flooding

Localized, stormwater flooding also occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration. Flooding is more severe when previous rainfall has created saturated ground conditions. Urban storm drainpipes and pump stations have a finite capacity. When rainfall exceeds this capacity, or the system is clogged, water accumulates in the street until it reaches a level of overland release. This type of flooding may occur when intense storms occur over areas of development.

In addition to flooding, damage to these areas during heavy storms includes pavement deterioration, washouts, landslides/mudslides, debris areas, and downed trees. The amount and type of damage or flooding that occurs varies from year to year, depending on the quantity of runoff. These areas and the types of damage are presented in Table 4-20.

Table 4-20 Unincorporated Placer County Localized Flooding Areas

Road Name
Flooding
Industrial Ave, South of Athens
PFE Road, 1 mile west of Walegra
Bianchi Estates – Muirwood Lane, Blackwood Lane, Kenwood Way
Watt Avenue – south of Dyer Lane
Walerga Road Bridge at Dry Creek
Barton Road – at Linda Creek
Dry Creek Road – at Black Oak Road
Dry Creek Road – between Greenstone Ct and parkway
Ayers Holmes Road
Soda Springs Road – at Wabena Creek
Brewer Road – south of Jackson Road
Locust Road – south of Jackson Road
Landslides/Mudslides
Old Foresthill Road
Yankee Jims Road
Downed Trees
Virginiatown Rd (Fowler Rd – Gold Hill Rd)

Road Name
Fruitvale Road (Garden Bar Rd – Gold Hill Rd)
Mt. Pleasant Rd (Mt Vernon Rd – Crosby Harold Rd)
Mt. Vernon Road (Collins Dr – Wise Rd)
Gold Hill Road (Hwy 193 – Wise Rd)
Baxter Grade Road (Wise Rd – Mt. Vernon Rd)
Val Verde Road (Horseshoe Bar Rd – Wells Rd)
Auburn-Folsom Road (Auburn City Limits – King Rd)
Auburn-Folsom Road (Los Lagos – Douglas Blvd)
Wise Road (Ophir Rd – Garden Bar Rd)

Source: Placer County

Past Occurrences

Disaster Declaration History

A search of FEMA and Cal OES disaster declarations turned up multiple events. State disaster declarations occurred in 1950, 1955, 1962, and 1963. Federal disaster declarations occurred in 1955, 1962, and 1963. Many disasters in the Severe Weather: Heavy Rains profile in Section 4.2.5 also resulted in flood declarations.

NCDC Events

The NCDC tracks flooding events for the County. Events have been tracked for flooding since 1993. Table 4-21 shows events in Placer County since 1993.

Table 4-21 NCDC Flood Events in Placer County 1993 to 12/31/2014

Date	Event	Deaths (direct)	Injuries (direct)	Property Damage	Crop Damage	Injuries (indirect)	Deaths (indirect)
1/22/1997	Flash Flood	0	0	$0	$0	0	0
1/26/1997	Flash Flood	0	0	$0	$0	0	0
1/26/1997	Flash Flood	0	0	$150,000	$0	0	0
12/3/2014	Flash Flood	0	0	$2,000	$0	0	0
12/3/2014	Flash Flood	0	0	$2,000	$0	0	0
12/3/2014	Flash Flood	0	0	$2,000	$0	0	0
12/3/2014	Flash Flood	0	0	$1,000	$0	0	0
12/3/2014	Flash Flood	0	0	$50,000	$0	0	0
12/3/2014	Flash Flood	0	0	$1,000	$0	0	0
12/12/1996	Flood	0	0	$0	$0	0	0
12/12/1996	Flood	0	0	$0	$0	0	0
1/1/1997	Flood	0	1	$0	$0	0	0

Date	Event	Deaths (direct)	Injuries (direct)	Property Damage	Crop Damage	Injuries (indirect)	Deaths (indirect)
1/1/1997	Flood	0	0	$0	$0	0	0
1/1/1997	Flood	0	0	$0	$0	0	0
1/1/1997	Flood	0	0	$0	$0	0	0
2/2/1998	Flood	0	0	$0	$0	0	0
2/2/1998	Flood	0	0	$0	$0	0	0
2/2/1998	Flood	0	0	$4,300,000	$7,800,000	0	0
2/3/1998	Flood	2	0	$0	$0	0	0
1/23/2000	Flood	0	0	$0	$0	0	0
1/23/2000	Flood	0	0	$0	$0	0	0
1/23/2000	Flood	0	0	$0	$0	0	0
1/23/2000	Flood	0	0	$0	$0	0	0
1/23/2000	Flood	0	0	$0	$0	0	0
1/23/2000	Flood	0	0	$25,000	$0	0	0
1/30/2000	Flood	0	0	$0	$0	0	0
2/10/2000	Flood	0	0	$0	$0	0	0
2/11/2000	Flood	0	0	$0	$0	0	0
2/11/2000	Flood	0	0	$0	$0	0	0
2/11/2000	Flood	0	0	$0	$0	0	0
2/11/2000	Flood	0	0	$45,000	$0	0	0
2/22/2000	Flood	0	0	$0	$0	0	0
2/26/2000	Flood	0	0	$0	$0	0	0
1/10/2001	Flood	0	0	$0	$0	0	0
1/1/2006	Flood	0	0	$2,000,000	$0	0	0
12/3/2014	Flood	0	0	$0	$0	0	0
12/3/2014	Flood	0	0	$0	$0	0	0
Totals		**0**	**0**	**$6,578,000**	**$7,800,000**	**0**	**0**

Source: NCDC

HMPC Events

Historically, portions of Placer County have always been at risk to flooding because of its high annual percentage of rainfall, heavy snowfall in the winter, and the number of watercourses that traverse the County. Flooding events have caused severe damage in the very eastern and very western portions of the County, but are less of a threat within the center of the County. However, western Placer County is more likely to experience severe flooding than in other areas. With the exception of Colfax, portions of all other incorporated cities in western Placer are at least partially located within the 100-year floodplain. Existing watershed reports confirm that under existing conditions, flooding will continue to occur. As previously noted, localized stormwater flooding also continues to be a problem throughout the Planning Area.

The HMPC provided additional information on the following historical flood events in the County.

- **1852** – This was the first big flood to be noted in western Placer. Mining camps were just beginning to spring up in the Lincoln area, so hardly any structures were built which could be affected.
- **1860** – Rains began during the first week of October and culminated in a big storm March 23-28. Major damage was reported from farms and mines along Coon Creek, Auburn Ravine, and Bear River. Main roads remained impassable for weeks.
- **1861-62** – Lincoln had just been founded as a railroad and stagecoach center. The Lincoln-Folsom railroad was closed. The Auburn Ravine Turnpike was severely damaged and closed. Mining debris caused Bear River to change its channel to the south of its original course.
- **1875** – Floods occurred along Bear River and destroyed the bridge to Grass Valley from Sheridan.
- **1880** – Levees were finally being constructed along Bear River.
- **1955** – Listed on NOAA's website as one of the "top 15 weather/water/climate events, "significant and extended heavy rain and wind resulted in flooding throughout coastal and inland regions of northern California. Extensive flooding from overflowing small streams occurred in Placer County suburbs. Calculated damages for all areas affected within the State were 28 fatalities and $1.8 billion in losses.
- **March 1983** – The March 1983 flood damaged approximately 25 residences along Linda and Cirby Creeks in Roseville. Portions of Royer Park were under water as well as areas in the Sierra Lakes Mobile Home Park. Dry Creek overflowed the Darling Way and Riverside Avenue bridges, disrupting traffic and flooding six businesses along Riverside Avenue.
- **February 1986** – This flood was classified as an approximate 70-year event. Placer County was designated a Federal Disaster Area. The flooding caused widespread damage in most of the Dry Creek watershed. Flooding was significant in the Roseville, Rocklin and Loomis areas. Nearly all bridges and culverts were overtopped, with 30 sustaining embankment damage; the crossing at Rocky Ridge Drive was washed out. Two bridges over Dry Creek were damaged and street cave-ins occurred at a number of locations. Total damages within Placer County were estimated at 7.5 million; damage estimates specific to the Dry Creek Watershed are not available. One person was killed and 62 homes damaged or destroyed within the watershed based upon applications for disaster assistance. Other sources report around 100 homes flooded with water levels up to five feet above floor levels. Dozens of businesses in downtown Roseville were damaged or destroyed. According to information on file with Placer County, as part of the disaster declaration, FEMA reimbursed the County $376,611; no monies were reimbursed through the State.
- **1992** – Several days of continuous rain followed by a downpour caused Miners Ravine to overflow its banks and caused flooding that resulted in several dramatic rescues of people trapped in homes and vehicles.
- **January 1995** – This flood was classified as an approximate 100-year event. Placer County was designated a Federal Disaster Area. President Clinton toured the Tina/Elisa Way area of Roseville. The total damages within Placer County were estimated at $8.3 million with 750 damaged or destroyed structures. $4.2 million in damages were estimated for the Roseville area alone. Of the $4.2 million dollars in damages, $1 million was for road and bridge repairs, and $2 million was for utility repairs. Within the Roseville area of Placer County 385 homes, businesses, apartments, and mobile homes were damaged or destroyed; 2 sewage treatment plants were overtopped; and 1 landfill was damaged. Impassable roads caused the closure of most schools. According to information on file with Placer County, as part of the disaster declaration, FEMA reimbursed the County $882,158 and $166,735 was reimbursed through the State. As a result of the 1995 floods, a creek crossing (bridge-where Carolinda Drive crosses the Miners Ravine Creek) in the San Juan water district washed out in two separate

incidents (January 9th and February or March). The first washout exposed main 10-inch ACP pipeline and made it vulnerable to high water and swift current. The crossing was rebuilt by the Carolinda Homeowner's Association and the line went back into service. The second wash out occurred in February or early March, again due to high water and swift currents. This time the pipe was removed and a new bridge was built with the pipeline now being supported by the new bridge. The cost of repairs and replacement was $30,400, of which $27,000 was received through disaster funds.

- **1996** – Heavy rain and clogged storm drains caused water to flow into the Cavitt School Gymnasium (Eureka Union School District) in southern Placer County. A wood floor was lost. The $85,976 in damages was covered by Emergency Services under a disaster declaration. The drainage system has since been modified.
- **January 1997** – A significant amount of rainfall and snowmelt runoff poured out of the Sierra Nevada from December 30, 1996 to January 1997. This was a very warm system and rain was falling at the 9,000 foot elevation. An estimated 25 inches of rain and snowmelt runoff occurred during this period on the Squaw Creek Basin (the upper Truckee River Basin in Placer County). This scenario was typical throughout the region and resulted in extensive flooding on the Truckee, Carson, Walker, and Susan Rivers. Consequently, record flooding occurred on much of the Truckee, Carson, and Walker Basins. In Placer County, flooding eroded away mountainsides, breaking sewer, water, and power lines. The south fork of Squaw Creek jumped its bank and burst through the lodge at the Squaw Valley Ski Resort. All bridges across Highway 89 were destroyed or severely damaged. Avalanches closed Highway 89 in both directions isolating Squaw Valley from the outside world. Log jams caused the creek to diverge and deposit 3,500 cubic yards of gravel, boulders, logs, and debris into the stream channel, piling the material up to six feet deep into homes and condominiums (USDA 1997). Mudslides blocked Squaw Valley Road and almost every other road in the area. In Placer County alone, damage estimates for public property were nearly $11 million. 137 homes and 22 businesses were damaged within the County. Total damage to private homes, businesses, agriculture, and private roads was near $10 million. Destruction to the Federal Highway System was nearly $7.7 million. According to information on file with Placer County, as part of the disaster declaration, FEMA reimbursed the County $717,754 and $177,451 was reimbursed through the State.
- **February 1998** – In Placer County, 4 homes in the City of Roseville and 1 home in the Town of Granite Bay were inundated on the 3rd. Specific damages in the County were unavailable. No deaths or injuries were reported.
- **February 2000** – Creek flooding in Auburn closed Gold Rush Plaza. Nine retail shops sustained minor damages. $45,000 in damages was reported.
- **December 31, 2005 to January 1, 2006** – A series of warm winter storms brought heavy rain, mudslides, flooding, and high winds to Northern California. Localized flooding was reported across eastern Placer County, especially on Blackwood and Ward Creeks, and the Truckee River. Blackwood Creek rose to its second highest level in the last 45 years. $1 million in property damage in the Tahoe City area was reported. Additionally, I-80 eastbound between Sacramento and Reno, NV, was closed for more than a day due to a massive mudslide, as was both directions of U.S. Highway 50 between Sacramento and South Lake Tahoe.
- **January 2008** – flooding of residential structures at two different property locations occurred in the Auburn area as a result of an intense storm event on January 1, 2008. Property damages were estimated at $10,000 for one property; minor damages were cited at the other property.
- **December 23, 2014** – Heavy rain showers and thunderstorms brought record rainfall and flooding issues to portions of the Central Valley and foothills. In Placer County, there were 10-12 homes flooded in Granite Bay, causing $50,000 in damages. In Roseville, roadway flooding at Douglas Blvd. and

Sierra College Blvd occurred, with the westbound lanes submerged under two feet of water. 2 vehicles were stuck due to flooding near Gasoline Alley. Near Hidden Valley, an intersection was closed at County Club and Eureka, with vehicles stuck in that location. Flooding occurred at Dry Creek Road and I-80. Also, I-80 and Clipper Gap Rd. Lane 1 had 1-2 feet deep water, 75 feet across, flooding the entire off ramp. Damages occurred in the Placer Hills and Foresthill Fire Protection Districts, as well as the North Star Community Services District. More information on specific damages to these areas can be found in their respective annexes to this plan.

- **January 31, 2016** – Heavy snows in the Serene Lakes area caused flooding to occur. A bridge was overtopped, rendering it impassible (see below). Front end loaders were used to transport residents from one side of the bridge to the other. No injuries or deaths were reported. Damages investigations were pending as of the writing of this plan.

Likelihood of Future Occurrence

100-Year Flood

Occasional—The term "100-year flood" is misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood that has a 1- percent chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time.

500-Year Flood

Unlikely—The 500 year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year.

Localized Flooding

Highly Likely—Based on historical data, localized flooding events occur frequently during periods of heavy rains.

Climate Change and Flood

According to the CAS, climate change may affect flooding in Placer County. While average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is possible that average soil moisture and runoff could decline, however, due to increasing temperature, evapotranspiration rates, and spacing between rainfall events.

4.2.12. Landslides and Debris Flows

Hazard/Problem Description

According to the California Geological Survey, landslides refer to a wide variety of processes that result in the perceptible downward and outward movement of soil, rock, and vegetation under gravitational influence. Common names for landslide types include slump, rockslide, debris slide, lateral spreading, debris avalanche, earth flow, and soil creep. Landslides may be triggered by both natural and human-induced changes in the environment that result in slope instability.

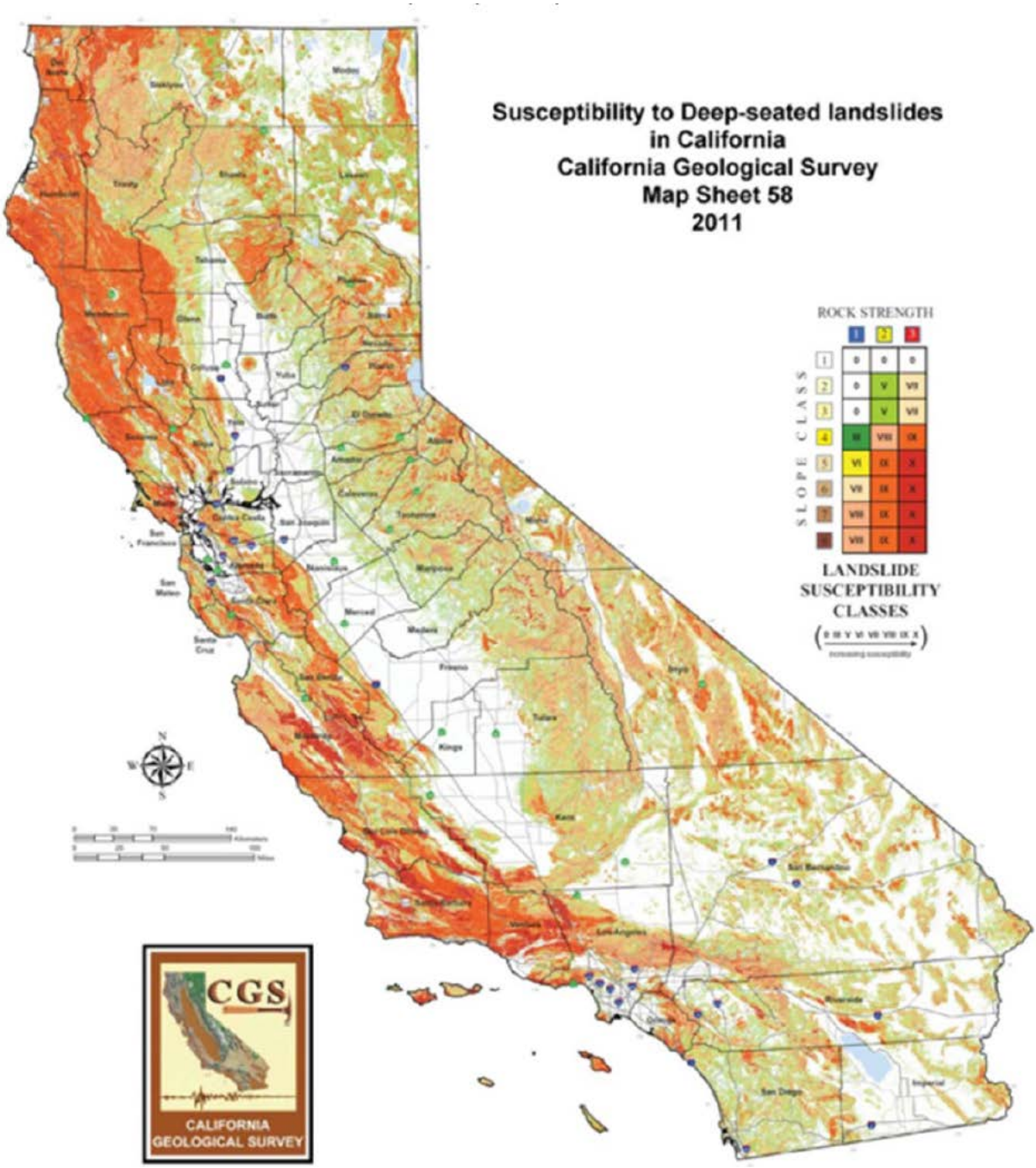
The susceptibility of an area to landslides depends on many variables including steepness of slope, type of slope material, structure and physical properties of materials, water content, amount of vegetation, and proximity to areas undergoing rapid erosion or changes caused by human activities. These activities include mining, construction, and changes to surface drainage areas.

Landslides often accompany other natural hazard events, such as floods, wildfires, or earthquakes. Landslides can occur slowly or very suddenly and can damage and destroy structures, roads, utilities, and forested areas, and can cause injuries and death.

The Placer County General Plan Background Report describes areas in Placer County that are particularly prone to landslides. Slope instability and landslide hazards are generally found in areas of eastern Placer County, as seen in active and inactive landslide deposits. Two specific Rock Units identified in the Background Report which show evidence of past landslide activity (and are still considered active landslide areas) include the Valley Springs Tuff, located at Alta and Interstate 80, and Metavolcanic Flows, located in the canyons of the North Fork of the American River. The inactive landslide deposit areas in Placer County include the metavolcanic flow rock units along the canyon slopes of the North and Middle Forks of the American River, and along the Truckee River. Although these landslide areas are no longer active, they could be reactivated by either natural erosion or human activities. Other potential landslide areas identified by the HMPC include Interstate 80 east of Colfax and State Route 49 south of Auburn.

Figure 4-47 was developed for the 2013 State of California Multi-Hazard Mitigation Plan. It indicates that most areas throughout Placer County are at low to moderate risk for landslides and an area in the eastern portion of the County is at high risk for landslides.

Figure 4-47 Landslide Risk Zones



Source: 2013 State of California Multi-Hazard Mitigation Plan

Past Occurrences

Disaster Declaration History

There have been no disaster declarations associated with landslides in Placer County.

NCDC Events

The NCDC contains no records of landslides in the County.

HMPC Events

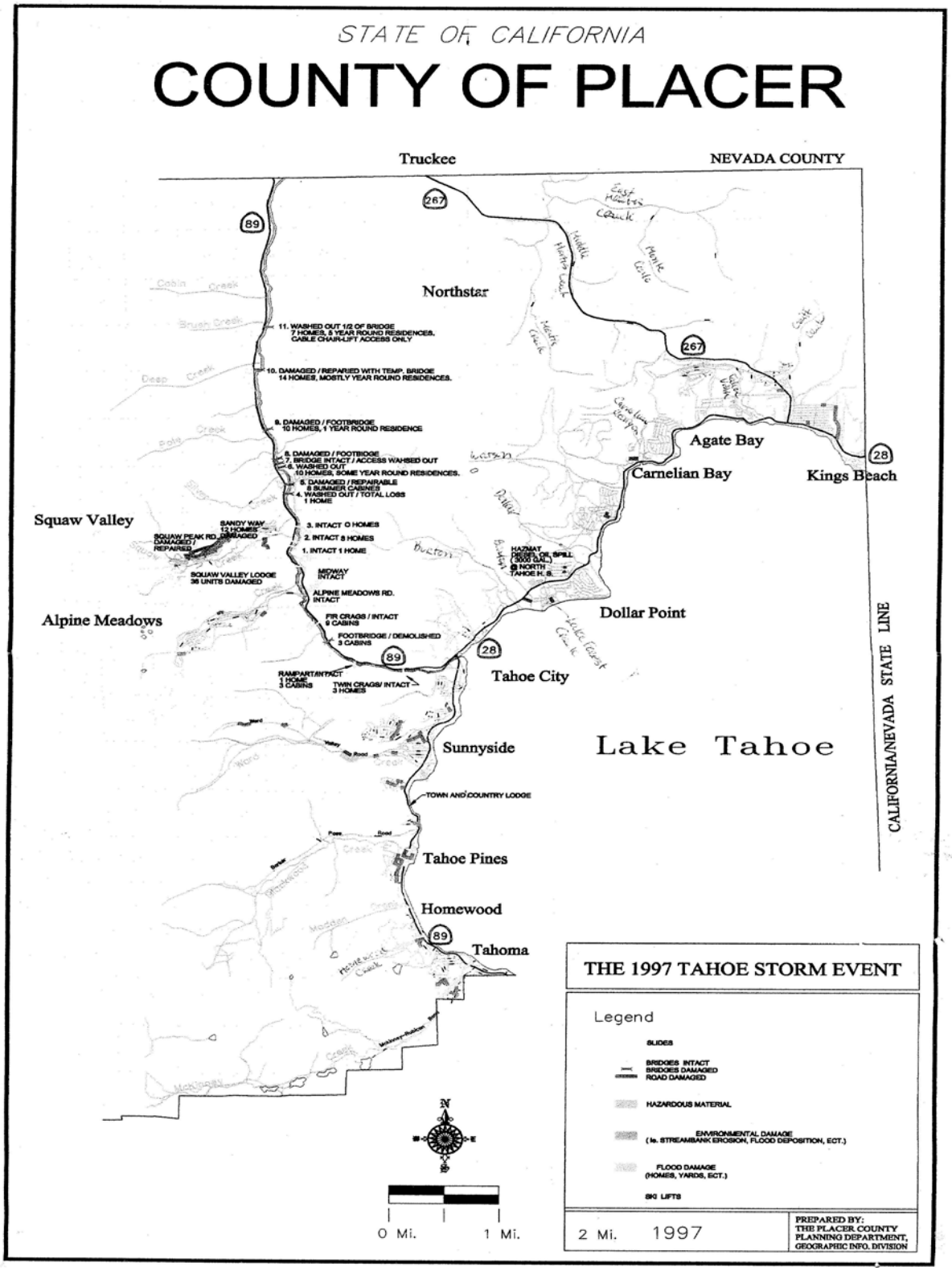
Notable landslides of record include the following landslides in the Tahoe area along the Truckee River, Squaw Creek, and Bear Creek rivers associated with the 1997 Flood event:

- **Wayne Road Landslide** – The Wayne Road Landslide was the most significant of the three landslides. The Wayne Road Landslide is actually the result of two separate failures occurring in separate drainages. The drainages meet just upslope of the impacted area directly west of the intersection of Sandy Way and Wayne Road. Based on information provided by local residents and Placer County personnel, the homes in the area were also impacted by landsliding in 1982 and in 1986. The 1982 event was larger than the 1986 event. Placer County personnel stated that, following the 1986 landslide, several small sedimentation basins were constructed north of Sandy Way in an attempt to contain future slide debris. These sedimentation basins were obliterated by slide debris during the 1997 event. Slide debris consisted of saturated, loose, silty sand and sandy silt with rock ranging in size from gravel to boulders up to 4 feet in diameter. The debris plugged existing culverts and several feet of slide debris were deposited against the sides of several residences.
- **Sandy Way Landslide** – The Sandy Way Landslide occurred approximately one-quarter mile west of the Wayne Road Landslide, originating just west of Squaw Summit Road, and deposited significant debris upslope of several residences on Sandy Way.
- **Navajo Court Landslide** – The Navajo Court Landslide originated just east of a 300,000-gallon water storage tank located above the intersection of Navajo Court and Squaw Summit Road. The landslide debris flowed downslope, inundating the intersection of Navajo Court and Squaw Summit Road and plugged two culverts beneath Squaw Summit Road. The channel was rerouted to the west and flowed down both sides of Navajo Court, eroding new gullies on both sides of the road. Debris continued downslope, plugged two culverts beneath Christy Lane and deposited a significant amount of debris in the parking lot behind the post office on Squaw Valley Road.

With heavy rain events, landslides/mudslides occur causing road closures for hours and days at a time in some areas. Foresthill road, old Foresthill road, and Iowa Hill road are areas of recent landslides. Also post fire conditions especially in the Kings Fire burn scar areas are a concern during this El Nino winter, with debris and mud slides occurring and also contributing to sediment and debris loads in the River. PCWA has been monitoring debris conditions in the post fire area and have incurred mobilization and other expenses as a result.

Figure 4-48 depicts the landslide areas described above.

Figure 4-48 Placer County Landslide Areas



Source: Placer County Planning Department

Also identified by the HMPC, recent landslide areas of concern include the following:

- Old Foresthill Road
- Ophir Road (two sites) – (1) near Stonehouse Road and (2) near Wise Road
- Yankee Jims Road

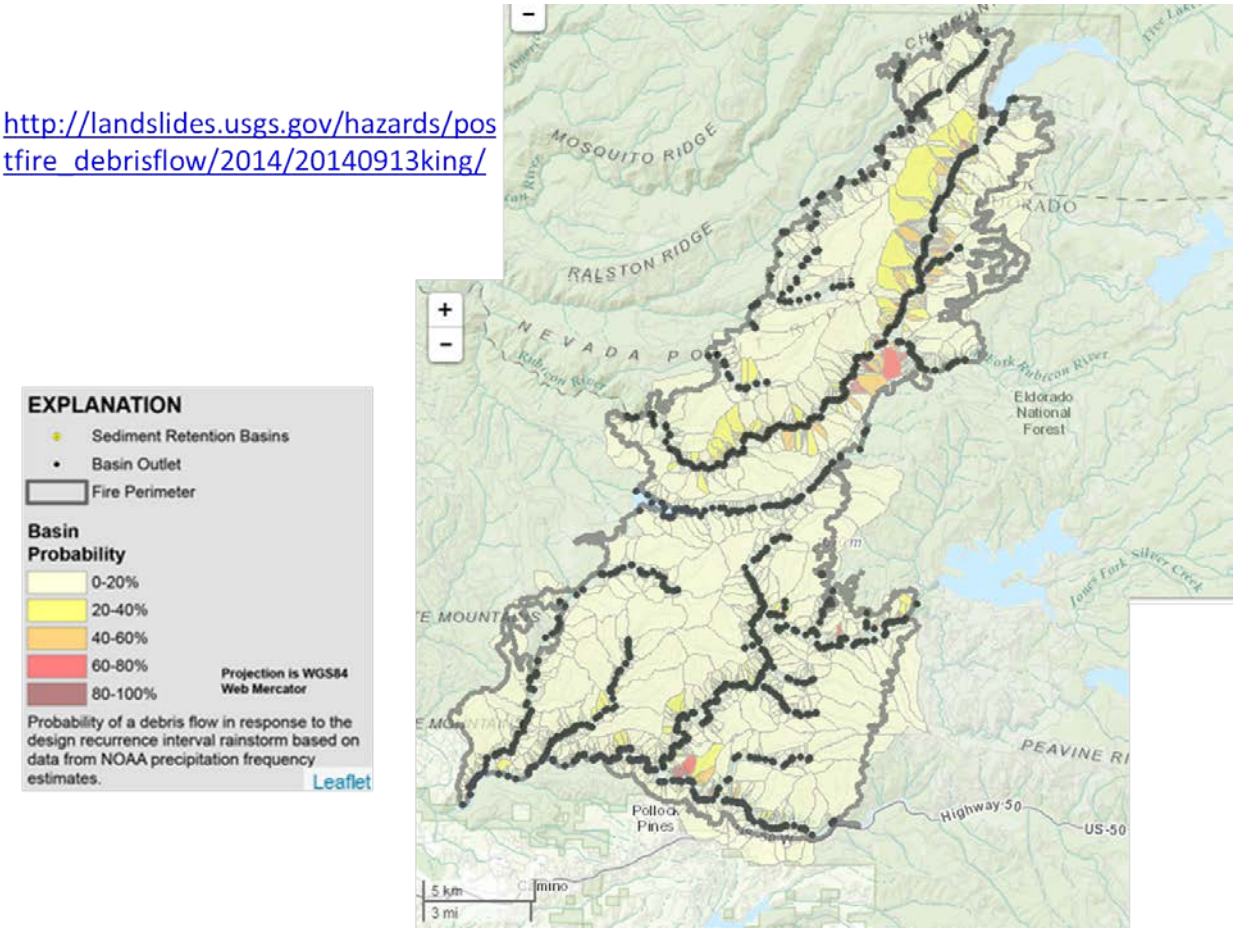
Likelihood of Future Occurrence

Likely—Based on data provided by the HMPC, minor landslides have occurred in the past, probably over the last several hundred years, as evidenced both by past deposits exposed in erosion gullies and recent landslide events. With significant rainfall, additional failures are likely to occur within the identified landslide hazard areas. Given the nature of localized problems identified within the County, minor landslides will likely continue to impact the area when heavy precipitation occurs, as they have in the past.

In addition, areas affected by recent fires show an increased area of landslide risk. The King Fire in 2014 burned a large area of the County. The USGS put together debris flow probabilities in the burn scar area. Future occurrences for this area are shown on Figure 4-49.

Figure 4-49 Future Landslide Probability in the King Fire Burn Scar

http://landslides.usgs.gov/hazards/postfire_debrisflow/2014/20140913king/



Source: USGS

Climate Change and Landslide and Debris Flows

According to the CAS, climate change may result in precipitation extremes (i.e., wetter wet periods and drier dry periods). While total average annual rainfall may decrease only slightly, rainfall is predicted to occur in fewer, more intense precipitation events. The combination of a generally drier climate in the future, which will increase the chance of drought and wildfires, and the occasional extreme downpour is likely to cause more mudslides and landslides.

4.2.13. Levee Failure

Hazard/Problem Description

A levee is a raised area that runs along the banks of a stream or canal. Levees reinforce the banks and help prevent flooding by containing higher flow events to the main stream channel. By confining the flow to a narrower steam channel, levees can also increase the speed of the water. Levees can be natural or man-made. A natural levee is formed when sediment settles on the stream bank, raising the level of the land around the stream. To construct a man-made levee, workers place dirt or concrete along the stream banks, creating an embankment. This embankment is flat at the top, and slopes at an angle down to the water. For added strength, sandbags are sometimes placed over dirt embankments.

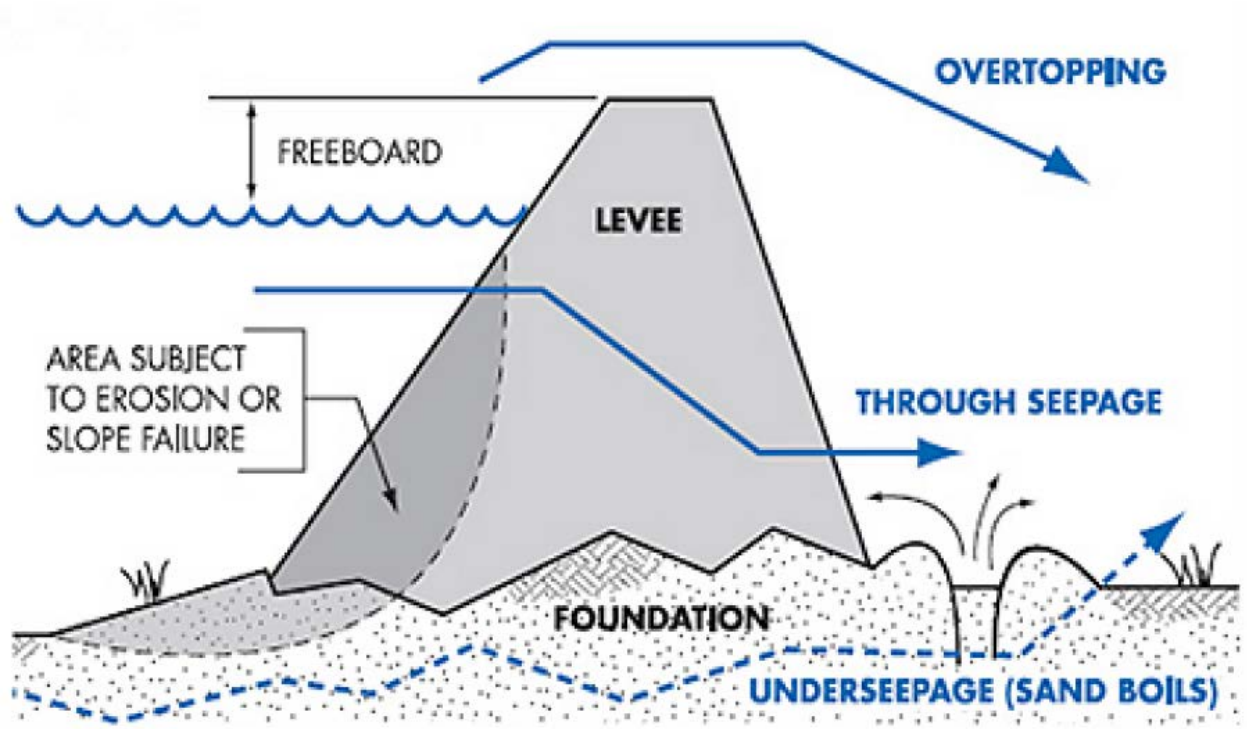
Levees provide strong flood protection, but they are not failsafe. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events or dam failure. Levees reduce, not eliminate, the risk to individuals and structures located behind them.

A levee system failure or overtopping can create severe flooding and high water velocities. It's important to remember that no levee provides protection from events for which it was not designed, and proper operation and maintenance are necessary to reduce the probability of failure.

Under-seepage refers to water flowing under the levee through the levee foundation materials, often emanating from the bottom of the landside slope and ground surface and extending landward from the landside toe of the levee. Through-seepage refers to water flowing through the levee prism directly, often emanating from the landside slope of the levee. Both conditions can lead to failure by several mechanisms, including excessive water pressures causing foundation heave and slope instabilities, slow progressing internal erosion, and piping leading to levee slumping.

Rodents burrowing into and compromising the levee system is a significant issue in the Planning Area. Erosion can also lead to levee failure. More information on erosion can be found in Section 4.2.15. Figure 4-50 depicts the causes of levee failure.

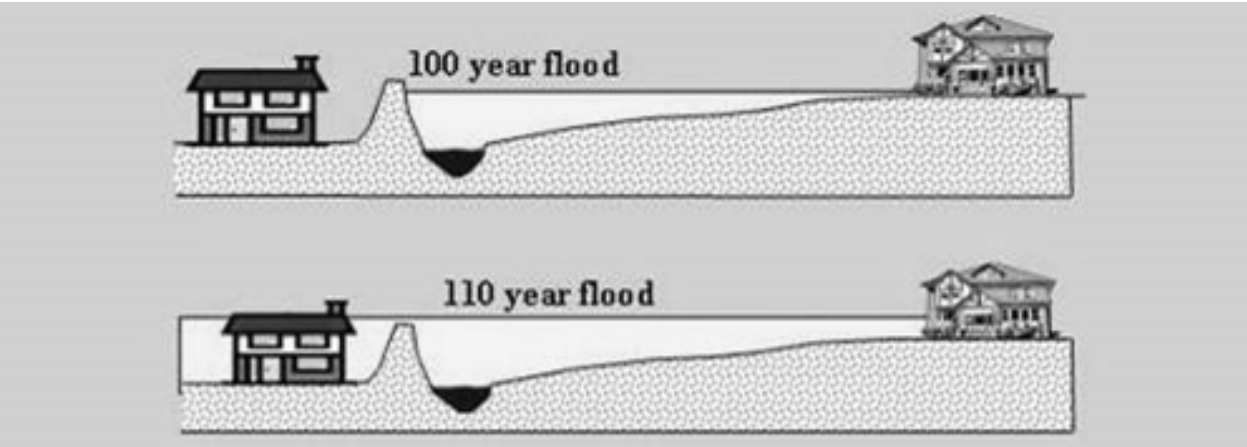
Figure 4-50 Potential Causes of Levee Failure



Source: USACE

Overtopping failure occurs when the flood water level rises above the crest of a levee. As shown in Figure 4-51, overtopping of levees can cause greater damage than a traditional flood due to the often lower topography behind the levee.

Figure 4-51 Flooding from Levee Overtopping



Source: Levees in History: The Levee Challenge. Dr. Gerald E. Galloway, Jr., P.E., Ph.D., Water Policy Collaborative, University of Maryland, Visiting Scholar, USACE, IWR.

Several levees within Placer County and its incorporated communities meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee

Systems." Table 4-22 lists all levees shown on the DFIRM that meet the requirements of 44 CFR 65.10 and have been determined to provide protection from the flood that has a 1-percent-chance of being equaled or exceeded in any given year.

Table 4-22 Placer County – Certified and Accredited Levees

Community	Levee Name	Flood Source	USACE Levee
Lincoln	Auburn Ravine North	Auburn Ravine	No
Roseville	Cirby Creek North	Cirby Creek	No
Roseville	Linda Creek North	Linda Creek	No
Roseville	Linda Creek West	Linda Creek	No
Roseville	Linda Creek East	Linda Creek	No

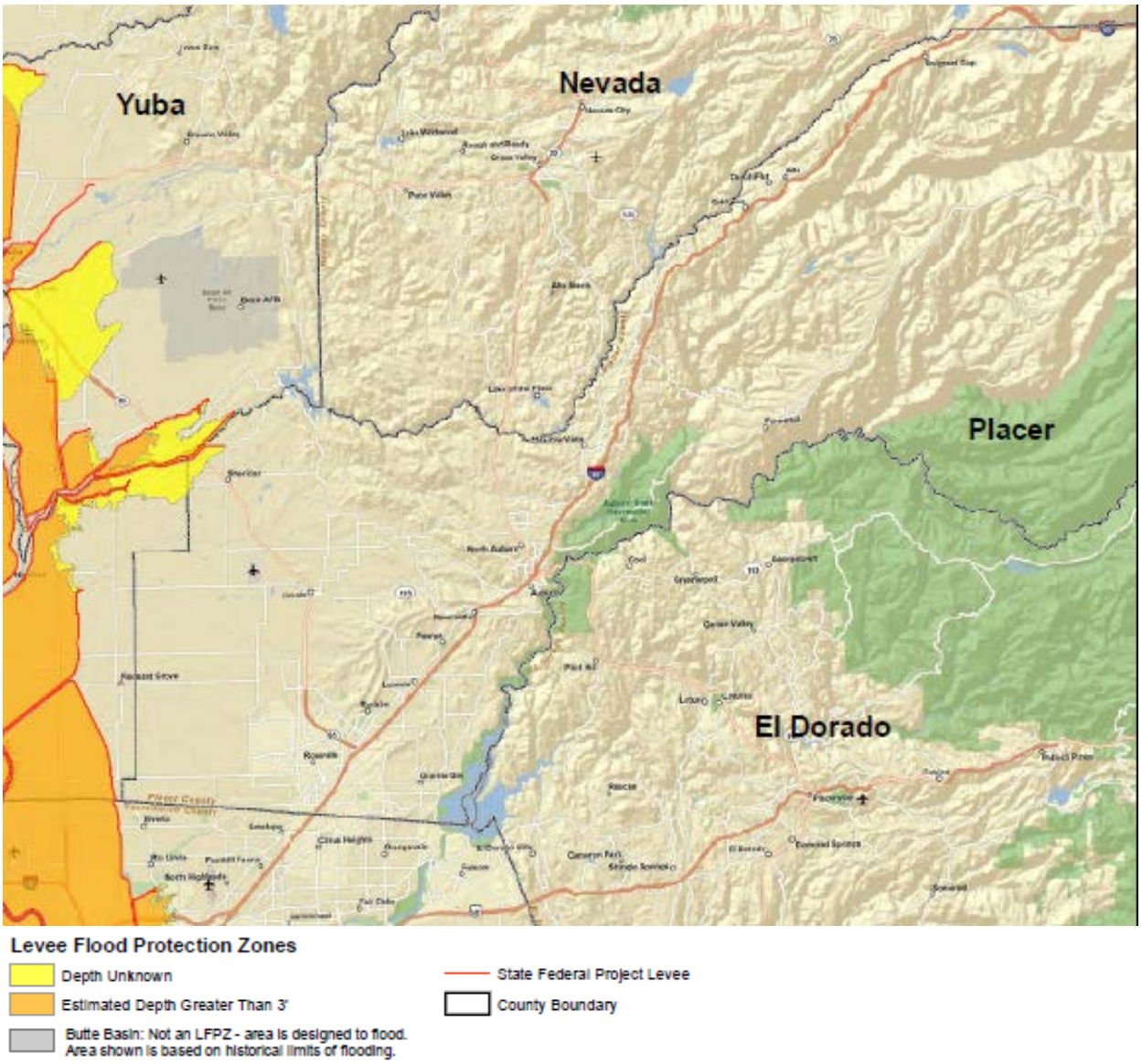
Source: 2010 Placer County Preliminary FIS

There are also several existing levee systems at the downstream end of Auburn Ravine (mainly past the confluence with Orchard Creek). None of these levees are certified by FEMA as providing protection against a 1% annual chance flood.

Levee Flood Protection Zones (LFPZ) Maps

LFPZ maps represent floodplain areas protected by Central Valley State-Federal Project Levees. Under Water Code Section 9110(b), "LFPZ" means the area, as determined by the Central Valley Flood Protection Board or DWR, that is protected by a project levee. These maps were developed based on the best available information as required by Assembly Bill 156. This Bill requires DWR to prepare LFPZ maps to identify the areas where flood levels would be more than three feet deep if a project levee were to fail. DWR delineated the LFPZs by estimating the maximum area that may be flooded if a project levee fails with flows at maximum capacity that may reasonably be conveyed. DWR is using information from several sources, including FEMA floodplain maps, FEMA Q3 data, USACE's 2002 Sacramento and San Joaquin River Basins Comprehensive Study, and local project levee studies. Using this data, DWR is implementing a multi-year program to evaluate and delineate detailed floodplains for areas protected by project levees. This effort includes new topography, hydrology, hydraulic models, and floodplain maps. This information will be used to update the initial LFPZ maps. LPFZ maps can be accessed at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/levee_protection_zones/LFPZ_maps.cfm. Figure 4-52 is the most recent LFPZ map for the Placer County Planning Area.

Figure 4-52 Placer County - Levee Flood Protection Zones



Source: California Department of Water

Past Occurrences

Disaster Declaration History

There have been no disaster declarations in Placer County related to levee failure.

NCDC Events

The NCDC does not track levee failure events.

HMPC Events

The HMPC reported no levee failure events in the County.

Likelihood of Future Occurrence

Unlikely – Due to the low number of past events and the low numbers of levees in Placer County, future levee failures are currently considered unlikely. However, with several levees existing in the County that do not meet the 100-year level of flood protection, future levee failures and overtopping during storm events is possible.

Climate Change and Levee Failure

Increased flood frequency in California is a predicted consequence of climate change. Mechanisms whereby climate change leads to an elevated flood risk include more extreme precipitation events and shifts in the seasonal timing of river flows. This threat may be particularly significant because recent estimates indicate the additional force exerted upon the levees is equivalent to the square of the water level rise. These extremes are most likely to occur during storm events, leading to more severe damage from waves and floods.

4.2.14. Seiche (Lake Tsunami)

Hazard/Problem Description

U.S. Army Corps of Engineers defines seiche as:

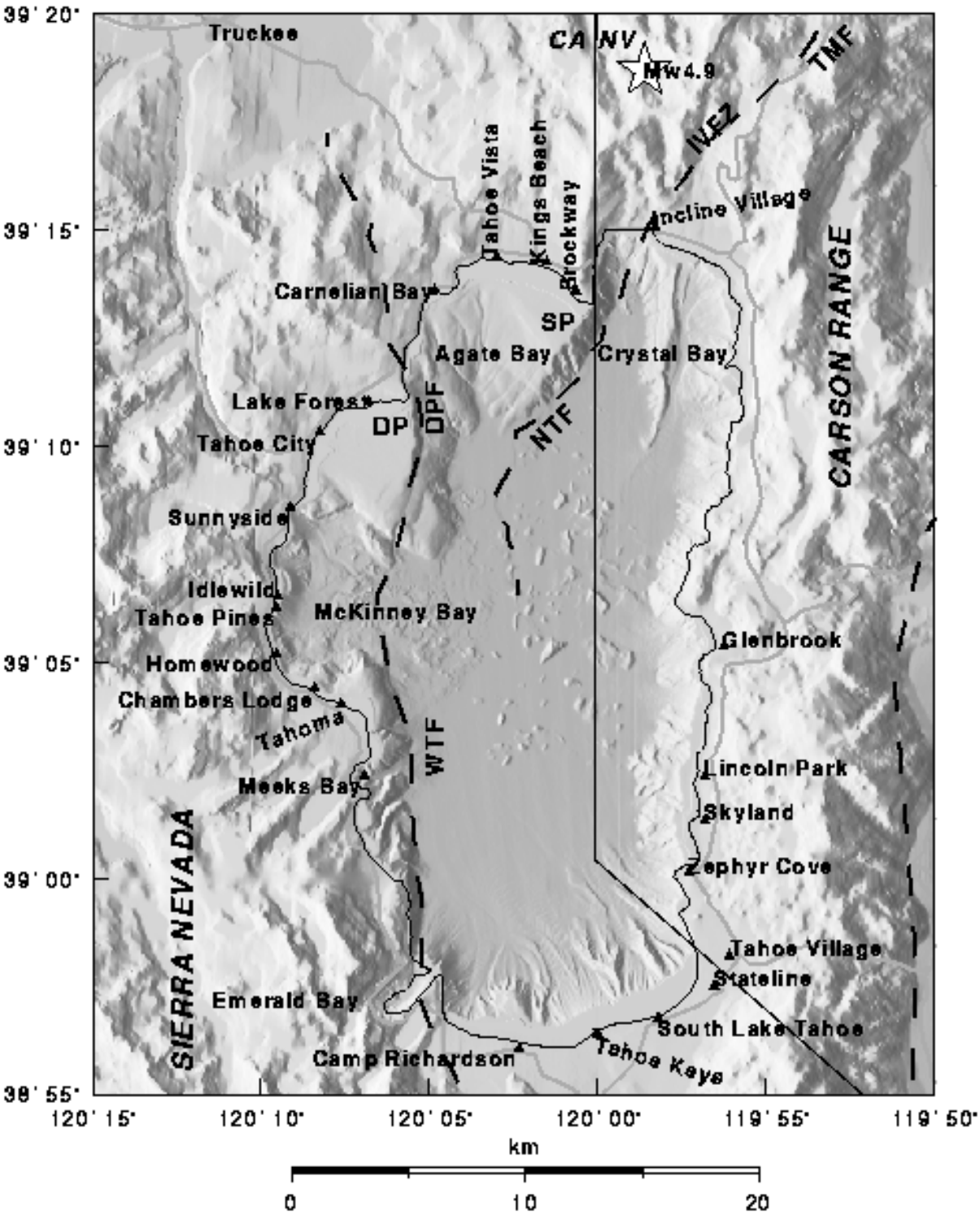
- A standing wave oscillation of an enclosed water body that continues, pendulum fashion, after the cessation of the originating force, which may have been either seismic or atmospheric.
- An oscillation of a fluid body in response to a disturbing force having the same frequency as the natural frequency of the fluid system. Tides are now considered to be seiches induced primarily by the periodic forces caused by the sun and moon.
- In the Great Lakes area, any sudden rise in the water of a harbor or a lake whether or not it is oscillatory (although inaccurate in a strict sense, this usage is well established in the Great Lakes area).

Seiches can be generated when the water is subject to changes in wind or atmospheric pressure gradients or, in the case of semi-enclosed basins, by the oscillation of adjacent connected water bodies having a periodicity close to that of the seiche or of one of its harmonics. Other, less frequent causes of seiches include heavy precipitation over a portion of the lake, flood discharge from rivers, seismic disturbances, submarine mudslides or slumps, and tides. The most dramatic seiches have been observed after earthquakes.

Another way a seiche can occur is a sudden land tilt or drop as a result of fault rupture or other seismic activity. Computer modeling by a group at the University of Nevada at Reno working with a Japanese tsunami expert showed ruptures along either fault could lift or drop the bottom the lake and possibly generate a tsunami. The tsunami in turn could trigger seiche waves within seconds that could crisscross the lake, reach heights of 30 feet or more, and persist for hours.

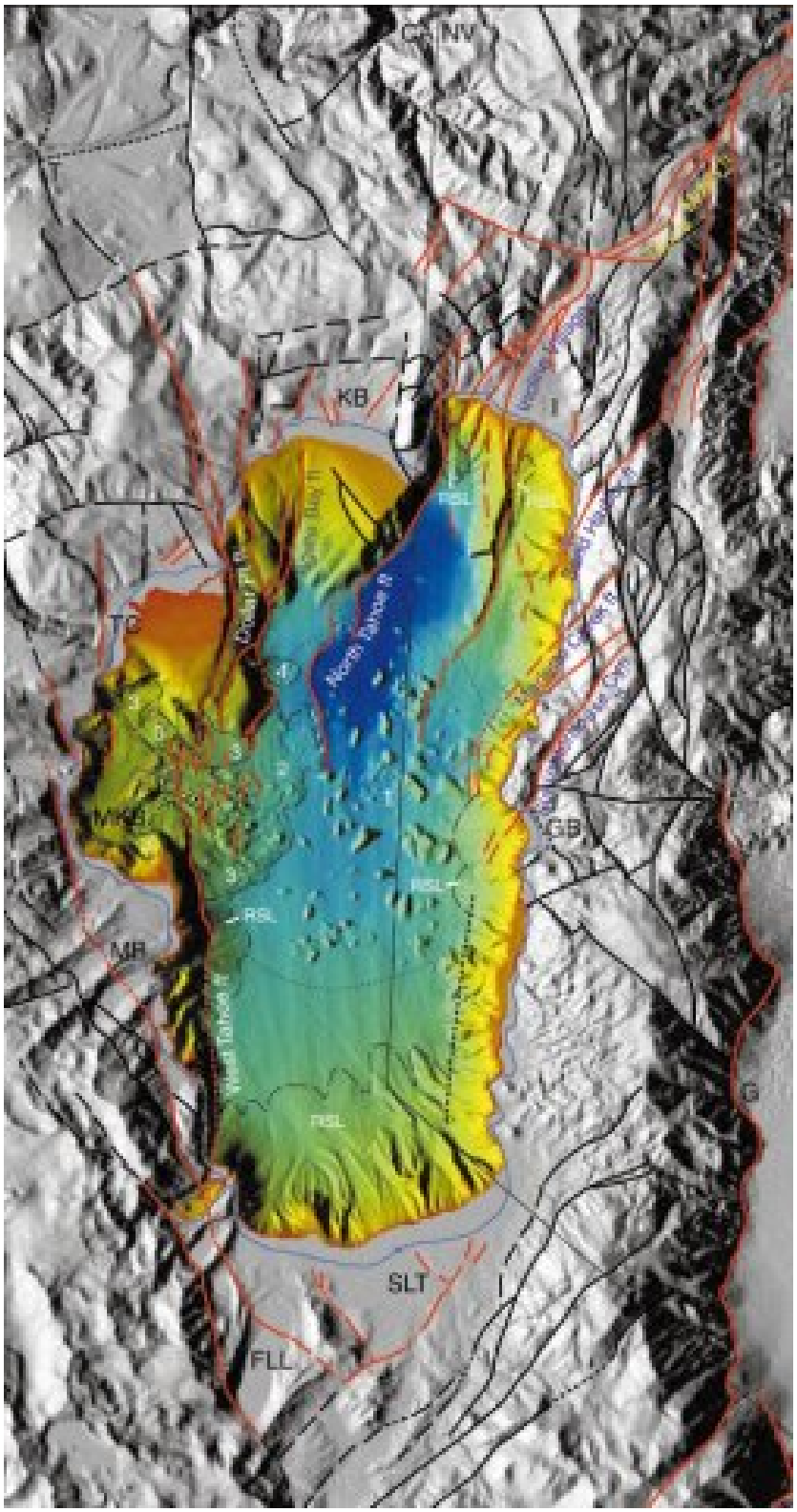
Within Placer County, locations with the highest probability of impact are shore areas of Lake Tahoe from 0 to 30 feet above mean lake water level. Japanese scientist Kenji Satake had created computer models that suggest the largest waves of a seiche event could hit Sugar Pine Point, Rubicon Point, and the casinos in South Lake Tahoe. Figure 4-53 shows the topography of the Lake Tahoe Basin. Figure 4-54 shows lake bathymetry, while Figure 4-55 shows fault locations.

Figure 4-53 Lake Tahoe Basin Topography



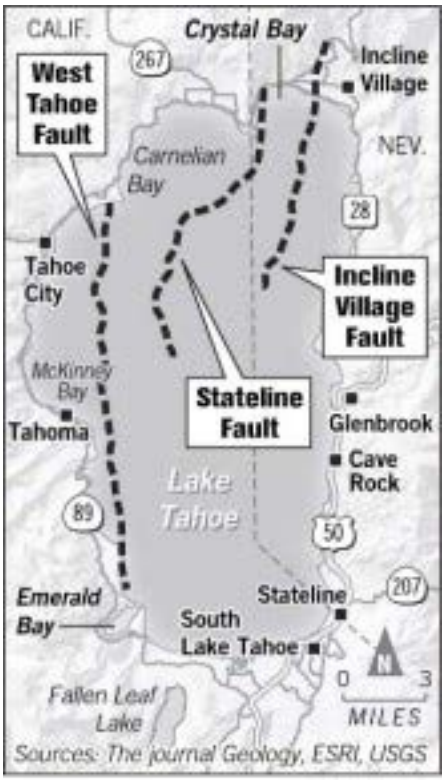
Source: The Potential Hazard from Tsunami and Seiche Waves Generated by Future Large Earthquakes within the Lake Tahoe Basin, California-Nevada, 1999-2000; Gene A. Ichinose, Kenji Satake, John G. Anderson, Rich A. Schweickert, and Mary M. Lahren; Nevada Seismological Laboratory; University of Nevada; (University of Nevada 2000 study)

Figure 4-54 Lake Tahoe Bathymetry



Source: University of Nevada Seismic Laboratory, (Schweickert); USGS

Figure 4-55 Lake Tahoe Fault Locations



Source: ESRI, USGS

Research from the University of Nevada estimates that an earthquake must be at least a magnitude 6.5 to cause a damaging seiche at Lake Tahoe. The three faults directly underneath the lake are considered capable of generating magnitude 7.0 or larger earthquakes. Computer models of seiche activity at Lake Tahoe prepared by the University of Nevada research team estimate that waves as high as 30 feet could strike the shore. These projections suggest largest waves might hit Sugar Pine Point, Rubicon Point, and the casinos in South Lake Tahoe.

In the event of a magnitude 7 earthquake occurring on either of two major faults under the lake, the lake bottom could drop as much as 4 meters. Water supported by the lake floor could drop a corresponding distance and generate waves that heavily impact the shoreline.

Figure 4-56 below shows three potential vertical displacement (uplift or subsidence) scenarios that could be caused by magnitude 7+ earthquakes along the three discrete fault systems in the Lake Tahoe region. These scenarios were done prior to the 2006 finding of the Stateline fault that traverses Lake Tahoe. It was not included in these scenarios.

Scenario A represents an earthquake event along the North Tahoe-Incline Village Fault Zone (NT-IVFZ). This scenario projects significant subsidence (0.5-4.0 meters) to the east of the fault in the vicinity of Incline Village and across Crystal Bay and moderate uplift (0.25-1.0 meter) to the west and away from the lake. Shoreline areas near the fault rupture would be inundated due to permanent ground subsidence. Other shoreline areas would be temporarily inundated by tsunami and seiche waves. Seiche wave heights could

exceed 3 meters within shallow bays and shores between Incline Village and Carnelian Bay, and exceed 6 meters at some locations in the South Lake area.

Scenario B represents an earthquake event along the West Tahoe-Dollar Point Fault Zone (WTFZ). This scenario projects significant subsidence (0.5-4.0 meters) across the lake bottom to the east of the fault and moderate uplift (0.25-1.0 meter) to the west across McKinney Bay and away from the lake. Scenario B projects a similar pattern of seiche wave heights as Scenario A except that wave heights in some areas could be as high as 10 meters.

Scenario C represents an earthquake event along the Genoa Fault Zone (GFZ) 7-10 miles east of the lake shore. This scenario projects minor to moderate uplift (0.25-0.75 meter) to the southwest of the lake. Scenario C produces waves with average heights of 0.5 meters, indicating that magnitude 7 earthquakes along faults outside of the lake are not likely to create a large seiche event.

Figure 4-56 Contours of Vertical Component Ground and Lake Bottom Displacements

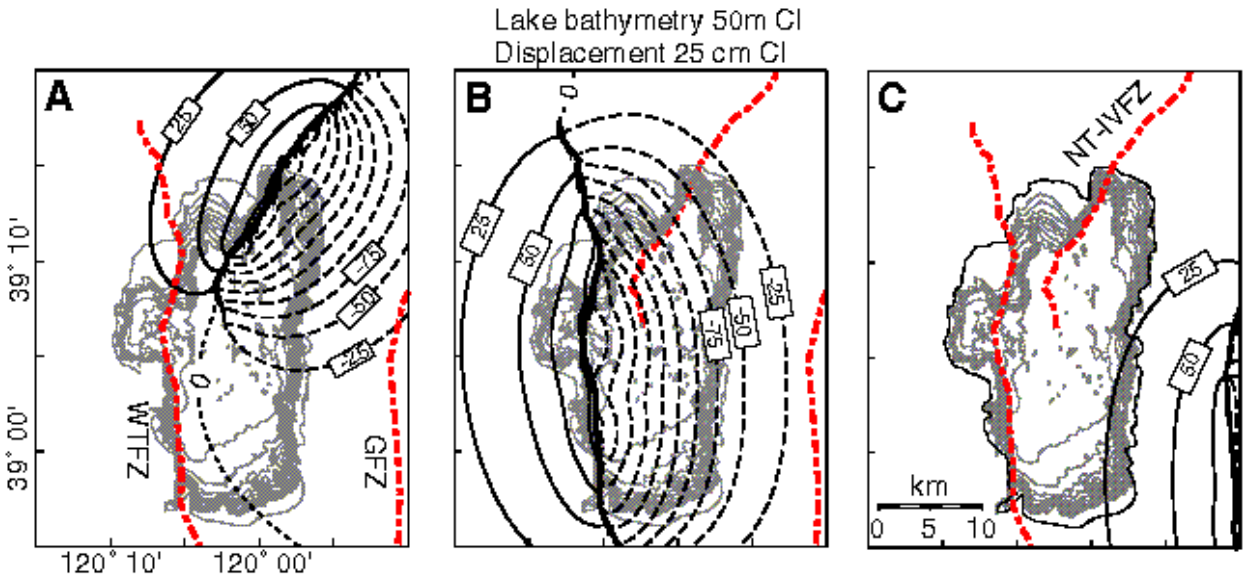


Figure 2. Contours of vertical component ground and lake bottom displacements for scenarios "A", "B" and "C". The dashed contours represent subsidence and solid uplift. The contour interval is 25 cm and only the first few contours are labeled. The thick dash-dotted lines are the three fault traces used in the scenarios: North Tahoe-Incline Village fault zone (NT-IVFZ), West Tahoe-Dollar Point fault zone (WTF) and Genoa fault zone (GFZ). All of the scenarios are Mw 7+ normal faulting earthquakes with a maximum slip of 4 meters tapered to zero at the ends of the fault with a trapazoid function.

Source: The Potential Hazard from Tsunami and Seiche Waves Generated by Future Large Earthquakes within the Lake Tahoe Basin, California-Nevada, 1999-2000; Gene A. Ichinose, Kenji Satake, John G. Anderson, Rich A. Schweickert, and Mary M. Lahren; Nevada Seismological Laboratory; University of Nevada; (University of Nevada 2000 study)

Past Occurrences

Disaster Declaration History

There have been no disasters declarations in Placer County for seiche activity.

NCDC Events

The NCDC does not track seiche events.

HMPC Events

There have been no occurrences of major seiche activity at Lake Tahoe in recent years. University of Nevada geologists have found deposits that extend for 10 miles along the McKinney Bay shore from Sunnyside through Tahoma. These deposits indicate a tsunami or seiche with 30-foot-high waves occurred approximately 7,000 years ago.

Research performed by the Scripps Institute of Oceanography in 2005 using acoustic trenching to research the lake's topography indicates that McKinney Bay was formed when a massive landslide slipped into Lake Tahoe which likely caused major seiche activity at that time. Research from the University of Nevada shows evidence of a massive landslide that tumbled from Homewood on the Nevada side.

In 1955, a landslide occurred in Emerald Bay. Seiche activity occurred. Evidence of the landslide can still be seen on the hillside near Emerald Bay.

Recent occurrences of potential causal factors include a magnitude 4.9 earthquake near Incline Village in 1998.

Likelihood of Future Occurrences

Unlikely—There have been no occurrences of major seiche activity at Lake Tahoe in recent years. Based on past occurrences, the likelihood of future occurrence in the near future is unlikely. However, given the evidence of past historical events and the location of faults within the Tahoe area, a future seiche event at Lake Tahoe is a possibility.

Climate Change and Seiche

Climate change is unlikely to affect earthquake caused seiche; however, landslide caused seiche may be affected by climate change. A discussion on climate change and landslide can be found in Section 4.2.12.

4.2.15. Soil Bank Erosion

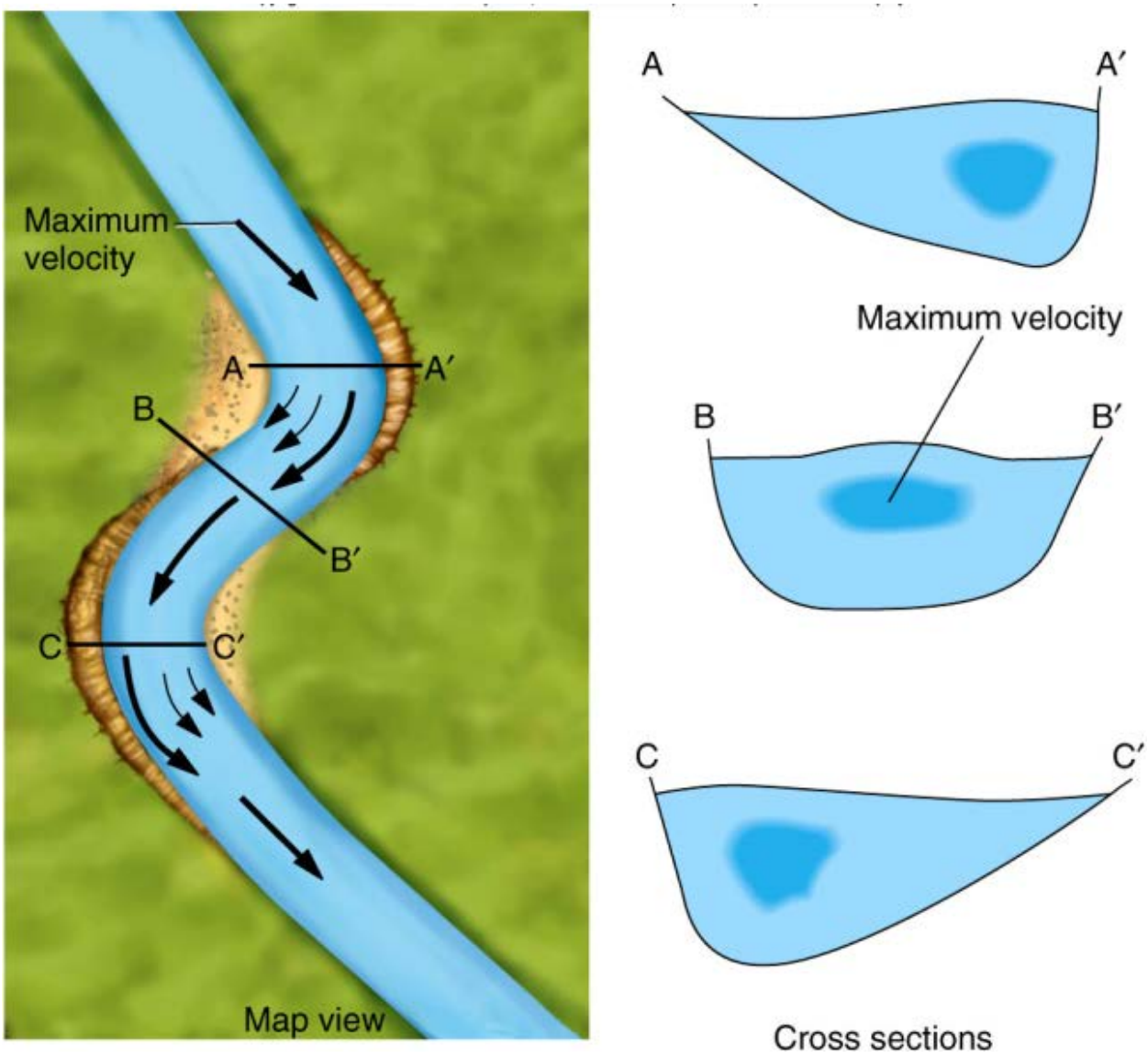
Hazard/Problem Description

Any flowing body of water (brook, creek, stream, river) is a stream. Stream flow is expressed as volume per unit time, usually cubic meters per second, cubic feet per second, sometimes cubic kilometers per second, or acre-feet per second or day. Stream flow varies tremendously with time. Short term controls include rainfall, snowmelt, and evaporation conditions. Long term controls include land use, soil, groundwater state, and rock type.

Streams erode by a combination of direct stream processes, like down cutting and lateral erosion, and indirect processes, like mass-wasting accompanied by transportation. Water tends to move downstream in

slugs that extend all the way across a channel as shown in Figure 4-57. When the channel bends, water on the outside of the bend (the cut-bank) flows faster and water on the inside of the bend (the point) flows slower. This distribution of velocity results in erosion occurring on the outside of the bend (cut) and deposition occurring on the inside of the bend.

Figure 4-57 Meanders and Streamflows



Stream bank erosion is a natural process, but acceleration of this natural process leads to a disproportionate sediment supply, stream channel instability, land loss, habitat loss and other adverse effects. Stream bank erosion processes, although complex, are driven by two major components: stream bank characteristics (erodibility) and hydraulic/gravitational forces. Many land use activities can affect both of these components and lead to accelerated bank erosion. The vegetation rooting characteristics can protect banks from fluvial entrainment and collapse, and also provide internal bank strength. When riparian vegetation is changed from woody species to annual grasses and/or forbs, the internal strength is weakened, causing

acceleration of mass wasting processes. Stream bank aggradation or degradation is often a response to stream channel instability. Since bank erosion is often a symptom of a larger, more complex problem, the long-term solutions often involve much more than just bank stabilization. Numerous studies have demonstrated that stream bank erosion contributes a large portion of the annual sediment yield.

Erosion in Placer County

As farmers settled the valleys, the Gold Rush drew prospectors to the hills. As mining in the Sierra Nevada turned to the more "efficient" methods of hydraulic mining, the use of environmentally destructive high-pressure water jets washed entire mountainsides into local streams and rivers. Hydraulic gold mining in the northern Sierra Nevada foothills produced 1.1 billion cubic meters of sediment. Approximately 38% of the total hydraulic-mining sediment produced was stored in piedmont deposits of the Yuba and Bear Rivers and the lower Feather River. As a result, the enormous amounts of silt deposited in the riverbeds of the Central Valley increased flood risk. These low-lying, unconsolidated deposits reside below all dams and reservoirs and are largely between modern levees. As a remedy to these rising riverbeds, levees were built very close to the river channels to keep water velocity high and thereby scour away the sediment. However, the design of these narrow channels has been too successful. While the Gold Rush silt is long gone, the erosive force of the constrained river continues to eat away at the levee system.

Erosion and deposition are occurring continually at varying rates over the Planning Area. Swiftly moving floodwaters cause rapid local erosion as the water carries away earth materials. This is especially problematic in leveed areas. Severe erosion removes the earth from beneath bridges, roads and foundations of structures adjacent to streams. By undercutting it can lead to increased rockfall and landslide hazard. The deposition of material can block culverts, aggravate flooding, destroy crops and lawns by burying them, and reduce the capacity of water reservoirs as the deposited materials displace water.

Streambank erosion increases the sediment that a stream must carry, results in the loss of fertile bottomland and causes a decline in the quality of habitat on land and in the stream. High velocity flows can erode material from the streambank. Erosion may also occur on the outboard or waterside of the levee (see Section 4.2.13), which may lead to instability and failure. Erosion can occur at once or over time as a function of the storm cycle and the scale of the peak storms.

Levee Erosion in Placer County

The Bear River is highly incised so it takes a large flow to actually erode the levees in Placer County. Yuba County is completing a setback levee on the bear which will help with future flood events. As with any levee, there is always a potential for failure.

Past Occurrences

Disaster Declaration History

There have been no disasters declarations in Placer County for erosion activity.

NCDC Events

The NCDC does not track erosion events.

HMPC Events

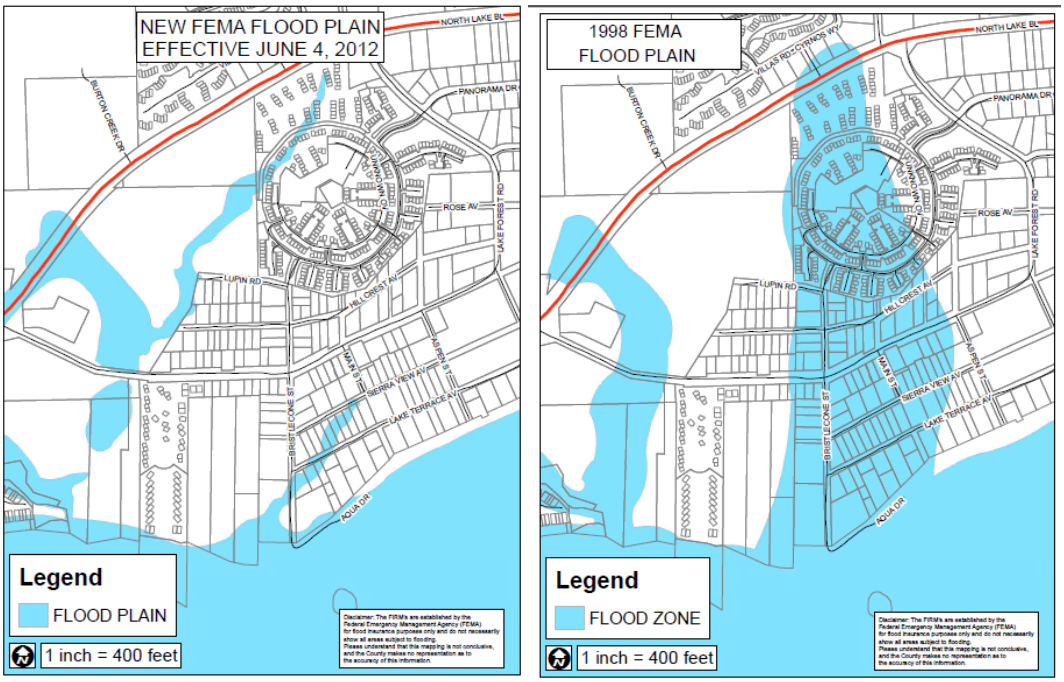
Members of the HMPC noted stream erosion problems along Martis Creek. For the previous 4 years, there have been restoration programs in place to attempt to restore the creek and its banks. The Middle Martis Creek project is a restoration project designed to improve water quality, eliminate flooding, and restore habitat. Prior to the construction of Brockway Road (now Highway 267) in the 1800s, Middle Martis Creek formed an alluvial fan as it entered Martis Valley. The creek would have actively migrated among several channels on the fan. When the road was constructed, the creek was confined to a single channel, now on the south side of the highway. The confinement of Middle Martis Creek to a single channel has caused several problems, including:

- Channel instability, erosion and headcutting;
- Flooding of Highway 267;
- Erosion of Northstar golf course maintenance road.

The project aims to restore a portion of the flow on the north side of Highway 267 in order to reduce erosion, while maintaining sufficient flows on the south side to sustain existing wetlands and riparian habitat. Additionally, the project will reactivate the historic stream channel on the north side of the highway to increase wetland habitat.

Members of the HMPC also noted past stream erosion problem at Lake Forest Creek that have since been mitigated. Lake Forest Creek had erosion issues that the County repaired by a restoration project and restoring the original creek. This also alleviated flooding in the County. This can be seen in Figure 4-58.

Figure 4-58 Lake Forest Creek Restoration – Changes to Floodplain



Source: Placer County

The HMPC also noted the Cottonwood Dam failure in 2009. This continues to erode Miners Ravine, and will until the dam is removed.

Likelihood of Future Occurrence

Highly Likely – Due to the high number of linear feet of stream banks and levees, the likelihood of future occurrences of streambank erosion in Placer County is highly likely.

Climate Change and Soil Bank Erosion

Climate change may affect flooding in Placer County, which in turn may affect erosion rates. While average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is possible that average soil moisture and runoff could decline, however, due to increasing temperature, evapotranspiration rates, and spacing between rainfall events.

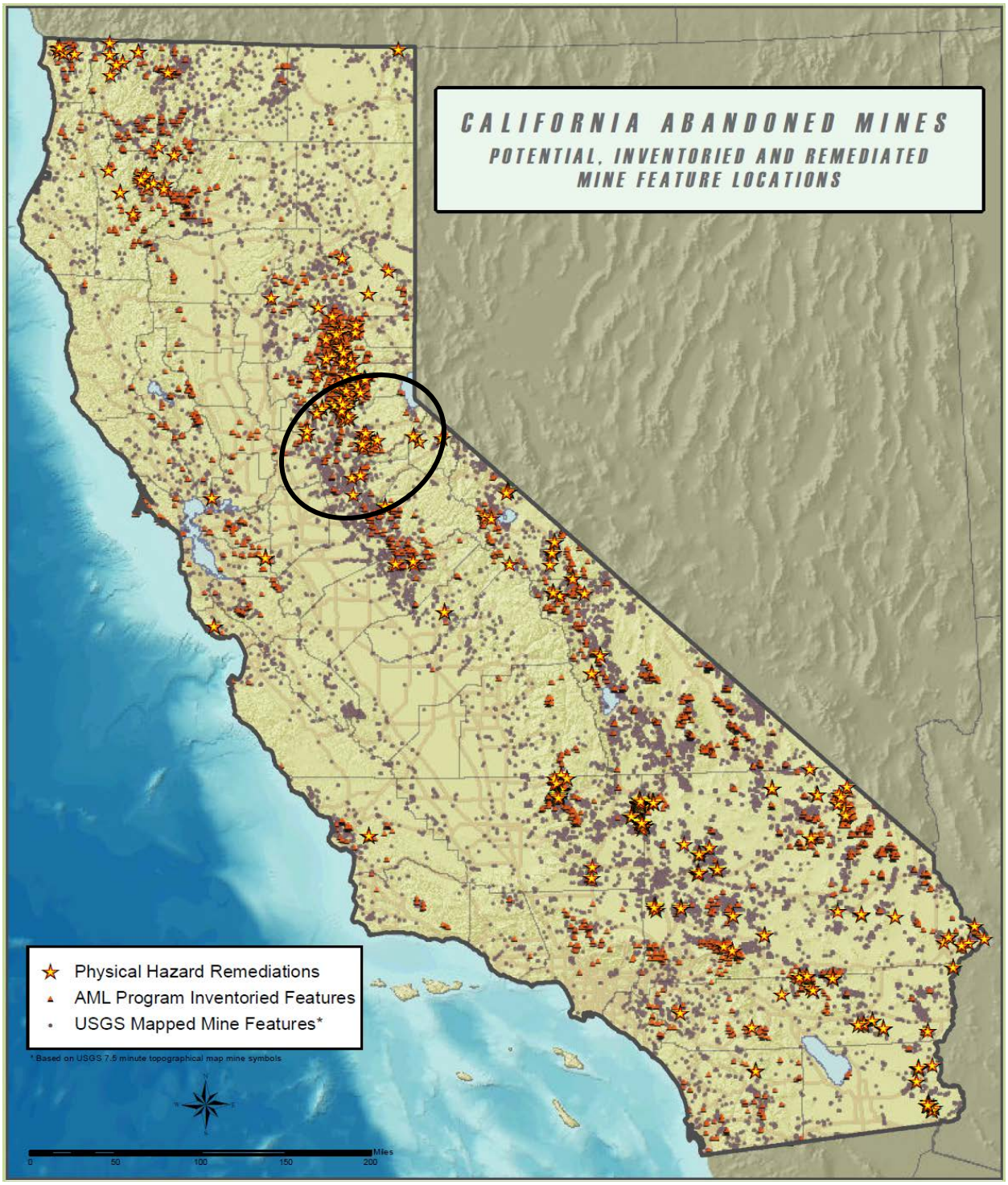
4.2.16. Subsidence

Hazard/Problem Description

Land subsidence is defined as the sinking of the land over man-made or natural underground voids. Subsidence can result in serious structural damage to buildings, roads, irrigation ditches, underground utilities, and pipelines. It can disrupt and alter the flow of surface or underground water. Weight, including surface developments such as roads, reservoirs, and buildings and manmade vibrations from such activities as blasting or heavy truck or train traffic can accelerate the natural processes of subsidence. Fluctuations in the level of underground water caused by pumping or by injecting fluids into the earth can initiate sinking to fill the empty space previously occupied by water or soluble minerals. The consequences of improper use of land subject to ground subsidence can be excessive economic losses, including the high costs of repair and maintenance for buildings, irrigation works, highways, utilities, and other structures. This results in direct economic losses to citizens as well as indirect economic losses through increased taxes and decreased property values.

In Placer County, the type of subsidence of greatest concern is the settling of the ground over abandoned mine workings. Past mining activities have created surface subsidence in some areas and have created the potential for subsidence in other areas. Placer County is home to many abandoned mines. Figure 4-59 shows abandoned mines in Placer County.

Figure 4-59 Abandoned Mines in Placer County

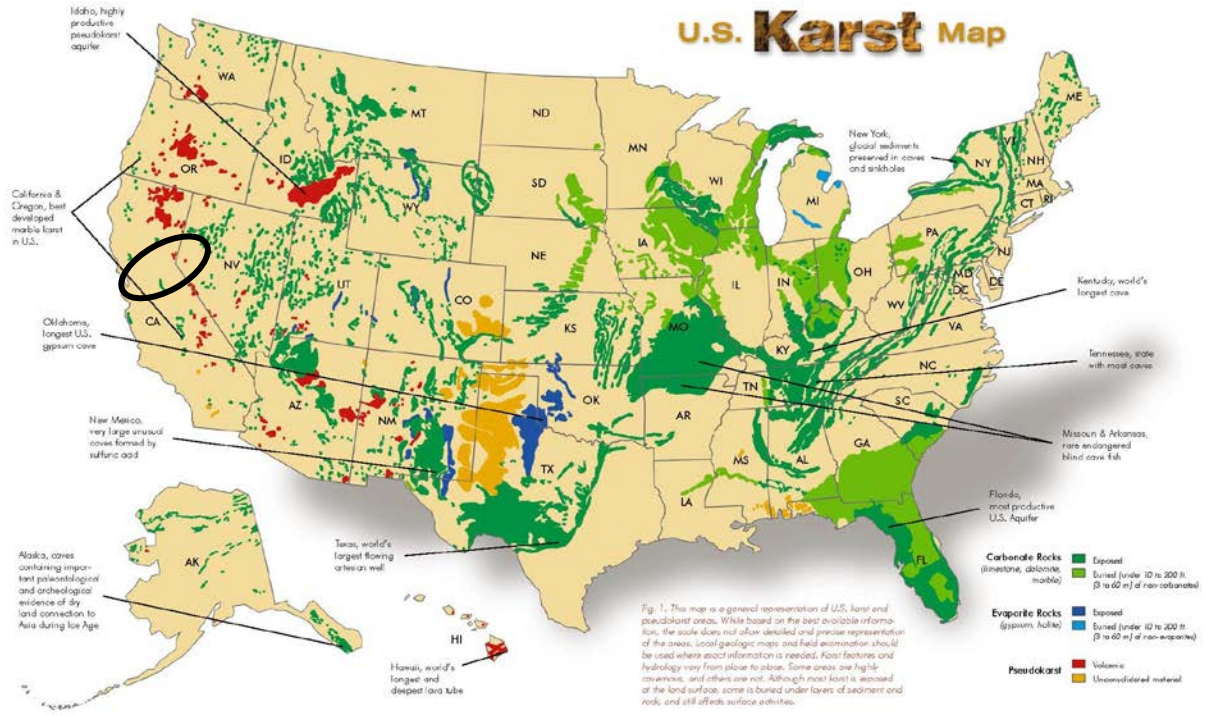


Source: California Department of Conservation, Office of Mine Reclamation

In addition to mines, the Planning Area is at risk to subsidence from karst. Distinctive surficial and subterranean features developed by solution of carbonate and other rocks and characterized by closed depressions, sinking streams, and cavern openings are commonly referred to as karst. Originally the term

defined surface features derived by solution of carbonate rocks, but subsequent use has broadened the definition to include sulfates, halides, and other soluble rocks. The term has been expanded also to cover interrelated forms derived by solution on the surface in the subsurface. Most of the problems created by karst pertain to subterranean karst and pseudokarst features that affect foundations, tunnels, reservoir tightness, and diversion of surface drainage. A map of karst in the United States and the Planning Area is provided in Figure 4-60. Areas in the eastern portion of the County show a risk to karst.

Figure 4-60 US Karst Map



Source: USGS

Land subsidence in Western Placer County has not been quantified, until recently, as no subsidence extensometers are present in Placer County. A recent NASA study showed Western Placer County may have experienced about zero to two inches of subsidence between December 2006 and May 2010 (NASA, 2015). That same study indicated that zero to one inch of subsidence may have occurred between May 2014 and November 2014. More work is needed to confirm whether or not the noted land subsidence is an anomaly or a long-term trend. As part of recent work, the Sacramento Groundwater Authority (SGA) evaluated the potential for subsidence in 2015 using benchmark data and found evidence that an area just south of the Placer County line may have experienced historic subsidence of about two feet between the 1940's and 1990's (SGA, 2014), during the groundwater level decline period.

Past Occurrences

Disaster Declaration History

There have been no disaster declarations related to subsidence in Placer County.

NCDC Events

The NCDC database shows no past occurrences of subsidence.

HMPC Events

The HMPC recollected an event in 2006. A sinkhole, thought to be caused by an old mine, opened up under a house in Alta. The owner of the home was killed in the event. A second sinkhole opened up about 50 feet away from the house.

In August of 2013, a sinkhole developed near Donner Pass Road during a paving operation. The sinkhole was estimated to be approximately three feet in diameter and more than eight feet deep. The CHP said that Cold Stream Creek used to run where the current freeway is and believes some drainage may have led to the collapse.

Likelihood of Future Occurrence

Unlikely—Historically, land subsidence issues in the County have been minimal. However, given the history of mining activity within Placer County, the potential exists for subsidence to occur.

Climate Change and Subsidence

Climate change is unlikely to change the effects of subsidence (abandoned mines and karst) in the County. However, data is showing that the groundwater table is lowering causing subsidence in California which can be caused by the changes in precipitation and periods of drought.

4.2.17. Wildfire

Hazard/Problem Description

California is recognized as one of the most fire-prone and consequently fire-adapted landscapes in the world. The combination of complex terrain, Mediterranean climate, and productive natural plant communities, along with ample natural and aboriginal ignition sources, has created conditions for extensive wildfires. Wildland fire is an ongoing concern for the Placer County Planning Area. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, an accumulation of vegetation, and high winds.

Potential losses from wildfire include human life, structures and other improvements, natural and cultural resources, quality and quantity of water supplies, cropland, timber, and recreational opportunities.

Economic losses could also result. Smoke and air pollution from wildfires can be a severe health hazard. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

Wildland Urban Interface

Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of the ecosystem. While wildfire risk is predominantly associated with wildland urban interface (WUI) areas, significant wildfires can also occur in heavily populated areas. The wildland urban interface is a general term that applies to development adjacent to landscapes that support wildland fire. The WUI defines the community development into the foothills and mountainous areas of California. The WUI describes those communities that are mixed in with grass, brush and timbered covered lands (wildland). These are areas where wildland fire once burned only vegetation but now burns homes as well. The WUI for Placer County consists of communities at risk (shown in Table 4-59 in Section 4.2.17) as well as the area around the communities that pose a fire threat.

There are two types of WUI environments. The first is the true urban interface where development abruptly meets wildland. The second WUI environment is referred to as the wildland urban intermix. Wildland urban intermix communities are rural, low density communities where homes are intermixed in wildland areas. Wildland urban intermix communities are difficult to defend because they are sprawling communities over a large geographical area with wild fuels throughout. This profile makes access, structure protection, and fire control difficult as fire can freely run through the community.

WUI fires are the most damaging. WUI fires occur where the natural and urban development intersect. Even relatively small acreage fires may result in disastrous damages. WUI fires occur where the natural forested landscape and urban-built environment meet or intermix. The damages are primarily reported as damage to infrastructure, built environment, loss of socio-economic values and injuries to people.

The pattern of increased damages is directly related to increased urban spread into historical forested areas that have wildfire as part of the natural ecosystem. Many WUI fire areas have long histories of wildland fires that burned only vegetation in the past. However, with new development, a wildland fire following a historical pattern now burns developed areas. WUI fires can occur where there is a distinct boundary between the built and natural areas or where development or infrastructure has encroached or is intermixed in the natural area. WUI fires may include fires that occur in remote areas that have critical infrastructure easements through them, including electrical transmission towers, railroads, water reservoirs, communications relay sites or other infrastructure assets. Human impact on wildland areas has made it much more difficult to protect life and property during a wildland fire. This home construction has created a new fuel load within the wildland and shifted firefighting tactics to life safety and structure protection.

Placer County Wildfires

Wildland fires affect grass, forest, and brushlands, as well as any structures located within them. Where there is human access to wildland areas, such as the Sierra Nevada and foothills areas, the risk of fire increases due to a greater chance for human carelessness and historical fire management practices. Within

the County, the area starting in the foothills just east of Auburn and extending east and north to the County line is most prone to wildfire due to its terrain and vegetation.

Generally, there are four major factors that sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, weather, and human actions.

- **Fuel** – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Also to be considered as a fuel source are manmade structures, such as homes and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Fuel is the only factor that is under human control. As a result of effective fire suppression since the 1930s, vegetation throughout the county has continued to grow and accumulate, and hazardous fuels have increased. As such, certain areas in and surrounding Placer County are extremely vulnerable to fires as a result of dense vegetation combined with a growing number of structures being built near and within rural lands. These high fuel hazards, coupled with a greater potential for ignitions, increases the susceptibility of the County to a catastrophic wildfire.
- **Topography** – An area's terrain and land slopes affect its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.
- **Weather –** Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus, during periods of drought, the threat of wildfire increases. Wind is the most treacherous weather factor. The greater a wind, the faster a fire will spread and the more intense it will be. Winds can be significant at times in Placer County. North winds in Placer County are especially conducive to hot, dry conditions, which can lead to "red flag" days indicating extreme fire danger. In addition to wind speed, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Lightning also ignites wildfires, often in difficult to reach terrain for firefighters.
- **Human Actions** – Most wildfires are ignited by human action, the result of direct acts of arson, carelessness, or accidents. Many fires originate in populated areas along roads and around homes, and are often the result of arson or careless acts such as the disposal of cigarettes, use of equipment or debris burning. Recreation areas that are located in high fire hazard areas also result in increased human activity that can increase the potential for wildfires to occur.

Factors contributing to the wildfire risk in Placer County include

- Overstocked forests, severely overgrown vegetation, and lack of defensible space around structures;
- Excessive vegetation along roadsides and hanging over roads, fire engine access, and evacuation routes;
- Drought and overstocked forests with increased beetle infestation or kill in weakened and stressed trees;
- Narrow and often one-lane and/or dead-end roads complicating evacuation and emergency response as well as the many subdivisions that have only one means of ingress/egress;
- Inadequate or missing street signs on private roads and house address signs;
- Nature and frequency of lightning ignitions; and

- Increasing population density leading to more ignitions.

CAL FIRE has mapped fuel hazards in the County based on vegetation, fire history, and slope, with the hazards ranked as medium, high or very high. This data shows that fuel hazards are generally high throughout the Greater Auburn Fire Safe Council and generally high or very high in the Foresthill/Iowa Hill and Placer Sierra FSC. The highest fuel hazards occur along the Middle and North Forks of the American River: from the American River to Michigan Bluff in the south; from the American River to Sugar Pine and Big Reservoirs east of Iowa Hill; and along I-80 from Gold Run to Nyack in the north. All of the above factors create the potential for very active to severe fire behavior in the Planning Area.

Consequently, wildland fires that burn in natural settings with little or no development are part of a natural ecological cycle and may actually be beneficial to the landscape. Century old policies of fire exclusion and aggressive suppression have given way to better understanding of the importance fire plays in the natural cycle of certain forest types.

Past Occurrences

Disaster Declaration History

A search of FEMA and Cal OES disaster declarations turned up multiple events. State disaster declarations occurred in 1961, 1965, 1973, 1987, and 2010. Federal disaster declarations occurred in 2002, 2004, and 2008.

NCDC Events

The NCDC has tracked wildfire events in the County dating back to 1993. Events in Placer County are shown in Table 4-23.

Table 4-23 NCDC Wildfire Events in Placer County 1993 to 12/31/2014

Date	Event	Injuries (direct)	Deaths (direct)	Property Damage	Crop Damage	Injuries (direct)	Deaths (direct)
6/24/2007	Wildfire	0	3	$500,000,000	$0	0	0
4/18/2008	Wildfire	0	0	$0	$0	0	0
4/18/2008	Wildfire	0	1	$0	$0	0	0
5/12/2008	Wildfire	0	0	$0	$0	0	0
6/21/2008	Wildfire	0	0	$0	$0	12	0
7/1/2008	Wildfire	0	1	$0	$0	0	0
7/26/2009	Wildfire	0	0	$0	$0	0	0
8/1/2009	Wildfire	0	0	$0	$0	0	0
9/13/2009	Wildfire	0	0	$0	$0	0	0
8/17/2013	Wildfire	0	5	$0	$0	0	0
9/1/2013	Wildfire	0	5	$0	$0	0	0
10/1/2013	Wildfire	0	0	$0	$0	0	0

Date	Event	Injuries (direct)	Deaths (direct)	Property Damage	Crop Damage	Injuries (direct)	Deaths (direct)
7/25/2014	Wildfire	0	2	$0	$0	0	0
9/13/2014	Wildfire	0	10	$0	$0	0	0
Totals		**0**	**27**	**$500,000,000**	**$0**	**12**	**0**

Source: NCDC

*Deaths, injuries, and damages are for the entire event, and may not be exclusive to the County.

CAL FIRE Events

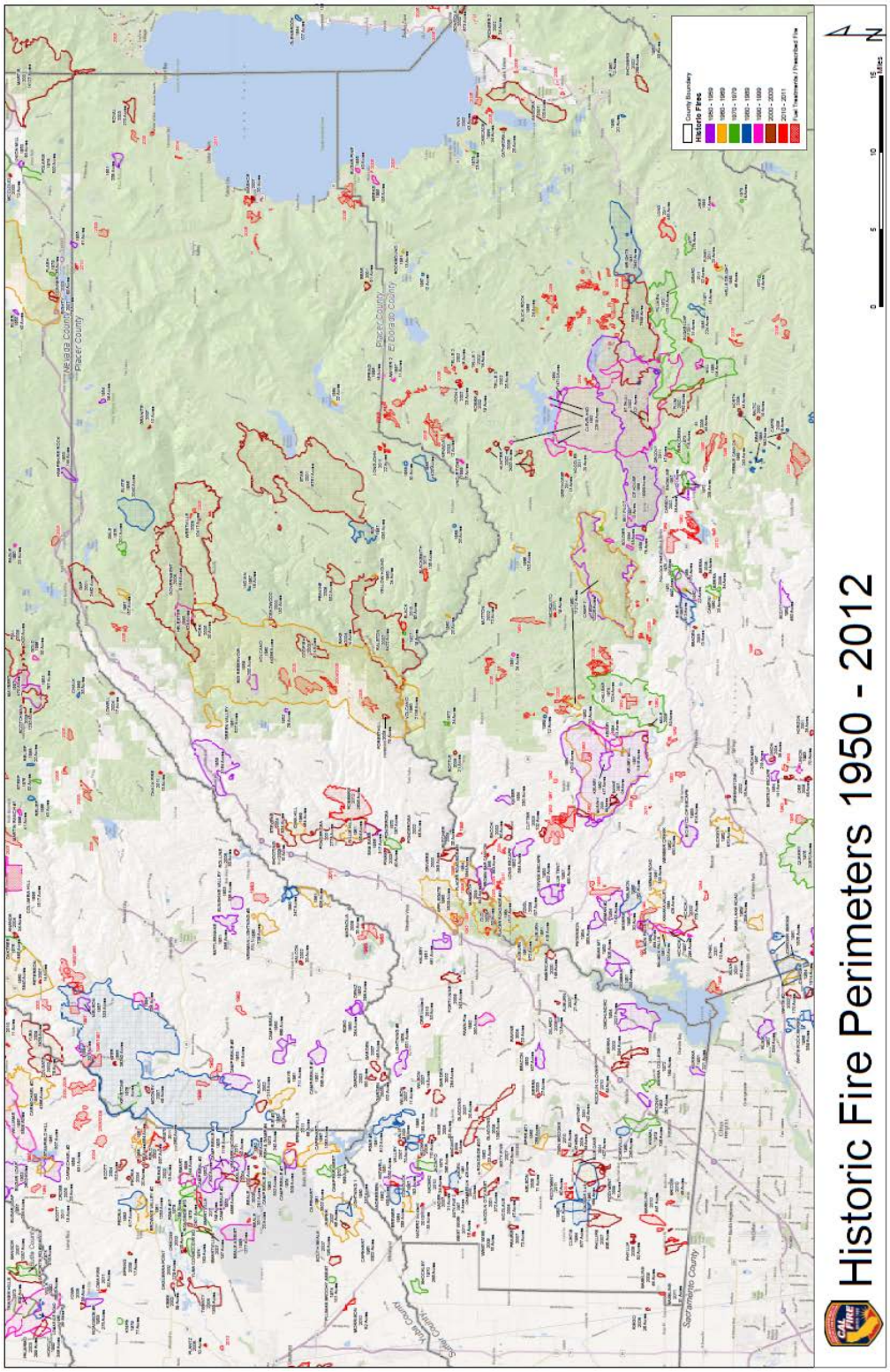
CAL FIRE, USDA Forest Service Region 5, Bureau of Land Management (BLM), the National Park Service (NPS), Contract Counties and other agencies jointly maintain a comprehensive fire perimeter GIS layer for public and private lands throughout the state. The data covers fires back to 1878 (though the first recorded incident for the County was in 1917). For the National Park Service, Bureau of Land Management, and US Forest Service, fires of 10 acres and greater are reported. For CAL FIRE, timber fires greater than 10 acres, brush fires greater than 50 acres, grass fires greater than 300 acres, and fires that destroy three or more residential dwellings or commercial structures are reported. CAL FIRE recognizes the various federal, state, and local agencies that have contributed to this dataset, including USDA Forest Service Region 5, BLM, National Park Service, and numerous local agencies.

Fires may be missing altogether or have missing or incorrect attribute data. Some fires may be missing because historical records were lost or damaged, fires were too small for the minimum cutoffs, documentation was inadequate, or fire perimeters have not yet been incorporated into the database. Also, agencies are at different stages of participation. For these reasons, the data should not be used for statistical or analytical purposes.

The data provides a reasonable view of the spatial distribution of past large fires in California. Using GIS, fire perimeters that intersect Placer County were extracted and are listed in Table E-1 in Appendix E. There are 243 fires recorded in this database for Placer County. 162 of these burned areas greater than 50 acres. Each of them was tracked by Cal Fire; Cal Fire last updated this database in June 2014. Table E-1 lists each fire's date, cause, name, total acreage burned, and acreage burned in Placer County.

Figure 4-61, from the 2012 CWPP, shows fire history for the County, colored by the size of the acreage burned. This map contains fires from 1950 to 2012, while the detailed tables of wildfire shown in Appendix E contain fires from 1950 to 2014.

Figure 4-61 Placer County Wildfire History



Source: 2012 Placer County CWPP

HMPC Events

The HMPC also provided the following information on historical fires in the County.

- **1975/1977 Sawmill Fire** – The Sawmill Fire and another fire occurred in the area of Cape Horn and the Alpine Meadows subdivision, just three miles northeast of Colfax.
- **1990 Placer County Fire** – This fire burned approximately 300 acres of grass, brush, and oaks in the area of Placer Canyon. The fire resulted in evacuations and destroyed several outbuildings.
- **2000 Heather Glen Fire** – The Heather Glen Fire, caused by sparks from a lost trailer wheel along Interstate 80, destroyed one home and forced a neighborhood evacuation in Applegate. While only ten acres in size, this fire resulted in $350,000 in damage.
- **August 12-20, 2001 Narrow Gauge Fire** – This fire near Colfax burned 30 acres and forced closure of I-80 for about an hour due to dense smoke. This fire, blamed on a catalytic converter, was quickly contained as California Department of Forestry air tankers were already in the area and able to respond quickly.
- **August 2001 Gap Fire** – The Gap Fire near Blue Canyon burned 2,462 acres of forest land and caused the closure of Interstate 80.
- **August 17-23, 2001 Ponderosa Fire** – This fire burned 2,780 acres.
- **August 25-September 13, 2001 Star Fire** – The Star Fire started in Eldorado National Forest and spread to Tahoe National Forest and burned approximately 16,761 acres.

Star Fire, August 26, 2001. Eldorado National Forest. Photo Courtesy of USFS.

- **2001 Martis Fire** – This fire east of Truckee burned 20,000 acres; threatened homes; shut down Interstate 80; and damaged railway trestles affecting Amtrak passenger train service. The heavy smoke caused poor air quality and raised health issues for individuals with respiratory problems. While the Martis Fire itself was not in Placer County, there were significant impacts to the County as a result of this fire. The County also contributed major firefighting assistance.
- **2002 Sierra Fire** – Within the communities of Loomis and Granite Bay approximately 595 acres of grass, brush, and oaks burned in the area of Interstate 80, Barton Road, Wells Avenue, Morgan Place, Indian Springs, and Cavitt-Stallman Road. The fire destroyed six structures and threatened two schools.

One hundred homes were evacuated, and more than 1,000 homes in both communities were threatened. FEMA provided federal funds to assist in fighting this wildfire.

- **2004 Stevens Fire** – The Stevens Fire located at Cape Horn/Iowa Hill near Colfax, was 100 percent contained at 934 acres.
- **2004 Numerous fires** – Numerous fires of varying sizes occurred in Placer County during the 2004 fire season. These include fires caused by equipment sparks, abandoned campfires, arson and undetermined causes.

Photos from website: http://yubanet.com/stevenstrail.html; courtesy of Roger Burdick

Photos from website: http://yubanet.com/stevenstrail.shtml; courtesy of Robin Yonash.

- **September 2006 Ralston Fire** – The Ralston Fire was a large wildland fire in the area of the North Fork of the Middle Fork of the American River. Approximately 8,400 acres burned.
- **June 2007 Angora Fire** – Although not occurring in Placer County, the Angora fire in nearby El Dorado County (in the Lake Tahoe Basin) burned 3,100 acres of forest and wooded subdivisions and destroyed more than 250 homes as well as 75 commercial and other structures.
- **August 2007 Washoe Fire** – The Washoe Fire started with a structure fire of a home located on the West Shore of Lake Tahoe near the Sunnyside Resort. The fire quickly engulfed one residence, spread to two others and moved into forestlands. The fire spread to two other homes and destroyed them as well. In all, 5 homes were destroyed and 20 acres of forestland burned. Extreme wind fueled and drove the fire, which significantly contributed to the rapid spread.
- **June-July 2008 American River Complex Fire -** Several large wildland fires resulted from a system of major lightning storms that impacted the entire Northern CA region. In Placer County, approx. 10 wildland fires resulted from the lighting storm, and 4 grew to major fires, which later were collectively labeled the American River Complex (ARC) fires. The ARC fires were located in Tahoe National Forest in the North Fork American River watershed northeast of Foresthill, California. The fires consumed approx. 20,500 acres of forest land.
- **September 2008 Gladding Fire -** The wind driven fire started northeast of Lincoln and consumed approximately 960 acres, six residences, and 10 outbuildings.
- **September 2009 49 Fire** – The wind driven fire started about 2 pm near Highway 49 and Rock Creek Road near Auburn. The fire burned 343 acres before being contained. 63 residences and 3 commercial buildings were destroyed, and another 3 residences and 6 commercial properties were severely damaged. The damages were concentrated in neighborhoods east and south of Dry Creek Road. Three people were injured in the wildfire. Most notable about this fire was its location in a well developed area and the speed at which the fire consumed nearby structures. The following photos illustrate the damaging nature of this fire.

Source: Placer County

Source: Placer County

- **2012 Robbers Fir**e – The Robbers Fire was a human caused fire that was ignited on July 11, 2012. The fire was located northwest of Foresthill, near Shirttail Canyon Road and Yankee Jims Road. The fire burned 2,650 acres, destroyed 1 residence and 4 outbuildings, and caused 12 injuries. Although 1 residence was destroyed, 170 were considered threatened. 912 fire personnel were involved in the firefighting efforts, as were 36 fire engines, 18 water tenders, 7 bulldozers, and 10 helicopter. A 28 year old Sacramento man was charged with unlawfully causing a fire. Firefighting costs and damages were estimated at $12.4 million.
- **2013 American Fire** – On August 10, the American Fire was ignited near Deadwood Ridge, northeast of Foresthill. Located in Tahoe National Forest, the American Fire burned in steep and hazardous terrain as well as timber fuels that had not burned in several decades. Consumption of heavy fuels contributed to heavy smoke in the surrounding areas. Approximately 540 Forest Service and Cal Fire personnel were assigned to the fire, including 20 hand crews, 13 engines, 11 water tenders, six helicopters, two dozers, and air tankers as available. 27,440 acres were burned in the fire. The burn area from the fire is shown in Figure 4-62.
- **2014 King Fire**– HMPC representatives from Placer Hills and Foresthill Fire Protection Districts noted damaging wildfires that occurred in the Foresthill and Applegate areas during the winter of 2014. Specific information on this can be found in their respective annexes to this plan. The fire started in El Dorado County and crossed into Placer County. 97,717 acres were estimated to have burned. 12 residences were destroyed, as well as 68 other minor structures. 12 injuries occurred that can be attributed to the fire. The burn area from the fire is shown in Figure 4-62.

Figure 4-62 Fire Perimeters from American and King Fires

Source: NOAA/NWS

2014 Applegate Fire – A fire occurred on the east side of I-80 in the Applegate area of Placer County. The fire started on October 8, and its cause was unknown. The fire burned 459 acres before being contained. 6 residences and 4 outbuildings were destroyed. 2 injuries were reported; however, no deaths were reported.

Figure 4-63 Applegate Fire

Source: Placer County

Likelihood of Future Occurrence

Highly Likely — From May to October of each year, Placer County faces a serious wildland fire threat. Fires will continue to occur on an annual basis in the Placer County Planning Area. The threat of wildfire and potential losses are constantly increasing as human development and population increase and the wildland urban interface areas expand. Due to its high fuel load and long, dry summers, most of Placer County continues to be at risk from wildfire.

Climate Change and Wildfire

Warmer temperature can exacerbate drought conditions. Drought often kills plants, which serve as fuel for wildfires. Warmer temperatures could increase the number of wildfires and pest outbreaks, such as the western pine beetle.

4.2.18. Hazardous Materials Transport

Hazard/Problem Description

According to the EPA, a hazardous material is any item or agent (biological, chemical, physical) which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Hazardous materials can be present in any form; gas, solid, or liquid. Environmental or atmospheric conditions can influence hazardous materials if they are uncontained.

The U.S. Occupational Safety and Health Administration's (OSHA) definition of hazardous material includes any substance or chemical which is a "health hazard" or "physical hazard," including: chemicals which are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents which act on the hematopoietic system; agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive or water-reactive; and chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke which may have any of the previously mentioned characteristics.

The Environmental Protection Agency (EPA) incorporates the OSHA definition, and adds any item or chemical which can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. The EPA maintains a list of 366 chemicals that are considered extremely hazardous substances (EHS). This list was developed under the Superfund Amendments and Reauthorization Act. The presence of EHSs in amounts in excess of a threshold planning quantity requires that certain emergency planning activities be conducted.

A release or spill of bulk hazardous materials could result in fire, explosion, toxic cloud or direct contamination of water, people, and property. The effects may involve a local site or many square miles. Health problems may be immediate, such as corrosive effects on skin and lungs, or be gradual, such as the development of cancer from a carcinogen. Damage to property could range from immediate destruction by explosion to permanent contamination by a persistent hazardous material.

Accidents involving the transportation of hazardous materials could be just as catastrophic as accidents involving stored chemicals, possibly more so, since the location of a transportation accident is not predictable. The U.S. Department of Transportation divides hazardous materials into nine major hazard classes. A hazard class is a group of materials that share a common major hazardous property, i.e., radioactivity, flammability, etc. These hazard classes include:

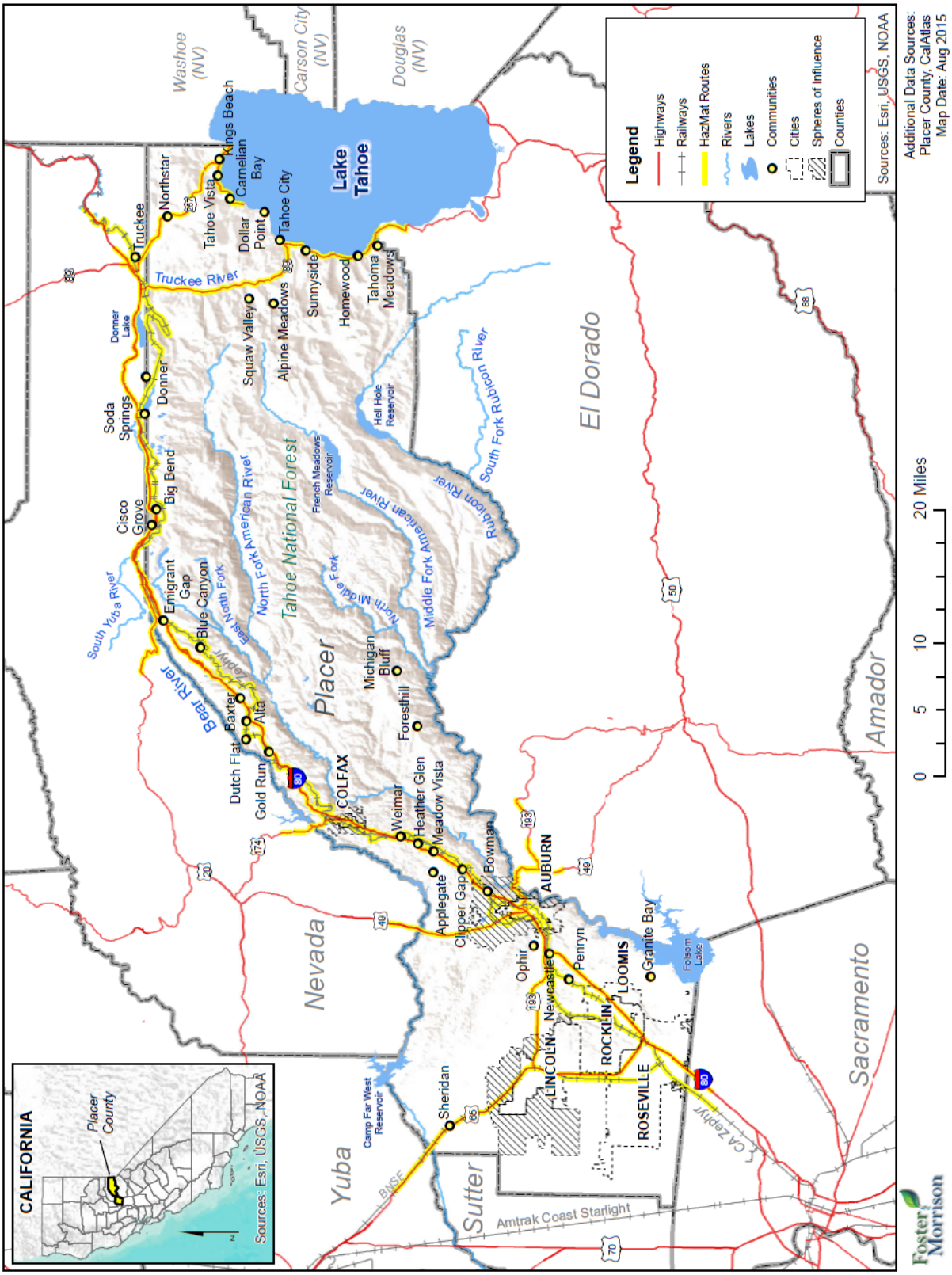
- Class 1—Explosives
- Class 2—Compressed Gases
- Class 3—Flammable Liquids
- Class 4—Flammable Solids; Spontaneously Combustible Materials; Dangers When Wet Materials/Water-Reactive Substances
- Class 5—Oxidizing Substances and Organic Peroxides
- Class 6—Toxic Substances and Infectious Substances
- Class 7—Radioactive Materials
- Class 8—Corrosives
- Class 9—Miscellaneous Hazardous Materials/Products, Substances, or Organisms

Much of the hazardous materials transported through Placer County are carried by truck on the State Highway or railway systems. Figure 4-64 shows the County roads and city streets that are used to transport locally generated wastes from the source to the regional highway system. The County has not quantified the amount of hazardous materials that are transported through it en route to adjoining counties or states.

Highways and railways constitute a major threat due to the myriad chemicals and hazardous substances, including radioactive materials, transported in vehicles, trucks, and rail cars. Interstate 80 and Highways 49, 65, 89, 193, and 267 are areas of concern, as are the two Union Pacific railroad tracks that roughly parallel I-80 and Highway 65.

Some of the hazardous materials transported through the County may bypass hazardous materials routes. Chemicals supporting local industries, such as agriculture operations and agriculture support operations, may transport hazardous materials to and from the facilities and fields. These are not shown on Figure 4-64.

Figure 4-64 Hazardous Materials Routes in Placer County



Oil by Rail

The production of crude oil in North America has increased by over 500% in the last 5 years - the majority of this product is being transported by rail. Placer and portions of Nevada County are situated in a rail corridor that connects the Sierra Nevada Mountains to the San Francisco Bay area. While crude oil is not currently traveling via this route, many believe that when the refineries in the Bay Area are retrofitted to accept Bakken crude, the Sierra Nevada route will be used to bring crude to Bay Area refineries. Never the less, a variety of hazardous materials travel this route and comprise 7% of all commodities being transported by the railroad. Crude oil is currently being transported into Placer County via the Northern route through the communities of Sheridan, Lincoln and Roseville.

Past Occurrences

The United States Department of Transportation Pipeline and Hazardous Materials Safety Administration's (PHMSA) Office of Hazardous Materials Safety performs a range of functions to support the safe transport of hazardous material. One of these functions is the tracking of hazardous materials incidents in the United States. The database was searched for hazardous materials incidents in Placer County. A summary of rail and highway incidents since 1970 in the Placer County Planning Area are shown in Table 4-24. 410 separate events were contained in the database. Incidents where damages or spill amounts were large are discussed after the table.

Table 4-24 Placer County Hazardous Materials Incidents by Jurisdiction and Type

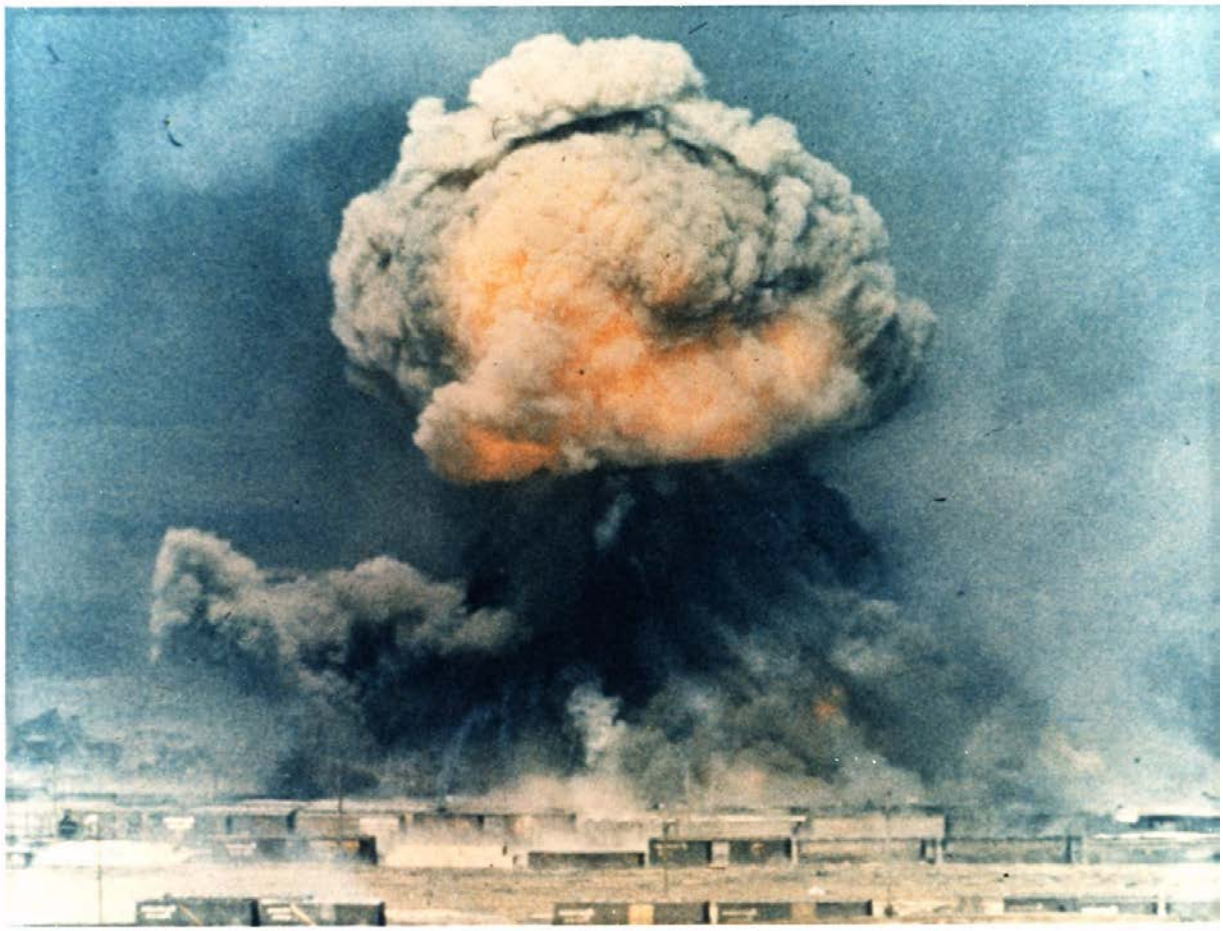
City/Jurisdiction	Highway Incidents	Rail Incidents	Damages
Auburn	2	1	$2,648
Colfax	2	3	$0
Dutch Flat	2	0	$29,453
Emigrant Gap	1	0	$3,900
Gold Run	1	0	$0
Kings Beach	1	0	$3,053
Kingvale	1	0	$100,000
Lake Forest	2	0	$1,277
Lincoln	2	1	$47,452
Loomis	1	0	$0
Meadow Vista	1	0	$2,510
Rocklin	59	0	$83,752
Roseville	21	309	$235,946
Total	**96**	**314**	**$509,991.00**

Source: PHMSA Database – Search dates 01/01/1970 – 06/30/2015

April 28, 1973 – a day-long series of explosions shook the city of Roseville, California. The explosions, which were caused by the accidental detonation of a train of bomb-laden boxcars, resulted in personal

injuries, heavy damage to real and personal property and the evacuation of approximately 35,000 people. A picture of the explosions is shown in Figure 4-65.

Figure 4-65 1973 Bomb Blasts near Roseville



Source: Placer County

January 13, 1997 – A rail car spilled 687 gallons of hydrochloric acid near Roseville Road in the City of Roseville. The product spilled through a hole in the bottom sump. The product was offloaded and the car was sent back to the shipper. The rail yard was cleaned up. Damages exceeded $10,000.

April 21, 2007 - Con-way driver reported hitting a patch of ice near Kingvale. Thus causing his back trailer to swing and him to over-correct. While trying to correct the driver flipped both trailers and tractor and was ejected from his tractor through front windshield. All freight in both trailers fell out onto the ground due to damage to the trailers themselves. Two totes of potassium hydroxide solution were both damaged at time of accident and more contents of the hazardous material and other freight was lost at time of clean up. Total damages were estimated at over $100,000.

September 23, 2011 – At 980 9th Street in Lincoln, a rail car leaked almost 30,000 gallons of liquefied petroleum gas. No injuries or fatalities were reported. The loss totaled over $47,000.

January 14, 2012 – Chlorine odor was detected in the rail yard in Roseville. The fire department located car and made entry. They identified a leaking valve and applied c-kit. Specialty contractor later inspected valve and found it to be open. Losses and clean up costs were estimated at $30,000.

April 13, 2013 – Leak from the bottom of a tank car was reported in Roseville CA. The car contained ferric chloride solution. Roseville Fire was notified and responded as well as UP Hazmat manager. A Level A entry was performed and the leak from the bottom of the car was stopped by placing a wooden plug in a hole that was approximately the size of a dime. The duration of the leak was unknown but from the time reported to the time it was stopped was approximately 2 hours. The rail car could not be moved so a transfer of product was conducted and completed without incident and the car was then transported to a separate track for further investigation until the shipper could make repairs. Damages and clean up were estimated at $15,000.

Likelihood of Future Occurrence

Highly Likely – Given that 410 hazardous materials incidents have happened in transport through the County in the past 45 years, it is highly likely a hazardous materials incident will occur in Placer County every year. However, according to Caltrans, most incidences are related to releases of fluids from the transporting vehicles themselves and not the cargo, thus the likelihood of a significant hazardous materials release within the County is more limited and difficult to predict.

Climate Change and Hazardous Materials

Climate change is unlikely to affect hazardous materials transportation incidents.

4.2.19. Natural Hazards Summary

Table 4-25 summarizes the results of the hazard identification and hazard profile for the Placer County Planning Area based on the hazard identification data and input from the HMPC. For each hazard profiled in Section 4.2, this table includes the likelihood of future occurrence and whether the hazard is considered a priority hazard for the Placer County Planning Area.

Table 4-25 Hazard Identification/Profile Summary and Determination of Priority Hazard: Placer County Planning Area

Hazard	Likelihood of Future Occurrence	Priority Hazard
Agricultural Hazards	Highly Likely	Y
Avalanche	Likely	N
Dam Failure	Unlikely; Occasional	Y
Drought and Water Shortage	Likely: Occasional	Y
Earthquake	Occasional	Y
Flood: 100/500 year	Occasional; Unlikely	Y
Flood: Localized Stormwater Flooding	Highly Likely	Y
Landslides and Debris Flows	Likely	N

Hazard	Likelihood of Future Occurrence	Priority Hazard
Levee Failure	Unlikely	N
Seiche (Lake Tsunami)	Unlikely	Y
Severe Weather: Extreme Heat	Highly Likely	N
Severe Weather: Freeze and Snow	Highly Likely	Y
Severe Weather: Fog and Freezing Fog	Occasional	N
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Highly Likely	Y
Soil Bank Erosion	Highly Likely	N
Subsidence	Occasional	N
Wildfire	Highly Likely	Y
Hazardous Materials Transport	Highly Likely	Y

4.3 Vulnerability Assessment

Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

With Placer County's hazards identified and profiled, the HMPC conducted a vulnerability assessment to describe the impact that each hazard would have on the County. The vulnerability assessment quantifies, to the extent feasible using best available data, assets at risk to natural hazards and estimates potential losses. This section focuses on the risks to the County as a whole. Data from the individual participating jurisdictions was also evaluated and is integrated here and in the jurisdictional annexes, and noted where the risk differs for a particular jurisdiction within the Planning Area.

This vulnerability assessment followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses. The vulnerability assessment first describes the total vulnerability and values at risk and then discusses vulnerability by hazard.

Data used to support this assessment included the following:

- County GIS data (hazards, base layers, and assessor's data);
- Statewide GIS datasets compiled by the California Office of Emergency Services to support mitigation planning;
- CAL FIRE GIS datasets;
- FEMA's HAZUS-MH 2.2 GIS-based inventory data
- Written descriptions of inventory and risks provided by participating jurisdictions;
- Existing plans and studies; and
- Personal interviews with planning team members and staff from the County and participating jurisdictions.

4.3.1. Placer County Vulnerability and Assets at Risk

As a starting point for analyzing the Planning Area's vulnerability to identified hazards, the HMPC used a variety of data to define a baseline against which all disaster impacts could be compared. If a catastrophic

disaster was to occur in the Planning Area, this section describes significant assets at risk in the Planning Area. Data used in this baseline assessment included:

- Total Assets at risk;
- Critical facility inventory;
- Cultural, historical, and natural resources; and
- Growth and development trends.

Total Assets at Risk

The total assets at risk for Placer County is intended to capture the values associated with assessed assets located within the Placer County Planning Area. The 2015 GIS parcel layer, obtained from the Placer County Department of Information Technology, contains 2015 Placer County Assessor's Data. This data provided by Placer County represents best available data.

Understanding the total assessed value of Placer County is a starting point to understanding the overall value of the Planning Area. When the total assessed values are combined with potential values associated with other community assets such as natural resources, cultural and historic resources, and public and private critical infrastructure, the big picture emerges as to what is potentially at risk and vulnerable to the damaging effects of natural hazards within the County.

Data Limitations & Notations

Although based on best available data, the resulting information should only be used as an initial guide to overall values in the County.

The County GIS parcel data contained 170,719 records. Of those, 3,423 records represent public right-of-way (PROW) parcels that do not contain assessment values. An additional 44 PROW parcel records have land assessments totaling $204,530. These are useful for corridor-analysis, but are not applicable to the assets-at-risk analysis. As such, these parcels are not included in the Total Assets at Risk Tables detailed below and are also excluded from further hazard analyses.

Similarly, the parcel dataset includes 46,451 records for the City of Roseville, which does not participate in the County's hazard mitigation planning update. Assets are shown for Roseville in the 'Total Exposure by Jurisdiction' table below, to provide a comprehensive county-wide overview. City of Roseville parcels and values were excluded from all further hazards analyses and Assets at Risk tables.

The County's data containing year-built information for structures contained some invalid (incomplete or too many digits) year values. Subsequent to filtering, there were 147,202 source Year Built records. 9,764 of the source records did not link to a GIS parcel record. A total of 137,458 parcels ended up with a Year Built value for the analysis.

In the event of a disaster, infrastructure and improvements are at the greatest risk of damage. Depending on the type of hazard and resulting damages, the land itself may not suffer a significant loss. For that reason, the values of infrastructure and improvements are of greatest concern. As such, it is critical to note a specific limitation to the assessed values data within the County, due to Proposition 13. Instead of adjusting

property values annually, no adjustments are made until a property transfer occurs. As a result, overall property value information is most likely low and may not reflect current market or true potential loss values for properties within the County.

Personal property values were identified for 1,272 properties. The personal property data provided in July, 2015 contained 14,102 records, but the majority did not link to a GIS parcel. As a result, this data was not included in the Total Assets at Risk Tables but was included in a separate table by jurisdiction. Personal property identified in the assessor's database includes items such as farm equipment, sheds, and other similar equipment and property. In addition, to estimate content replacement values (CRV) for property within structures, FEMA's standard CRV assumptions were utilized for all parcels including those with personal property values in order to develop more accurate loss estimates using FEMA guidance for all hazard analysis.

Methodology

Placer County's 2015 Assessor Data provided by County GIS were used as the basis for the inventory of assessed values for both improved and unimproved parcels within the Planning Area. The source GIS parcel data used for this analysis provides the land and improved values assessed for each parcel, along with information about property use and ownership. Basic 'Jurisdiction' of either Placer County or City of Roseville is also indicated in the source parcel data. City Limits and Spheres of Influence (SOI) data from the County were used to identify and attribute each Placer County parcel located within an incorporated municipality or its SOI. Parcels within an SOI are considered to be unincorporated Placer County for jurisdictional allocation purposes.

Placer County Use Codes provide detailed descriptive information about how each property is generally used, such as irrigated farm, apartment, restaurant, or industrial warehouse. The many use codes were logically grouped into the following simplified categories for the hazards analysis: Agricultural, Commercial, Industrial, Institutional, Natural/Open Space, and Residential. Once Use Codes were grouped into categories, the number of total and improved parcels were inventoried by jurisdiction.

Values associated with land, and improved structure values were identified and summed in order to determine total values at risk in the Placer County Planning Area, and specific to each jurisdiction. Together, the Land Value and Improved Structure Value make up the total value associated with each identified parcel or asset. Improved parcel counts were based on the assumption that a parcel was improved if a structure value was present. Personal Property Values where available were included in a separate table and should be considered part of the overall values of Planning Area assets.

The Placer County Planning Area (without Roseville) has a total land value of $13,878,709,545, improved structure value of $26,545,974,217, and a total value of $40,424,683,762. Unincorporated Placer County has 51,736 improved parcels with a total value (both land and improvements) of close to $24.5 billion. Table 4-26 shows the total assets or exposure for the entire Placer County Planning Area, by jurisdiction. Figure 4-66 illustrates this in a visual format.

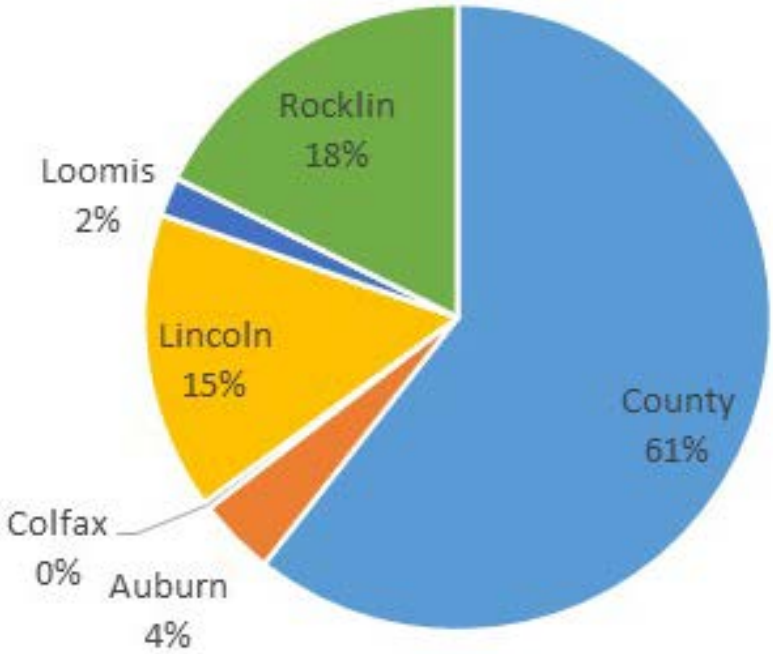
The values for unincorporated Placer County are broken out by property use type and are provided in Table 4-27. More information on assets at risk for each jurisdiction can be found in their respective annexes.

Table 4-26 Placer County Planning Area – Total Assets at Risk by Jurisdiction

Jurisdiction	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
County	71,242	$9,207,479,614	51,736	$15,283,134,353	$24,490,613,967
Auburn	6,106	$519,577,211	5,057	$1,093,519,325	$1,613,096,536
Colfax	897	$51,245,431	695	$106,512,114	$157,757,545
Lincoln	19,725	$1,719,262,270	17,389	$4,484,383,211	$6,203,645,481
Loomis	2,943	$282,874,095	2,500	$530,389,156	$813,263,251
Rocklin	19,950	$2,098,270,924	18,011	$5,048,036,058	$7,146,306,982
Planning Area	**120,863**	**$13,878,709,545**	**95,388**	**$26,545,974,217**	**$40,424,683,762**
Roseville	46,389	$4,634,294,353	41,519	$12,541,618,568	$25,259,573,951
Total County	**167,252**	**$18,513,003,898**	**136,907**	**$39,087,592,785**	**$65,684,257,713**

Source: Placer County 2015 Parcel/Assessor's Data

Figure 4-66 Placer County Planning Area – Total Assets at Risk



Source: Placer County 2015 Parcel/Assessor's Data

Table 4-27 Unincorporated Placer County - Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	735	$245,169,829	161	$25,820,517	$270,990,346
Commercial	11,896	$1,078,567,115	1,158	$644,817,383	$1,723,384,498
Industrial	1,114	$170,041,737	326	$227,797,123	$397,838,860

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Institutional	659	$20,625,025	93	$182,302,503	$202,927,528
Natural/Open	1,246	$96,590,821	257	$90,904,601	$187,495,422
Residential	55,592	$7,596,485,087	49,741	$14,111,492,226	$21,707,977,313
Total	**71,242**	**$9,207,479,614**	**51,736**	**$15,283,134,353**	**$24,490,613,967**

Source: Placer County 2015 Parcel/Assessor's Data

Critical Facility Inventory

Of significant concern with respect to any disaster event is the location of critical facilities in the planning area. Critical facilities are often defined as those essential services and facilities in a major emergency which, if damaged, would result in severe consequences to public health and safety or a facility which, if unusable or unreachable because of a major emergency, would seriously and adversely affect the health, safety, and welfare of the public. Volume II of the Background Report to the Placer County General Plan, 1994 defines critical facilities as, "those services and facilities necessary during a major emergency." This definition was refined by separating out three categories of critical facilities.

Class 1 facilities include those facilities that contribute to command, control, communications and computer capabilities associated with managing an incident from initial response through recovery. Class 1 facilities include:

- Primary and alternate Emergency Operations Centers (EOCs),
- All Dispatch Centers,
  - ✓ Sheriff Auburn
  - ✓ Sheriff Tahoe
  - ✓ CHP Sacramento
  - ✓ CHP Truckee
  - ✓ CAL FIRE Grass Valley
  - ✓ Roseville City
  - ✓ Rocklin City
  - ✓ Lincoln City
  - ✓ Auburn City
- Emergency Services Communication Infrastructure,
- Primary and Alternate Computer Information Systems Infrastructure,
- Sutter Roseville Hospital Control Facility, and
- Major transportation corridors.

Class 2 facilities include those facilities that house Emergency Services capabilities. Class 2 facilities include

- All Police Stations,
  - ✓ Roseville
  - ✓ Rocklin
  - ✓ Lincoln

    - ✓ Auburn
- All CHP Stations,
    - ✓ Newcastle
    - ✓ Dutch Flat
    - ✓ Truckee
- All Fire Stations,
- All Hospitals,
    - ✓ Sutter Auburn Faith
    - ✓ Kaiser Roseville
    - ✓ Sutter Roseville
    - ✓ Tahoe Truckee
- All National Guard Armories,
- Coast Guard Facilities in Tahoe, and
- Airports
    - ✓ Lincoln
    - ✓ Auburn
    - ✓ Blue Canyon
    - ✓ Truckee

Class 3 facilities are those facilities that enable key utilities and can be used as evacuation centers/shelters/mass prophylaxis sites, etc. Class 3 facilities include

- All schools
- Water treatment plants
- Power generation infrastructure
- Fuel pipelines
- Fiber-optic lines
- Sewage infrastructure
- Fair Grounds in Auburn and in Roseville
- Memorial Halls
- Park Facilities
- Water-reactive materials

To support hazard analysis of critical facilities, Placer County GIS developed a critical facilities layer that pulled mapped critical facilities from existing GIS layers and organized them into a new critical facilities layer. Each facility was assigned one of the three different categories (each with a different symbology). County OES and others added additional mapped facilities to this layer as appropriate. The final critical facilities layer used for this analysis included facilities located in both unincorporated and incorporated communities. These can be seen in Figure 4-67 and detailed in Table 4-28.

A fully detailed list of all critical facilities and important infrastructure in the Planning Area can be found in Appendix F.

Figure 4-67 Placer County Planning Area– Critical Facilities Inventory

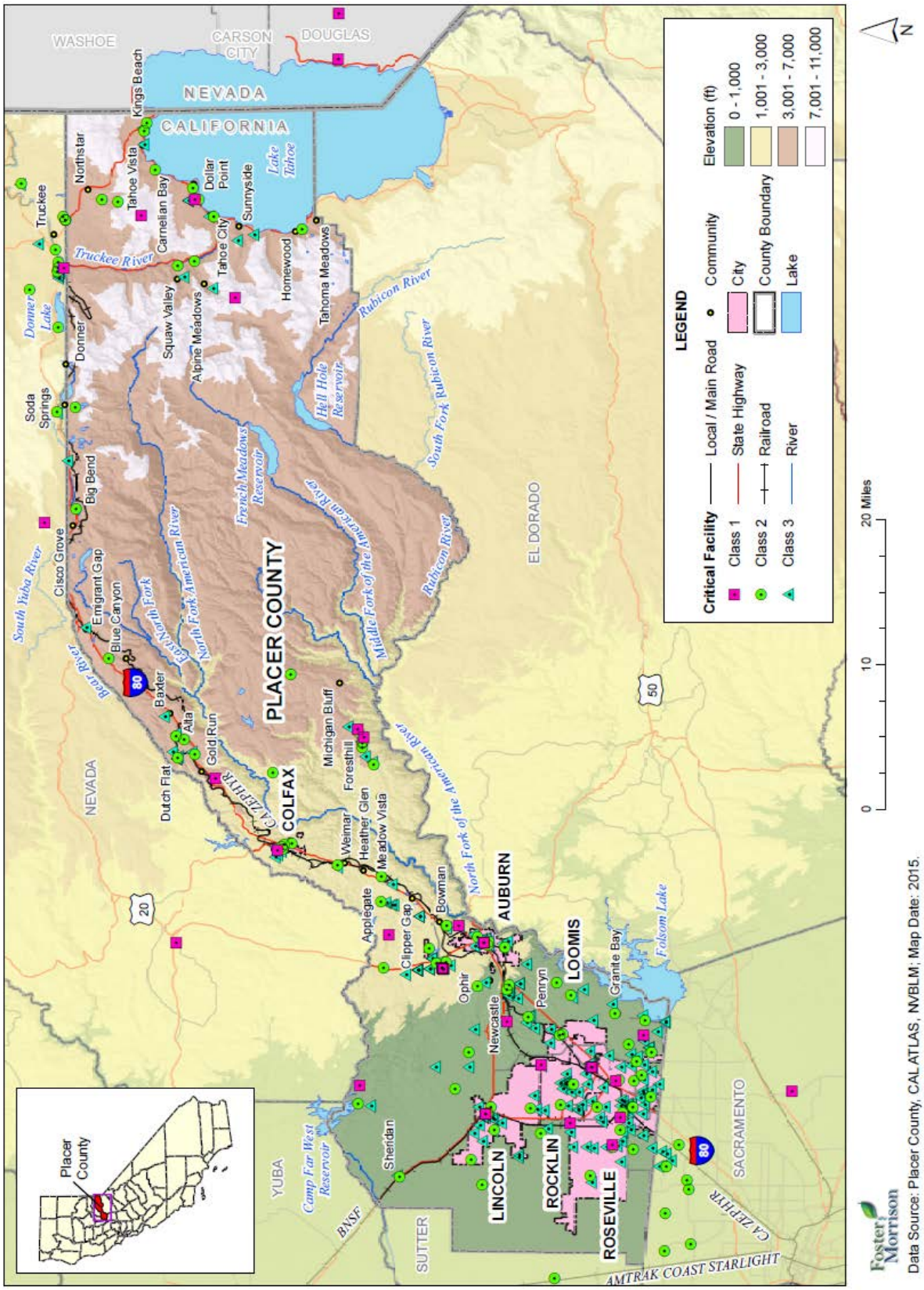


Table 4-28 Placer County Planning Area– Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
City of Auburn		
Class 1	Dispatch Center	1
	Emergency Operation Center	1
Class 2	Airport	1
	Fire Station	3
	National/Coast Guard	1
	Police Station	1
Class 3	Fairground	1
	Hall	5
	School	5
Total City of Auburn		**19**
City of Colfax		
Class 1	-	-
Class 2	Fire Station	2
	PCSO	1
Class 3	Hall	1
	Water Treatment Plant	1
Total City of Colfax		**5**
City of Lincoln		
Class 1	Dispatch Center	1
	Emergency Operation Center	1
Class 2	Airport	1
	Fire Station	3
	Police Station	1
Class 3	Hall	2
	Hazardous Materials Facility	1
	School	12
	Water Treatment Plant	1
Total City of Lincoln		**23**
City of Rocklin		
Class 1	Communication Transmission Sites	1
	Dispatch Center	1
	Emergency Operation Center	1
Class 2	Fire Station	3
	Police Station	1

Critical Facility Category	Facility Type	Facility Count
Class 3	Hall	2
	Hazardous Materials Facility	1
	School	19
	Water Treatment Plant	1
Total City of Rocklin		**30**
Town of Loomis		
Class 1	-	-
Class 2	Fire Station	1
	PCSO	1
Class 3	School	3
Total Town of Loomis		**5**
Unincorporated Placer County		
Class 1	Communication Transmission Sites	12
	Dispatch Center	1
	Emergency Operation Center	2
	Telecommunications	2
Class 2	Airport	1
	CHP Station	2
	Fire Station	44
	Hospital	1
	National/Coast Guard	1
	PCSO	5
Class 3	Hall	24
	Hazardous Materials Facility	8
	School	35
	Water Treatment Plant	13
Total Unincorporated County		**151**
Total Planning Area		**233**
City of Roseville		
Class 1	Communication Transmission Sites	1
	Dispatch Center	1
	Emergency Operation Center	1
	Sutter Roseville Hospital Control Facility	1
Class 2	Fire Station	8
	Hospital	2

Critical Facility Category	Facility Type	Facility Count
	National/Coast Guard	1
	Police Station	1
Class 3	Fairground	1
	Hall	6
	School	30
	Water Treatment Plant	3
Total City of Roseville		**56**
Adjacent Counties		
Class 1	Communication Transmission Sites	3
	Dispatch Center	3
Class 2	Airport	1
	CHP Station	1
	Fire Station	16
	Hospital	1
Class 3	School	11
	Water Treatment Plant	1
Total of Adjacent Counties		**37**
Total Critical Facilities Supporting the Placer County Area		**326**

Source: Placer County GIS

Cultural, Historical, and Natural Resources

Assessing Placer County's vulnerability to disaster also involves inventorying the natural, historical, and cultural assets of the area. This step is important for the following reasons:

- The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- In the event of a disaster, an accurate inventory of natural, historical and cultural resources allows for more prudent care in the disaster's immediate aftermath when the potential for additional impacts is higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, for example, wetlands and riparian and sensitive habitat which help absorb and attenuate floodwaters and thus support overall mitigation objectives.

Cultural and Historical Resources

Placer County has a large stock of historically significant homes, public buildings, and landmarks. To inventory these resources, the HMPC collected information from a number of sources. The California

Department of Parks and Recreation Office of Historic Preservation (OHP) was the primary source of information. The OHP is responsible for the administration of federally and state mandated historic preservation programs to further the identification, evaluation, registration, and protection of California's irreplaceable archaeological and historical resources. OHP administers the National Register of Historic Places, the California Register of Historical Resources, California Historical Landmarks, and the California Points of Historical Interest programs. Each program has different eligibility criteria and procedural requirements.

- The **National Register of Historic Places** is the nation's official list of cultural resources worthy of preservation. The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties listed include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.
- The **California Register of Historical Resources** program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance and identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under the California Environmental Quality Act. The Register is the authoritative guide to the state's significant historical and archeological resources.
- **California Historical Landmarks** are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Landmarks #770 and above are automatically listed in the California Register of Historical Resources.
- **California Points of Historical Interest** are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register.

Historical resources included in the programs above are identified in Table 4-29.

Table 4-29 Placer County Historical Resources

Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Allen & Sandhorfer Blacksmith, Auburn Iron Works (P619)			X	8/16/1983	Auburn
Auburn Grammar School, Auburn Civic Center Project (P693)			X	3/3/1988	Auburn
Auburn IOOF Hall (P803)			X	8/23/1994	Auburn
Auburn Public Library, Old Auburn Library (P838)			X	9/11/2000	Auburn
Baxter (P618)			X	8/16/1983	Dutch Flat
Buckner's Bar (P354)			X	11/19/1974	Auburn

Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Burns Home, Howell Home (P656)			X	7/2/1985	Auburn
Butcher Ranch (P357)			X	11/19/1974	Auburn
City of Auburn (404)				4/14/1948	Auburn
Clipper Gap (P359)		X	X	11/19/1974	Auburn
Colfax Freight Depot (N2076)	X			12/17/1999	Colfax
Colfax Passenger Depot (N2044)	X			1/15/1999	Colfax
Dutch Flat Historic District (N219)	X			3/28/1973	Dutch Flat
Emigrant Gap (403)		X		4/14/1948	Emigrant Gap
Finnish Temperance Hall, Finn Hall (P664)			X	8/20/1985	Rocklin
First Transcontinental Railroad-Auburn (780)		X		11/20/1962	Auburn
First Transcontinental Railroad-Colfax (780)		X		11/20/1962	Colfax
First Transcontinental Railroad-Newcastle (780)		X		11/20/1962	Newcastle
First Transcontinental Railroad-Rocklin (780)		X		11/20/1962	Rocklin
First Transcontinental Railroad-Roseville (780)		X		11/20/1962	Roseville
Griffith Residence (P517)			X	12/1/1977	Penryn
Griffith House (N725)	X			12/19/1978	Penryn
Griffith Quarry (885)		X		5/9/1975	Penryn
Griffith Quarry (N522)	X			10/20/1977	Penryn
Grizzly Bear House (P355)			X	11/19/1974	Auburn
Haman House (N451)	X			11/17/1976	Roseville
Historic Gatekeeper's Log House (P228)			X	10/5/1971	Tahoe City
Iowa Hill (401)		X		4/14/1948	Iowa Hill
Lake Tahoe Dam (N948)	X			3/25/1981	Tahoe City
Lake Tahoe Outlet Gates (797)		X		9/16/1964	Tahoe City
Liberty House (P356)			X	11/19/1974	Auburn
Lincoln Public Library (N1660)	X			12/10/1990	Lincoln
Masonic Temple, Masonic Hall (P821)			X	5/15/1996	Auburn
Michigan Bluff–Last Chance Trail (N1779)	X			6/26/1992	Michigan Bluff
Mountain Quarries Bridge (N2227)	X			2/11/2004	Auburn
Newcastle Fruit Sheds (P836)			X	3/15/2000	Newcastle
Newcastle Portuguese Hall (P578)	X		X	12/21/1981	Newcastle
Old Auburn Historic District (N62)	X			12/29/1970	Auburn
Ophir (463)		X		8/30/1950	Auburn
Outlet Gates and Gatekeeper's Cabin (N198)	X			12/13/1972	Tahoe City
Overland Emigrant Trail (799)		X		9/16/1964	Soda Springs
Pioneer Express Trail (585)		X		5/22/1957	Folsom

Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Pioneer Ski Area of America, Squaw Valley (724)		X		1/18/1960	Squaw Valley
Sheridan Cash Store (P728)			X	8/17/1990	Sheridan
Spring Garden School (P361)			X	11/19/1974	Auburn
Stevens Trail (N2181)	X			11/20/2002	Colfax
Strap Ravine Nisenan Maidu Indian Site (N200)	X			1/8/1973	Roseville
Summit Soda Springs (N720)	X			12/15/1978	Soda Springs
Todd's Valley (P358)			X	11/19/1974	Auburn
Town of Dutch Flat (397)		X		4/14/1948	Dutch Flat
Town of Foresthill (399)		X		4/14/1948	Foresthill
Town of Gold Run (405)		X		4/14/1948	Gold Run
Town of Michigan Bluff (402)		X		4/14/1948	Michigan Bluff
U.S. Ranch (P360)			X	11/19/1974	Auburn
Virginiatown (400)		X		4/14/1948	Newcastle
Watson Log Cabin (N798)	X			8/24/1979	Tahoe City
Woman's Club of Lincoln (N2134)	X			5/30/2001	Lincoln
Yankee Jim's (398)		X		4/14/1948	Foresthill

Source: California Department of Parks and Recreation Office of Historic Preservation, http://ohp.parks.ca.gov/

The National Park Service administers two programs that recognize the importance of historic resources, specifically those pertaining to architecture and engineering. While inclusion in these programs does not give these structures any sort of protection, they are valuable historic assets.

The Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) document America's architectural and engineering heritage. Table 4-30 lists the HABS and HAER structures in Placer County:

Table 4-30 Placer County HABS and HAER Structures

Area	Historic Building/Structure
Applegate vicinity	Central Pacific Transcontinental Railroad, Tunnel "O", Milepost 132.69
	Central Pacific Transcontinental Railroad, Tunnel No. 23, Milepost 132.69
	Central Pacific Transcontinental Railroad, Tunnel No. 24, Milepost 132.9
	Central Pacific Transcontinental Railroad, Tunnel No. 25, Milepost 133.09
	Central Pacific Transcontinental Railroad, Tunnel No. 26, Milepost 133.29
	Central Pacific Transcontinental Railroad, Tunnel No. 27, Milepost 133.9
	Central Pacific Transcontinental Railroad, Tunnel No. 28, Milepost 134.75
	Central Pacific Transcontinental Railroad, Tunnel No. 29, Milepost 135.95
Auburn vicinity	Auburn (Chinese Section), General View
	Auburn, General View

Area	Historic Building/Structure
	Commercial Buildings
	Fire House & Commercial Buildings, Grass Valley & Sacramento Roads
	Henry Stone House, Nevada Street
	Lincoln Way & Maple Street (Commercial Building)
	Old Town City Hall (Ruins)
	Rock Creek Dam, East end of Rock Creek Road
Blue Canyon vicinity	Central Pacific Transcontinental Railroad, Tunnel No.1, Milepost 164.34
Cisco	Central Pacific Transcontinental Railroad, Tunnel No. 3, Milepost 180.65
	Central Pacific Transcontinental Railroad, Tunnel No. 38, Milepost 180.58
	Central Pacific Transcontinental Railroad, Tunnel No. 39, Milepost 180.95
	Central Pacific Transcontinental Railroad, Tunnel No. 4, Milepost 180.95
Clipper Gap	Central Pacific Railroad, Clipper Gap Tunnel
Colfax vicinity	Central Pacific Transcontinental Railroad, Tunnel No. 34, Milepost 145.4
Donner	Central Pacific Transcontinental Railroad, Tunnel No. 41, Milepost 193.3
Newcastle	Central Pacific Transcontinental Railroad, Tunnel No. 18, Milepost 120.5
Roseville	Southern Pacific Railroad Shasta Route, Roseville to Black Butte

Source: The Library of Congress, American Memory, http://memory.loc.gov/ammem/collections/habs_haer/

A 1988 publication from the state's Office of Historical Preservation (OHP) identified five "ethnic historic sites" in Placer County. Five Views: An Ethnic Historic Site Survey for California was originally conceived to broaden the spectrum of ethnic community participation in historic preservation activities and to provide better information on ethnic history and associated sites. The five sites in Placer County identified in the OHP survey are listed below:

- Duke Luster House
- Auburn Chinese American Cemetery
- Auburn Chinese American Community
- Chinese Store
- Tsuda's Store.

It should be noted that these lists may not be complete, as they may not include those currently in the nomination process and not yet listed. Additionally, as defined by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by CEQA and NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

Natural Resources

Natural resources are important to include in cost/benefit analyses for future projects and may be used to leverage additional funding for mitigation projects that also contribute to community goals for protecting

sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as reducing the force of and storing floodwaters.

The geographic extent of Placer County spans from the Sacramento Valley to the crest of the Sierra Nevada Range eastward to the Nevada state line. The County in its entirety incorporates four physiographic regions, 14 watersheds, numerous biotic regimes, and approximately 89 rare plant and animal species listed as threatened, endangered, or potential candidates for protection under the Endangered Species Act.

Sacramento Valley Plains Region

Roughly the western one third of Placer County is located in the eastern portion of the Sacramento Valley. Much of this region has been impacted by or converted to urban or agricultural uses. The area is typified by grasslands, oak savannah, and valley foothill riparian vegetation communities. Common plants across the Sacramento Valley Plains region include wild oats, ripgut brome, California poppy, lupines, clover and Valley oak. Common wildlife species include the California ground squirrel, Botta's pocket gopher, mourning dove, horned lark, and western meadowlark. Riparian zones in this region support Freemont's cottonwood, California sycamore, wild rose, California blackberry, blue elderberry, poison oak, and willows.

This region contains wetland types associated with valley floor topography, such as Northern hardpan and Northern volcanic vernal pools, alkali meadow and seep, wet meadow, and fresh emergent wetland.

Lower Foothill Region

The Lower Foothill physiographic region of Placer County is located to the east of the Sacramento Valley Plains at elevations ranging from 100 to 1300 feet. Typical vegetation communities are Blue Oak woodland, Blue Oak-Digger Pine woodland, annual grasslands, Chamise chaparral, and valley foothill riparian. Blue Oak woodlands are located in areas of shallow rocky soils with understory shrubs including poison oak, California coffeeberry and buckbrush. Blue Oak-Digger Pine woodland is similar to Blue Oak woodlands but includes a mix of pine conifer species.

Common wildlife species in the lower foothills region include California quail, band-tailed pigeons, scrub jay, acorn woodpeckers, yellow-billed magpie, wild turkey, California ground squirrel, western gray squirrel, mule deer, and gray fox.

Upper Foothill/Low Mountain Region

The Upper Foothill/Low Mountain physiographic region is located east of the city of Auburn and includes elevations from 1300 to approximately 6000 feet. In general, forest cover is denser relative to the lower foothill region and tree species are more diverse. High variable factors including soil type, topography, slope and aspect, and human influences from grazing, hardwood harvesting, and other land clearing activities are indicators for forest density and composition. Moderate gradient perennial and intermittent streams and rivers support a varied amount of riparian habitat that provide valuable habitat for wildlife.

Montane Hardwood, Montane Hardwood-Conifer, Ponderosa, and Sierran Mixed Conifer are the dominant forest communities. Common tree species in this region includes canyon live oak, tan oak, Pacific madrone, black oak, Douglas fir, white fir, and incense cedar. Common types of shrubs from these forest types are deerbrush, chinquapin, mountain whitethorn, poison oak, and mountain misery.

Mixed chaparral communities composed of shrubs such as ceanothus, Manzanita, scrub oak, California buckeye and wildlife species such as western rattlesnake, California thrasher, California quail, gray fox, and mule deer are also present in this region. Montane riparian forests located in the Upper Foothill/Low Mountain physiographic region are made up of white alder, aspen, black cottonwood, dogwood, willows, and wild azalea.

High Sierra Region

The High Sierra physiographic region represents the highest elevations of Placer County. The region supports wildlife including Pacific tree frogs, California mountain king snake, dark-eyed junco, Steller's jay, mountain chickadee, pygmy nuthatch, golden mantled ground squirrel, Allen's chipmunk, Douglas squirrel, mule deer, black bear and mountain lions. Forest types include aspen, white fir, lodgepole pine, red fir, subalpine conifer, Jeffrey pine and eastside pine. The harsh environment that accompanies the highest elevations of the Sierra crest (9,000-11,000 feet) results in somewhat lower overall plant and wildlife diversity and lower incidence and volume of understory shrubs.

East of the Sierra crest, the drier climate regime supports Ponderosa pine, big sagebrush, rabbitbrush and bitterbrush, and High Sierra/Great Basin transition species. The High Sierra physiographic region is classified as major land resource area 22 under the USDA Soil Conservation Service description of land resource areas. Rivers and streams are at a higher gradient than their foothill or valley floor reaches and support a montane riparian habitat that, like the others, provides valuable habitat for resident and migratory wildlife.

Each physiographic region hosts specific habitats that together support a wide variety of vegetation and wildlife (see Table 4-31), and each region has different susceptibilities to hazards such as wildfire, flood, and drought. Placer County recognizes the importance of protecting, preserving, conserving, and restoring this biodiversity.

Table 4-31 Placer County Habitat Types by Physiographic Region

Sacramento Valley Plains Region	Lower Foothill Region	Upper Foothill/Lower Mountain Region	High Sierra Region
Urban, Agricultural and Rangeland Annual Grasslands Grassland (with Oak Woodland) Valley-Foothill Riparian/Riverine Valley Oak Woodland Northern Hardpan and Northern Volcanic Vernal Pools Fresh Emergent Wetland Alkali Meadow and Seep Wet Meadow	Urban, Agricultural and Rangeland Annual Grasslands Grassland (with Oak Woodland) Valley-Foothill Riparian/Riverine Blue Oak Woodland Blue Oak-Digger Pine Woodland Chamise Chaparral Fresh Emergent Wetland Wet Meadow	Montane Hardwood Montane Hardwood-Conifer Ponderosa Sierran Mixed Conifer Valley-Foothill Riparian/Riverine Fresh Emergent Wetland Mixed Chaparral Blue Oak Woodland Blue Oak-Digger Pine Woodland Fresh Emergent Wetland Wet Meadow	Montane Chaparral Montane Hardwood Conifer Montane Riparian Forest Sierran Mixed Conifer Ponderosa Pine Jeffrey Pine White/Red Fir Lodgepole Pine Sub-alpine Conifer Alpine Dwarf Scrub Bitterbrush Juniper Fresh Emergent Wetland Wet Meadow

Source: Placer County General Plan Background Report

Special Status Species

To further understand natural resources that may be particularly vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the Planning Area. An endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A threatened species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. Candidate species are plants and animals that have been proposed as endangered or threatened but are not currently listed.

The California Natural Diversity Database, a program that inventories the status and locations of rare plants and animals in California, was queried to create an inventory of special status species in Placer County. Table 4-32 lists the name, federal status, state status, California Department of Fish and Wildlife status, and the California Rare Plant rank of species in Placer County.

Table 4-32 Special Status Species in Placer County

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Animals – Amphibians					
Ensatina eschscholtzii croceator	*yellow-blotched salamander*	None	None	SSC	-
Hydromantes platycephalus	*Mount Lyell salamander*	None	None	SSC	-
Lithobates pipiens	*northern leopard frog*	None	None	SSC	-
Rana boylii	*foothill yellow-legged frog*	None	None	SSC	-
Rana cascadae	*Cascades frog*	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Rana draytonii	*California red-legged frog*	Threatened	None	SSC	-
Rana sierra	*Sierra Nevada yellow-legged frog*	Endangered	Threatened	SSC	-
Taricha torosa	*Coast Range newt*	None	None	SSC	-
Spea hammondii	*western spadefoot*	None	None	SSC	-
Animals – Birds					
Accipiter cooperii	*Cooper's hawk*	None	None	WL	-
Accipiter gentilis	*northern goshawk*	None	None	SSC	-
Accipiter striatus	*sharp-shinned hawk*	None	None	WL	-
Aquila chrysaetos	*golden eagle*	None	None	FP ; WL	-
Buteo regalis	*ferruginous hawk*	None	None	WL	-
Buteo swainsoni	*Swainson's hawk*	None	Threatened	-	-
Circus cyaneus	*northern harrier*	None	None	SSC	-
Elanus leucurus	*white-tailed kite*	None	None	FP	-
Haliaeetus leucocephalus	*bald eagle*	Delisted	Endangered	FP	-
Pandion haliaetus	*osprey*	None	None	WL	-
Eremophila alpestris actia	*California horned lark*	None	None	WL	-
Aythya americana	*redhead*	None	None	SSC	-
Histrionicus histrionicus	*harlequin duck*	None	None	SSC	-
Cypseloides niger	*black swift*	None	None	SSC	-
Aimophila ruficeps canescens	*southern California rufous-crowned sparrow*	None	None	WL	-
Ammodramus savannarum	*grasshopper sparrow*	None	None	SSC	-
Melospiza melodia	*song sparrow (-inModesto-in population)*	None	None	SSC	-
Falco mexicanus	*prairie falcon*	None	None	WL	-
Falco peregrinus anatum	*American peregrine falcon*	Delisted	Delisted	FP	-
Progne subis	*purple martin*	None	None	SSC	-
Riparia riparia	*bank swallow*	None	Threatened	-	-
Agelaius tricolor	*tricolored blackbird*	None	None	SSC	-
Xanthocephalus xanthocephalus	*yellow-headed blackbird*	None	None	SSC	-
Lanius ludovicianus	*loggerhead shrike*	None	None	SSC	-
Chlidonias niger	*black tern*	None	None	SSC	-
Larus californicus	*California gull*	None	None	WL	-
Sterna forsteri	*Forster's tern*	None	None	-	-
Icteria virens	*yellow-breasted chat*	None	None	SSC	-
Setophaga occidentalis	*hermit warbler*	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Setophaga petechia	*yellow warbler*	None	None	SSC	-
Pelecanus erythrorhynchos	*American white pelican*	None	None	SSC	-
Laterallus jamaicensis coturniculus	*California black rail*	None	Threatened	FP	-
Athene cunicularia	*burrowing owl*	None	None	SSC	-
Strix occidentalis occidentalis	*California spotted owl*	None	None	SSC	-
Contopus cooperi	*olive-sided flycatcher*	None	None	SSC	-
Empidonax traillii	*willow flycatcher*	None	Endangered	-	-
Animals – Crustaceans					
Branchinecta conservatio	*Conservancy fairy shrimp*	Endangered	None	-	-
Branchinecta lynchi	*vernal pool fairy shrimp*	Threatened	None	-	-
Lepidurus packardi	*vernal pool tadpole shrimp*	Endangered	None	-	-
Animals – Fish					
Catostomus platyrhynchus	*mountain sucker*	None	None	SSC	-
Lavinia symmetricus ssp. 1	*San Joaquin roach*	None	None	SSC	-
Siphateles bicolor pectinifer	*Lahontan Lake tui chub*	None	None	SSC	-
Lampetra ayresii	*river lamprey*	None	None	SSC	-
Oncorhynchus clarkii henshawi	*Lahontan cutthroat trout*	Threatened	None	-	-
Oncorhynchus mykiss aguabonita	*Volcano Creek golden trout*	None	None	SSC	-
Oncorhynchus mykiss irideus	*steelhead - Central Valley DPS*	Threatened	None	-	-
Oncorhynchus tshawytscha	*chinook salmon - Central Valley spring-run ESU*	Threatened	Threatened	-	-
Oncorhynchus tshawytscha	*chinook salmon - Sacramento River winter-run ESU*	Endangered	Endangered	-	-
Oncorhynchus tshawytscha	*chinook salmon - Central Valley fall / late fall-run ESU*	None	None	SSC	-
Animals – Insects					
Desmocerus californicus dimorphus	*valley elderberry longhorn beetle*	Threatened	None	-	-
Animals – Mammals					
Aplodontia rufa californica	*Sierra Nevada mountain beaver*	None	None	SSC	-
Vulpes vulpes necator	*Sierra Nevada red fox*	None	Threatened	-	-
Lepus americanus tahoensis	*Sierra Nevada snowshoe hare*	None	None	SSC	-
Lepus townsendii townsendii	*western white-tailed jackrabbit*	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Gulo gulo	*California wolverine*	None	Threatened	FP	-
Pekania pennanti	*fisher - West Coast DPS*	Proposed Threatened	Candidate Threatened	SSC	-
Taxidea taxus	*American badger*	None	None	SSC	-
Corynorhinus townsendii	*Townsend's big-eared bat*	None	Candidate Threatened	SSC	-
Euderma maculatum	*spotted bat*	None	None	SSC	-
Animals – Reptiles					
Emys marmorata	*western pond turtle*	None	None	SSC	-
Animals – Reptiles					
Phrynosoma blainvillii	*coast horned lizard*	None	None	SSC	-
Plants – Bryophytes					
Meesia triquetra	*three-ranked hump moss*	None	None	-	4.2
Mielichhoferia elongata	*elongate copper moss*	None	None	-	2B.2
Plants – Vascular					
Chlorogalum grandiflorum	*Red Hills soaproot*	None	None	-	1B.2
Sagittaria sanfordii	*Sanford's arrowhead*	None	None	-	1B.2
Allium jepsonii	*Jepson's onion*	None	None	-	1B.2
Allium sanbornii var. congdonii	*Congdon's onion*	None	None	-	4.3
Allium sanbornii var. sanbornii	*Sanborn's onion*	None	None	-	4.2
Artemisia tripartita ssp. Tripartita	*threetip sagebrush*	None	None	-	2B.3
Balsamorhiza macrolepis	*big-scale balsamroot*	None	None	-	1B.2
Erigeron miser	*starved daisy*	None	None	-	1B.3
Packera layneae	*Layne's ragwort*	Threatened	Rare	-	1B.2
Cryptantha glomeriflora	*clustered-flower cryptantha*	None	None	-	4.3
Hackelia amethystina	*amethyst stickseed*	None	None	-	4.3
Phacelia stebbinsii	*Stebbins' phacelia*	None	None	-	1B.2
Arabis rigidissima var. demota	*Galena Creek rockcress*	None	None	-	1B.2
Rorippa subumbellata	*Tahoe yellow cress*	Candidate	Endangered	-	1B.1
Downingia pusilla	*dwarf downingia*	None	None	-	2B.2
Githopsis pulchella ssp. Serpentinicola	*serpentine bluecup*	None	None	-	4.3
Legenere limosa	*legenere*	None	None	-	1B.1
Viburnum ellipticum	*oval-leaved viburnum*	None	None	-	2B.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Pseudostellaria sierrae	*Sierra starwort*	None	None	-	4.2
Stellaria obtusa	*obtuse starwort*	None	None	-	4.3
Calystegia vanzuukiae	*Van Zuuk's morning-glory*	None	None	-	1B.3
Carex davyi	*Davy's sedge*	None	None	-	1B.3
Carex lasiocarpa	*woolly-fruited sedge*	None	None	-	2B.3
Carex sheldonii	*Sheldon's sedge*	None	None	-	2B.2
Eriophorum gracile	*slender cottongrass*	None	None	-	4.3
Arctostaphylos mewukka ssp. Truei	*True's manzanita*	None	None	-	4.2
Astragalus austiniae	*Austin's astragalus*	None	None	-	1B.3
Astragalus whitneyi var. lenophyllus	*woolly-leaved milk-vetch*	None	None	-	4.3
Lathyrus sulphureus var. argillaceus	*dubious pea*	None	None	-	3
Juncus leiospermus var. ahartii	*Ahart's dwarf rush*	None	None	-	1B.2
Juncus leiospermus var. leiospermus	*Red Bluff dwarf rush*	None	None	-	1B.1
Juncus luciensis	*Santa Lucia dwarf rush*	None	None	-	1B.2
Lycopus uniflorus	*northern bugleweed*	None	None	-	4.3
Scutellaria galericulata	*marsh skullcap*	None	None	-	2B.2
Fritillaria agrestis	*stinkbells*	None	None	-	4.2
Fritillaria eastwoodiae	*Butte County fritillary*	None	None	-	3.2
Lilium humboldtii ssp. Humboldtii	*Humboldt lily*	None	None	-	4.2
Sphaeralcea munroana	*Munro's desert mallow*	None	None	-	2B.2
Claytonia parviflora ssp. Grandiflora	*streambank spring beauty*	None	None	-	4.2
Lewisia kelloggii ssp. Hutchisonii	*Hutchison's lewisia*	None	None	-	3.2
Lewisia kelloggii ssp. Kelloggii	*Kellogg's lewisia*	None	None	-	3.2
Lewisia longipetala	*long-petaled lewisia*	None	None	-	1B.3
Lewisia serrata	*saw-toothed lewisia*	None	None	-	1B.1
Clarkia biloba ssp. Brandegeeae	*Brandegee's clarkia*	None	None	-	4.2
Botrychium ascendens	*upswept moonwort*	None	None	-	2B.3
Botrychium crenulatum	*scalloped moonwort*	None	None	-	2B.2
Botrychium minganense	*mingan moonwort*	None	None	-	2B.2
Piperia colemanii	*Coleman's rein orchid*	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Chloropyron molle ssp. Hispidum	*hispid salty bird's-beak*	None	None	-	1B.1
Cordylanthus tenuis ssp. Brunneus	*serpentine bird's-beak*	None	None	-	4.3
Gratiola heterosepala	*Boggs Lake hedge-hyssop*	None	Endangered	-	1B.2
Glyceria grandis	*American manna grass*	None	None	-	2B.3
Poa sierrae	*Sierra blue grass*	None	None	-	1B.3
Navarretia myersii ssp. Myersii	*pincushion navarretia*	None	None	-	1B.1
Eriogonum tripodum	*tripod buckwheat*	None	None	-	4.2
Eriogonum umbellatum var. torreyanum	*Donner Pass buckwheat*	None	None	-	1B.2
Potamogeton epihydrus	*Nuttall's ribbon-leaved pondweed*	None	None	-	2B.2
Stuckenia filiformis ssp. Alpina	*slender-leaved pondweed*	None	None	-	2B.2
Androsace occidentalis	*western androsace*	None	None	-	2B.3
Ceanothus fresnensis	*Fresno ceanothus*	None	None	-	4.3
Ceanothus roderickii	*Pine Hill ceanothus*	Endangered	Rare	-	1B.2
Rhamnus alnifolia	*alder buckthorn*	None	None	-	2B.2
Ivesia sericoleuca	*Plumas ivesia*	None	None	-	1B.2
Brodiaea sierrae	*Sierra foothills brodiaea*	None	None	-	4.3
Viola tomentosa	*felt-leaved violet*	None	None	-	4.2

Sources: California Natural Diversity Database BIOS Viewer Tool

Federal Status

Endangered: The classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

Threatened: The classification provided to an animal or plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed Endangered: The classification provided to an animal or plant that is proposed for federal listing as Endangered in the Federal Register under Section 4 of the Endangered Species Act.

Proposed Threatened: The classification provided to an animal or plant that is proposed for federal listing as Threatened in the Federal Register under Section 4 of the Endangered Species Act.

Candidate: The classification provided to an animal or plant that has been studied by the United States Fish and Wildlife Service, and the Service has concluded that it should be proposed for addition to the Federal Endangered and Threatened species list.

None: The plant or animal has no federal status.

Delisted: The plant or animal was previously listed as Endangered or Threatened, but is no longer listed on the Federal Endangered and Threatened species list.

CDFW Status

FP: Fully Protected: This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction.

SSC: Species of Special Concern: To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability.

WL: Watch List: Species that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

CA Rare Plant Rank

1A: Plants presumed extinct in California and rare/extinct elsewhere
1B.1: Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2: Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3: Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A: Plants presumed extirpated in California, but more common elsewhere
2B.1: Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
2B.2: Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
2B.3: Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California
3.1: Plants about which we need more information; seriously threatened in California
3.2: Plants about which we need more information; fairly threatened in California
3.3: Plants about which we need more information; not very threatened in California
4.1: Plants of limited distribution; seriously threatened in California
4.2: Plants of limited distribution; fairly threatened in California
4.3: Plants of limited distribution; not very threatened in California

Rare Natural Plant Communities

The Placer County General Plan Draft Background Report identifies five rare natural plant communities in the Planning Area:

- Big Tree Forest
- Alkali Meadow
- Alkali Seep
- Northern Hardpan Vernal Pool
- Northern Volcanic Mud Flow Vernal Pool

Significant Natural Areas of Placer County

From information provided in the Placer County General Plan Background Report, Table 4-33 below outlines the location, elements, and rationale for listing of significant natural areas in Placer County.

Table 4-33 Description of Significant Natural Areas in Placer County

Location	Elements	Rationale
Lower Miners Ravine	Fall-run chinook salmon stream	Best example
Roseville eastern vernal pools	Northern volcanic mudflow vernal pools, wetlands	
Roseville northern vernal pools	Roseville northern vernal pools, northern	Extremely rare
Pole Creek	Lahontan cutthroat trout stream	Extremely rare
Upper Secret Ravine	Fall-run chinook salmon stream	Best example
Long Canyon	Saw toothed lewisia, Stebbins' phacelia	
Upper Pleasant Grove Creek	Alkali meadow, alkali seep, hispid birds	
Martis Creek	Lahontan cutthroat trout stream	Best example

Location	Elements	Rationale
Blackwood Creek	Tahoe yellow cress	Extremely rare
Ward Creek	Tahoe yellow cress	Extremely rare

Source: Placer County General Plan Background Report

Wetlands

Wetlands are habitats in which soils are intermittently or permanently saturated or inundated. Wetland habitats vary from rivers to seasonal ponding of alkaline flats and include swamps, bogs, marshes, vernal pools, and riparian woodlands. Wetlands are considered to be waters of the United States and are subject to the jurisdiction of the U.S. Army Corps of Engineers as well as the California Department of Fish and Wildlife (CDFW). Where the waters provide habitat for federally endangered species, the U.S. Fish and Wildlife Service may also have authority.

Wetlands are a valuable natural resource for communities providing beneficial impact to water quality, wildlife protection, recreation, and education, and play an important role in hazard mitigation. Wetlands provide drought relief in water-scarce areas where the relationship between water storage and streamflow regulation is vital, and reduce flood peaks and slowly release floodwaters to downstream areas. When surface runoff is dampened, the erosive powers of the water are greatly diminished. Furthermore, the reduction in the velocity of inflowing water as it passes through a wetland helps remove sediment being transported by the water.

Notable categories of wetlands found in Placer County include vernal pools, alkali meadows and seeps, wet meadows, fresh emergent wetlands, and portions of montane riparian and mixed riparian forests. Northern volcanic mudflow vernal pools and northern hardpan vernal pools occur in annual grasslands in the vicinity of Lincoln, Loomis, Rocklin, and Roseville. The Placer County General Plan Background Report notes that critical vernal pool habitat has been eliminated due to urban expansion in these areas and that alkali meadow habitat is threatened by urban expansion north of Roseville. Table 4-34 outlines species dependent on wetland habitat by type.

Table 4-34 Wetland Dependent Species, Placer County

Wetland Type	Plants	Animals
Vernal Pools	Popcorn Flowers	Western Spadefoot Toads
	Annual Hairgrass	Tiger Salamander
	Rayless Goldfields	Western Toads
	Purple-Horned Downingia	Mallard Ducks
	Marigold Navarettia	Cinnamon Teal
Alkali Meadow And Seep	Rushes	
	Saltgrass	
	Hispid Bird's Beak	
Wet Meadow	Sedges	Red-Wing Blackbird
	Rushes	Yellow-Wing Blackbird

Wetland Type	Plants	Animals
	Willows	Pacific Tree Frog
	Spikerush	Long-Toed Salamanders
	Redtop	Racers
		Western Aquatic Garter Snakes
Fresh Emergent Wetland	Cattails	Misc. Waterfowl And Shorebirds
	Tules	
	Rushes	
	Sedges	

Source: Placer County General Plan Background Report

Natural and Beneficial Functions

Wetlands are often found in floodplains and depressional areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flow. Wetlands perform a variety of ecosystem functions including food web support, habitat for insects and other invertebrates, fish and wildlife habitat, filtering of waterborne and dry-deposited anthropogenic pollutants, carbon storage, water flow regulation (e.g., flood abatement), groundwater recharge, and other human and economic benefits.

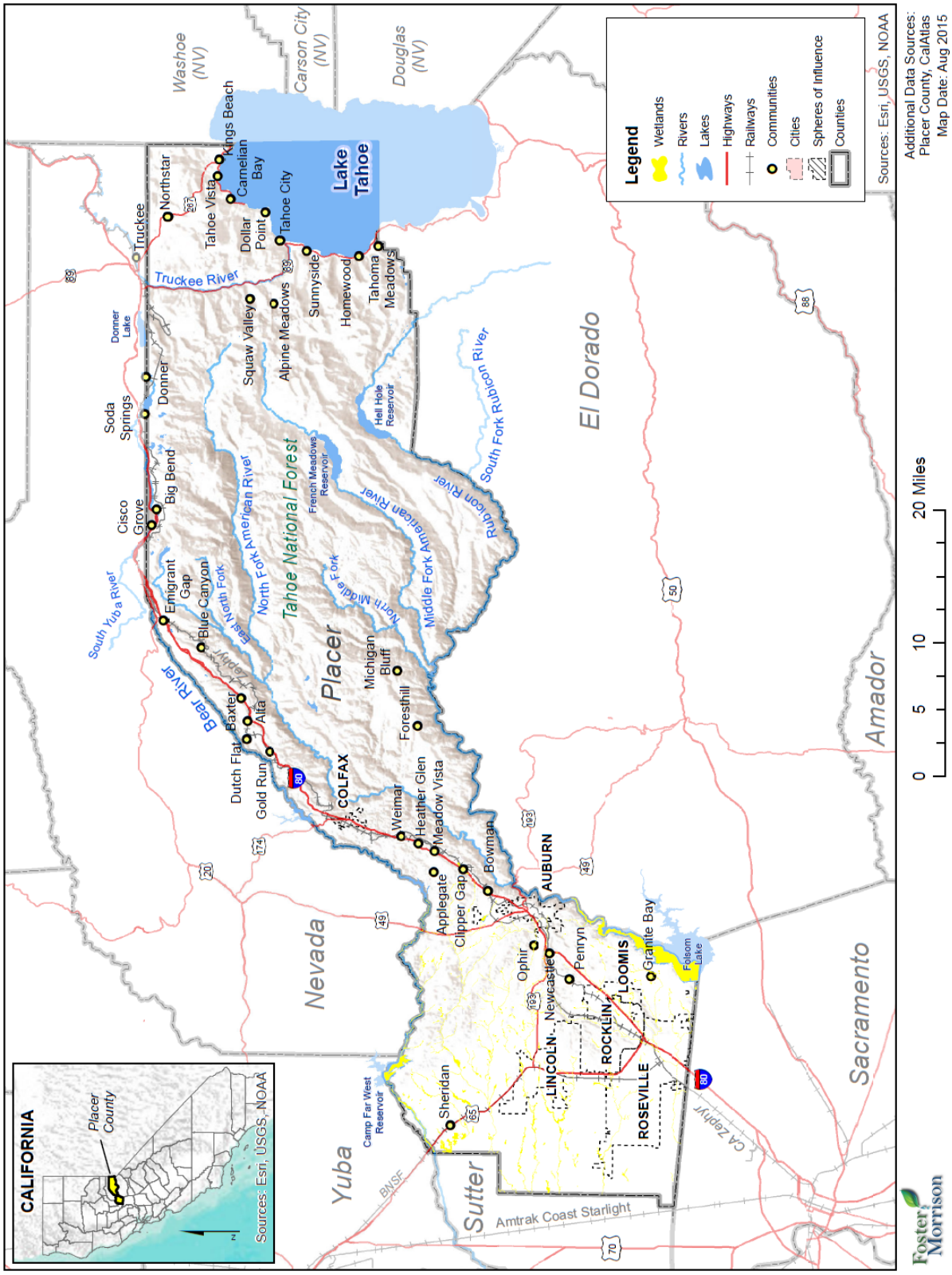
Wetlands, and other riparian and sensitive areas, provide habitat for insects and other invertebrates that are critical food sources to a variety of wildlife species, particularly birds. There are species that depend on these areas during all parts of their lifecycle for food, overwintering, and reproductive habitat. Other species use wetlands and riparian areas for one or two specific functions or parts of the lifecycle, most commonly for food resources. In addition, these areas produce substantial plant growth that serves as a food source to herbivores (wild and domesticated) and a secondary food source to carnivores.

Wetlands slow the flow of water through the vegetation and soil, and pollutants are often held in the soil. In addition, because the water is slowed, sediments tend to fall out, thus improving water quality and reducing turbidity downstream.

These natural floodplain functions associated with the natural or relatively undisturbed floodplain that moderates flooding, such as wetland areas, are critical for maintaining water quality, recharging groundwater, reducing erosion, redistributing sand and sediment, and providing fish and wildlife habitat. Preserving and protecting these areas and associated functions are a vital component of sound floodplain management practices for the Placer County planning area.

A map of wetlands areas in Placer County is shown in Figure 4-68.

Figure 4-68 Placer County – Wetlands Map



Williamson Act

The Williamson Act, also known as the California Land Conservation Act of 1965, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. When the County enters into a contract with the landowners under the Williamson Act, the landowner agrees to limit the use of the land to agriculture and compatible uses for a period of at least ten years and the County agrees to tax the land at a rate based on the agricultural production of the land rather than its real estate market value. The County has designated areas as agricultural preserves within which the county will enter into contracts for the preservation of the land in agriculture. The County has 40,596 acres under Williamson Act Contract as of 2013.

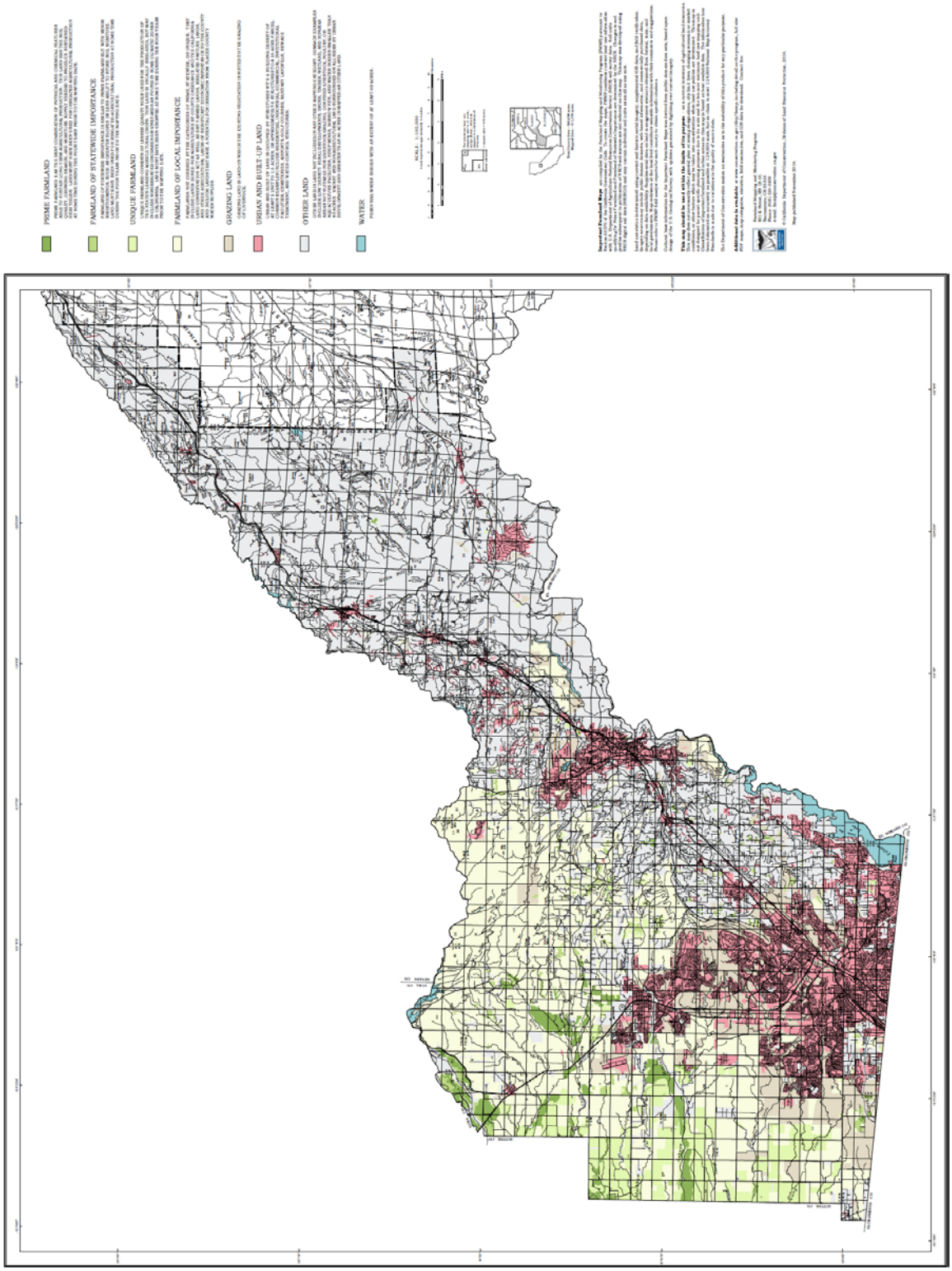
State Inventory of Important Farmland

The Farmland Mapping and Monitoring Program was established in 1984 to document the location, quality, and quantity of agricultural lands and conversion of those lands over time. The program provides impartial analysis of agricultural land use changes throughout California. For inventory purposes, several categories were developed to describe the qualities of land in terms of its suitability for agricultural production. The State Department of Conservation utilizes the following classification system:

- The Prime Farmland category describes farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Farmland of Statewide Importance is farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland is farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance is either currently producing crops or has the capability of production. This farmland category is determined by each county's board of supervisors and a local advisory committee.

The 2014 mapping effort was in process during the creation of this plan. 2012 maps were the most recent versions. These lands are shown in Figure 4-69.

Figure 4-69 Placer County Map of Important Farmlands - 2012



Source: State of California Department of Conservation

Growth and Development Trends

As part of the planning process, the HMPC looked at changes in growth and development, both past and future, and examined these changes in the context of hazard-prone areas, and how the changes in growth and development affect loss estimates and vulnerability. Information from the Placer County General Plan Housing Element, the California Department of Finance, and the Placer County Community Resource Agency Planning Services Division form the basis of this discussion.

More specific information on growth and development for each participating jurisdiction can be found in the jurisdictional annexes.

Current Status and Past Development

The estimated population of Placer County for January 1, 2014 was 366,115, representing a six-fold increase from just under 57,000 people in 1960. Table 4-35 and Table 4-36 illustrate the pace of population growth in Placer County dating back to 1940 along with more recent population trends for each jurisdiction. The data on population and housing growth shows that Placer County has seen tremendous growth during the last decades, especially in the incorporated areas of the county. Placer County is consistently one of the fastest growing counties in California.

Table 4-35 Placer County Population Growth 1960-2014

Year	Population	Change	Average Annual Growth Rate
1940	28,108	–	–
1950	41,649	13,451	4.0%
1960	56,998	15,349	3.2%
1970	77,632	20,308	3.1%
1980	117,247	39,941	4.3%
1990	172,796	55,549	4.0%
2000	248,399	75,603	3.7%
2010	326,503	100,033	3.4%
2014	366,115	39,612	2.2%

Sources: Placer County Housing Element Background Report, California Department of Finance

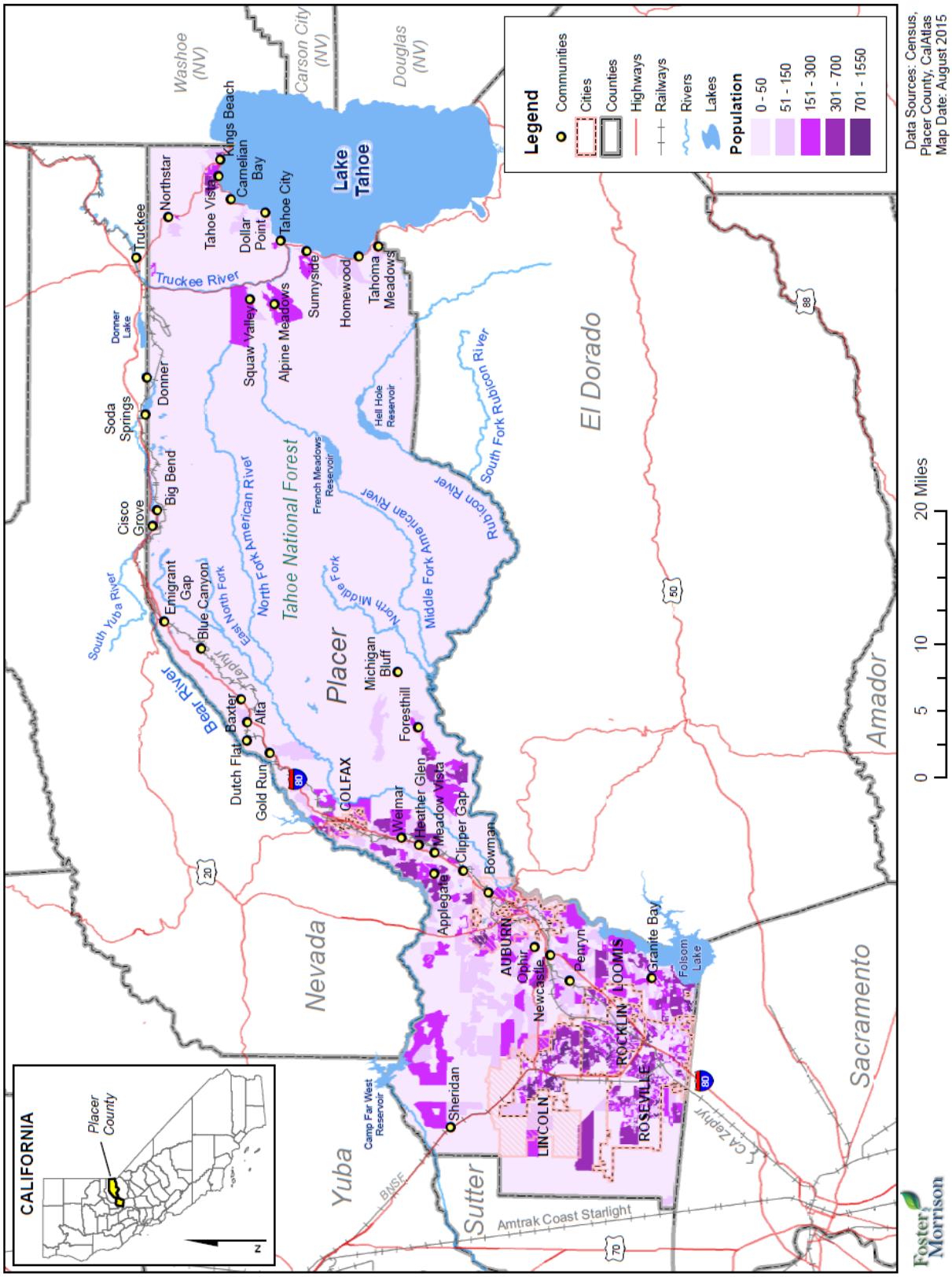
Table 4-36 Population Growth for Jurisdictions in Placer County, 2000-2014

Area	2000	2010	2014	% Change 2000 to 2014	Average Annual Growth Rate
Auburn	12,462	13,330	13,804	10.8%	0.8%
Colfax	1,520	1,963	1,998	31.4%	2.2%
Lincoln	11,205	42,819	45,206	303.4%	21.7%
Loomis	6,260	6,430	6,608	5.6%	0.4%
Rocklin	36,330	56,974	59,672	64.2%	4.6%
Roseville	79,921	118,788	126,956	58.9%	4.2%

Source: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.
Notes: Population reports and estimates are for January 1 of each year. 2008 population is estimated.

Figure 4-70 illustrates County population by census block based on 2010 census data.

Figure 4-70 Placer County Population by Census Block



Development since 2010 Plan

As shown in Table 4-37, the Placer County Planning Area has seen a growth of over 10% between 2010 and January 1, 2014.

Table 4-37 Placer County Planning Area Population Growth Since 2010

Year	Population	Change	AAGR
2010	326,503	–	–
2014	366,115	39,612	2.2%

Sources: Placer County Housing Element Background Report, California Department of Finance

The Placer County Building Department and Planning Department tracked total building permits issued since 2010 for Unincorporated Placer County. These are tracked by hazard area and by property use type. These are shown in Table 4-38. All development in the identified hazard areas, including the 1% annual chance floodplains and high wildfire risk areas, were completed in accordance with all current and applicable development codes and standards and should be adequately protected. Thus, with the exception of more people living in the area potentially exposed to natural hazards, this growth should not cause a significant change in vulnerability of the Placer County Planning Area to identified priority hazards.

Table 4-38 Unincorporated Placer County Development in Hazard Zones since 2010

	Property Use Type			
Hazard Area	Residential	Commercial	Industrial	Total
Fire Hazard Areas*				
FRA – Very High	1	0	0	1
LRA – Mod	74	5	3	82
LRA - Non-Wildland/Non-Urban	14	0	0	14
LRA - Urban Unzoned	37	5	1	43
SRA - Very High	281	4	2	287
SRA – High	47	0	0	47
SRA – Mod	137	3	1	141
Avalanche Hazard Areas				
Potential Avalanche Hazard Area (PAHA)	1	0	0	1
Flood Hazard Areas				
1% Annual Chance	34	0	1	35
Airport Hazard Areas				
Auburn Overflight	11	4	1	16
Truckee Overflight	29	1	0	30

Source: Placer County Planning Department/Building Department

* FRA – Federal Responsibility Area; LRA – Local Responsibility Area; SRA – State Responsibility Area

Future Development

As indicated in the previous section, Placer County has been steadily growing over the last seven decades. Long term forecasts by the California Department of Finance project population growth in Placer County continuing through the 2060. Table 4-39 shows the population projections for the County as a whole through 2050.

Table 4-39 Population Projections for Placer County Planning Area, 2010-2050

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Placer	350,230	373,503	396,203	421,002	447,625	478,196	509,936	539,147	566,954	593,084	620,037

Source: California Department of Finance, P-1 Report

GIS Analysis

Unincorporated Placer County has identified 25 future developments areas. GIS was used to determine the possible impacts of flooding, wildfires, and landslide incidences within the County and how the risks vary across the Unincorporated Placer County area. Placer County provided these areas in GIS. These areas were overlaid on the County Assessor's data to determine parcels and acreages. Summary tables for the study area are presented below. For the unincorporated County, both summary and detail tables are shown and discussed below.

Table 4-40 shows the areas which the County has identified for future growth and development. Information regarding residential and commercial development is included in the table. The growth areas in the eastern portion of the County are shown on Figure 4-71, while the growth areas for the western portions of the County are shown on Figure 4-72.

Table 4-40 Placer County Future Development Area by Jurisdiction

Future Development Project	Parcel Count	Acres	Jurisdiction
Palisades at Squaw	6	3	Placer County Unincorporated Areas
Reason Farms	29	1,737	City of Roseville
Creekview	12	498	City of Roseville
West Roseville	4,943	3,135	City of Roseville
Placer Parkway	62	1,644	City of Roseville, Placer County Unincorporated Areas
Antonio Mt. Ranch	19	812	Placer County Unincorporated Areas
Lincoln Village 5	192	4,927	Placer County Unincorporated Areas
Placer Ranch	115	2,208	Placer County Unincorporated Areas
Placer Vineyards	314	5,231	Placer County Unincorporated Areas
Riolo Vineyards	19	506	Placer County Unincorporated Areas
Sierra Vista	52	2,049	City of Roseville
Brookfield	13	682	Placer County Unincorporated Areas
Regional University	24	1,176	Placer County Unincorporated Areas

Future Development Project	Parcel Count	Acres	Jurisdiction
The Village at Squaw Valley	11	8	Placer County Unincorporated Areas
Lincoln 270	30	263	City of Lincoln
The Village at Squaw Valley	63	81	Placer County Unincorporated Areas
Western Regional Sanitary Landfill	5	314	Placer County Unincorporated Areas
Western Regional Sanitary Landfill Expansion Site	11	465	Placer County Unincorporated Areas
Palisades at Squaw	10	17	Placer County Unincorporated Areas
Alpine Sierra Subdivision	18	44	Placer County Unincorporated Areas
Brockway Campground	10	116	Placer County Unincorporated Areas
Martis Valley West Parcel	22	1,046	Placer County Unincorporated Areas
Bickford Ranch	158	1,902	Placer County Unincorporated Areas
Bickford Ranch	9	38	Placer County Unincorporated Areas
The Village at Squaw Valley	4	3	Placer County Unincorporated Areas
Totals	**6,151**	**28,906**	

Source: Placer County GIS

Figure 4-71 Placer County East – Future Development Areas

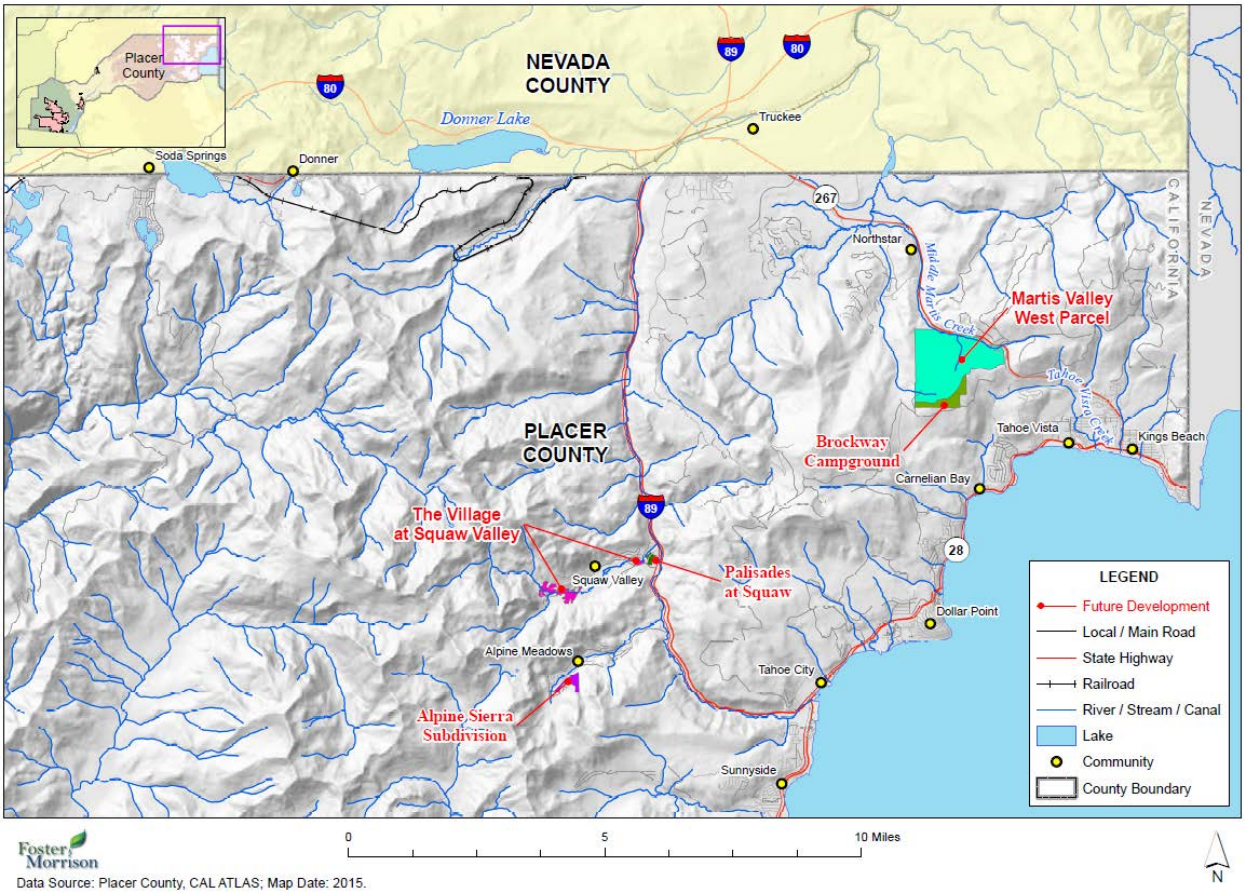
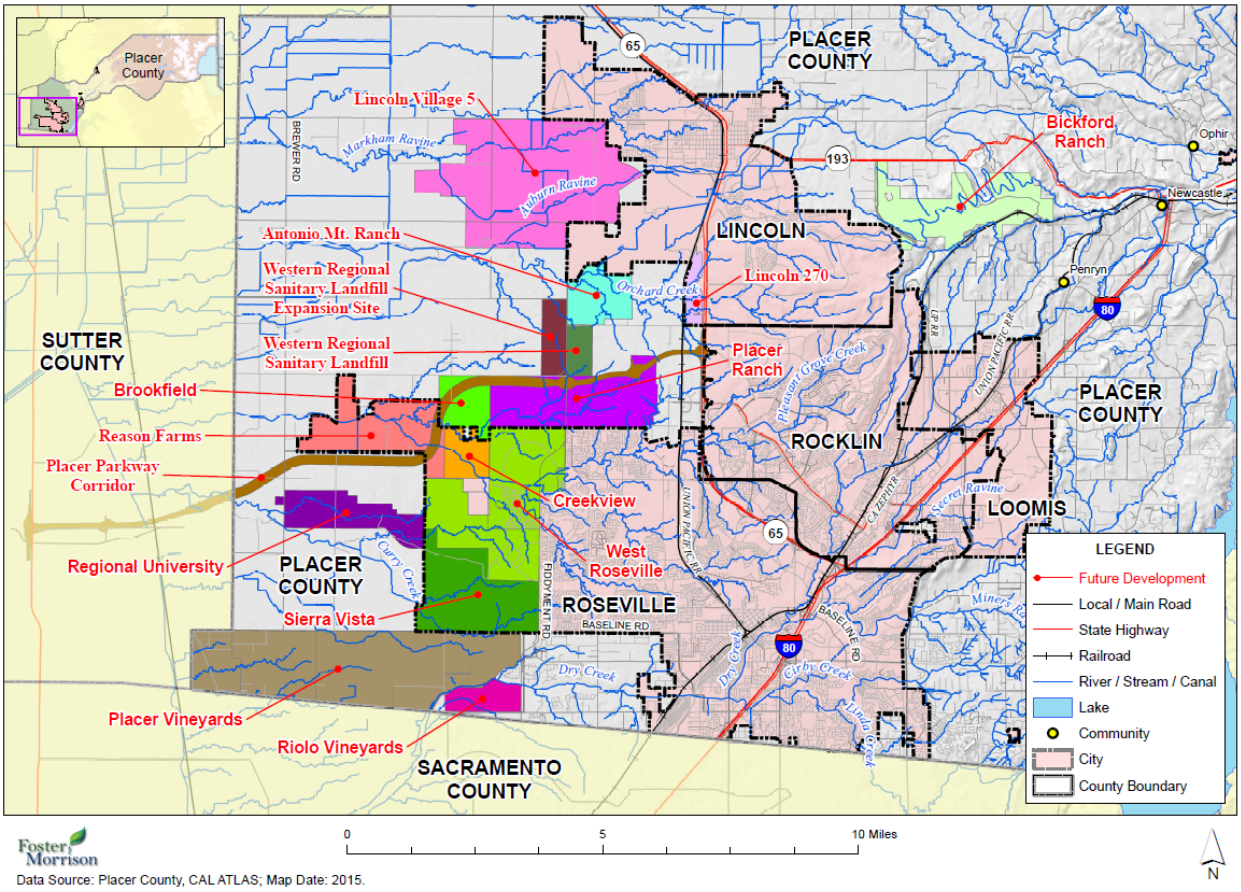


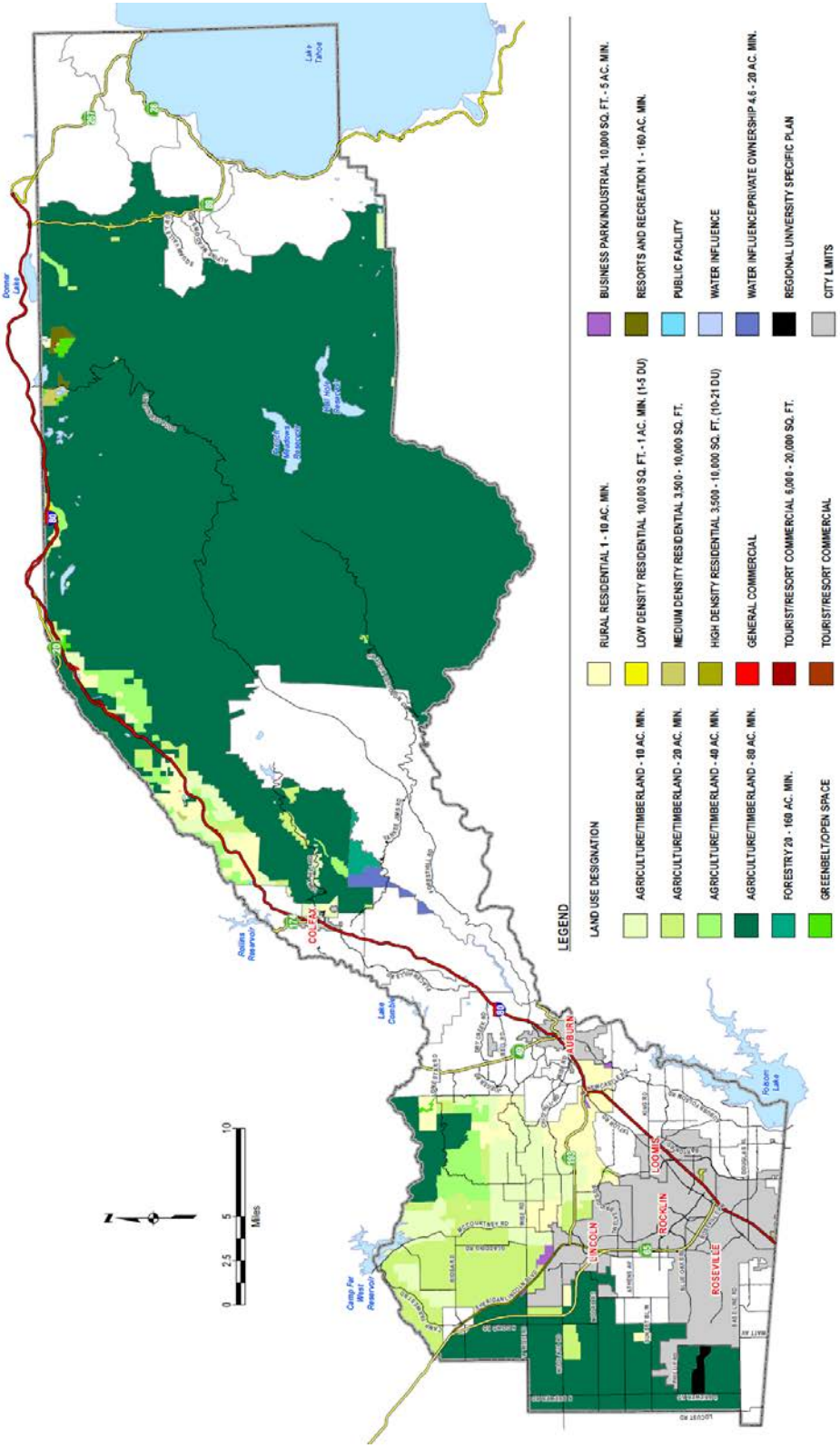
Figure 4-72 Placer County West – Future Development Areas



Property Use/Zoning

Future property use and growth management in Placer County aim to concentrate future development into and toward existing communities through various policies relating to zoning and minimum development standards and requirements. Zoning designations prescribe allowed property uses and minimum lot sizes for the purpose of supporting efficient infrastructure design, conservation of natural resources, and to avoid conflicting uses. Descriptions of allowed uses for each classification are detailed in the Placer County General Plan Land Use Element. Figure 4-73 is sourced from this section.

Figure 4-73 Placer County General Plan Land Use



Source: Placer County General Plan Land Use and Circulation Element

4.3.2. Placer County Vulnerability to Specific Hazards

The Disaster Mitigation Act regulations require that the HMPC evaluate the risks associated with each of the hazards identified in the planning process. This section summarizes the possible impacts and quantifies, where data permits, the Placer County Planning Area's vulnerability to each of the hazards identified as a priority hazard in Section 4.2.19 Natural Hazards Summary. Where specific hazards vary across the County, additional information can be found in the jurisdictional annexes. Based on information developed for the hazard profiles, the priority hazards evaluated further as part of this vulnerability assessment include:

- Agricultural Hazards
- Dam Failure
- Drought and Water Shortage
- Earthquake
- Flood: 100/200/500-year
- Flood: Localized/Stormwater Flooding
- Seiche (lake tsunami)
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rain and Storms
- Wildfire
- Hazardous Materials Transport

An estimate of the vulnerability of the Planning Area and Unincorporated County to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identified hazard can be counted and their values tabulated. Other information can be collected in regard to the hazard area, such as the location of critical community facilities, historic structures, and valued natural resources. Together, this information conveys the impact, or vulnerability, of that area to that hazard.

The HMPC identified four hazards in the Planning Area for which specific geographical hazard areas have been defined and for which sufficient data exists to support a quantifiable vulnerability analysis. These four hazards are earthquake, flood, wildfire, and hazardous materials transportation. Because these hazards have discrete hazard risk areas, their risk varies by jurisdiction. The vulnerability of the flood (100/500-year), wildfire, and hazardous materials transportation hazards were analyzed using GIS and County parcel and assessor data. The HMPC used FEMA's loss estimation software, HAZUS-MH, to analyze the County's vulnerability to earthquakes.

For flood (100/500 year) and wildfire, the HMPC inventoried the following for each community, to the extent possible, to quantify vulnerability in identified hazard areas:

- General hazard-related impacts, including impacts to life, safety, and health
- Assets at risk (i.e., types, numbers, and value of land and improvements)
- Identification of population at risk
- Identification of cultural and natural resources at risk
- Identification of critical facilities at risk
- Overall community impact
- Future development/development trends within the identified hazard area

For hazardous materials, the HMPC identified:

- General hazard-related impacts, including impacts to life, safety, and health
- Identification of population at risk
- Identification of critical facilities at risk

The vulnerability and potential impacts from priority hazards that do not have specific mapped areas nor the data to support additional vulnerability analysis are discussed in more general terms. These include:

- Agricultural Hazards
- Dam Failure
- Drought and Water Shortage
- Flood: Localized/Stormwater
- Seiche
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rain and Storms

The vulnerability sections below are presented alphabetically.

4.3.3. Agricultural Hazards Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—High

Given the importance of agriculture to Placer County, agricultural hazards continue to be an ongoing concern. The primary causes of agricultural losses are severe weather events, such as drought, freeze, and

insect infestations. According to the HMPC, agricultural losses occur on an annual basis throughout the County and are usually associated with these severe weather events.

According to the US Department of Agriculture (USDA), every year natural disasters, such as droughts, earthquakes, extreme heat and cold, floods, fires, earthquakes, hail, landslides, and tornadoes, challenge agricultural production. Because agriculture relies on the weather, climate, and water availability to thrive, it is easily impacted by natural events and disasters. Agricultural impacts from natural events and disasters most commonly include: contamination of water bodies, loss of harvest or livestock, increased susceptibility to disease, and destruction of irrigation systems and other agricultural infrastructure. These impacts can have long lasting effects on agricultural production including crops, forest growth, and arable lands, which require time to mature. Specific impacts by hazard are listed below:

- Drought's most severe effects on agriculture include water quality and quantity issues. Other impacts include decreased crop yields, impact to feed and forage, and altered plant populations.
- Earthquakes can strike without warning and cause dramatic changes to the landscape of an area that can have devastating impacts on agricultural production and the environment. These impacts could include loss of harvest or livestock and destruction of irrigation systems and other agricultural infrastructure.
- Extreme cold may result in loss of livestock, increased deicing, downed power lines, and increased use of generators. Deicing can impact agriculture by damaging local ecosystems and contaminating water bodies. Downed power lines cause people to run generators more often, which can release harmful air pollutants.
- Hot weather and extreme heat can worsen ozone levels and air quality as well as leading to drought conditions. Excessive heat and prolonged dry or drought conditions can impact agriculture by creating worker safety issues for farm field workers, severely damaging crops, and reducing availability of water and food supply for livestock.
- Wildfires can spread quickly and devastate thousands of acres of land, which may include agricultural lands. This devastation could lead to large losses in crops, forestry, livestock, and agricultural infrastructure.
- Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage to and from agricultural chemicals.
- Landslides and debris flow occur in all 50 states and commonly occur in connection with other major natural disasters such as earthquakes, volcanoes, wildfires, and floods. Some of the threats from landslides and debris flow include rapidly moving water and debris that can cause trauma; broken electrical, water, gas, and sewage lines; and disrupted roadways and railways. This can lead to agricultural impacts including contamination of water, change in vegetation, and harvest and livestock losses.
- Tornadoes can appear without much warning and have the potential to devastate an area very quickly. This devastation can impact agriculture by contaminating water and destroying crops, livestock, and other farm property.

In addition to threats to agriculture from weather events, agriculture in the County is at risk from invasive species. Establishment of an invasive species would be detrimental to the agricultural industry of Placer County because of product losses, stringent quarantine regulations, loss of exporting opportunities and

increased treatment costs. The introduction of exotic plants influences wildlife by displacing forage species, modifying habitat structure—such as changing grassland to a forb-dominated community—or changing species interactions within the ecosystem. In addition, invasive plants:

- Increase wildfire potential
- Reduce water resources
- Accelerate erosion and flooding
- Threaten wildlife
- Degrade rangeland, cropland, and timberland
- Diminish outdoor recreation opportunities.

Invasive plants cost California $82 million every year (2008 Cal-EPC). Estimates on exact yearly losses in Placer County varies and was not available for the County. Due to the economic value of crops in the County, invasive species have the ability to cause immense financial harm.

Future Development

Future development in the County is not likely to have an impact on agricultural hazards in Placer County.

4.3.4. Dam Failure Vulnerability Assessment

Likelihood of Future Occurrence—Jurisdictional Dams – Unlikely; Non-jurisdictional Dams - Occasional
Vulnerability—High

Dam failure flooding can occur as the result of partial or complete collapse of an impoundment. Dam failures often result from prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam.

A dam failure can range from a small, uncontrolled release to a catastrophic failure. Vulnerability to dam failures is confined to the areas subject to inundation downstream of the facility. Secondary losses would include loss of the multi-use functions of the facility and associated revenues that accompany those functions.

Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding. Based on the risk assessment, it is apparent that a major dam failure could have a devastating impact on the Planning Area. Dam failure flooding presents a threat to life and property, including buildings, their contents, and their use. Large flood events can affect crops and livestock as well as lifeline utilities (e.g., water, sewerage, and power), transportation, jobs, tourism, the environment, and the local and regional economies.

According to the Placer County General Plan Background Report, only four dams within Placer County have the potential to threaten more than 100 persons. According to the report, a catastrophic failure of any of these dams could have a significant impact on Placer County. The failure of any of these dams would cause downstream flooding and would likely result in loss of life and property. The potential magnitude of a dam failure depends on the time of year and the base flow of the river when the failure occurs. During the

winter months, when river flows are higher, the impact to the area would be much greater and evacuation times much less. Also identified in the Background report, four other dams in Placer County have the potential to threaten 100 or fewer persons, and two dams located outside of the County could threaten 100-200 people. Table 4-41 details the dams and area/population threatened from these dams.

Table 4-41 Major Dams with Potential to Impact the Placer County Planning Area

Dam	Stream	Capacity (Acre-feet)	Area Impacted	Population Threatened
Placer County				
Folsom Dikes 5 & 6	North Fork American River	1,120,000	Linda Creek, Cirby Creek and Dry Creek (City of Roseville); Elverta and Rio Linda (Sacramento County); possible failure of levees of the Natomas East Main Drainage Canal	25,352
Lake Tahoe	Truckee River	840,000	Contained within Truckee River floodway to Nevada County	1,000
Camp Far West	Bear River	425	Bear River sw to Sheridan; Hwy. 65; numerous local roads; Southern Pacific Railroad tracks	470
Lake Combie	Bear River	8,773	Bear River to Camp Far West Reservoir; Hwy. 49	200
Lake Valley	North Fork American River	993	PG&E Lodgepole Campground; developments along North Fork of American River;	100
North Fork	North Fork American River	14,700	Downstream areas	Recreationists*
French Meadows	Middle Fork American River	134,000	French Meadows Road; Hwy. 49 on the North Fork of the American River	20
Sugar Pine	North Shirttail Creek	10,964	Iowa Hill Road, Shirttail Canyon Road, Yankee Jim's Road	Recreationists*
Outside Placer County				
Rollins Reservoir	Bear River	45,410	Downstream areas	100-200
Stumpy Meadows	Fancher Creek & Hog Creek	9,600	Downstream areas	100-200

*Contingent on number of people recreating at the time of failure
Source: Placer County General Plan Background Report.

Inundation maps and Emergency Action Plans (EAP) prepared by dam owners are on file with the County, and for security purposes, can only be accessed through the Placer County OES. Placer County OES and PCSO Dispatch receive printed copies of Emergency Action Plans from FERC regulated dams as well as non-FERC dams such as PCWA & PGE. We received annual updates for the EAPs as well as participate in their scheduled annual drills and exercises. The EAPs contain warning levels, protocols/procedures for making notifications & evacuations, and mapping of affects areas downstream. In an event triggering the activation of the EAP and notification, Placer County OES normally receives direct phone calls from the originating source/agency or from PCSO Dispatch and or Cal OES. The County in turn, follows the

procedures in the EAPs to make the notification listed, if any. For warning to the public & evacuation procedures, County protocols are to use the local radio stations, TV news, and Everbridge, as well as using a helicopter to broadcast warnings/alerts via PA system and vehicle patrol units, if time and condition/safety permit. Placer County OES can also request the NWS to issue an EAS. The Placer County OES has also developed an evacuation plan that specifies emergency procedures for evacuation, control, and re-entry of areas at risk for possible dam inundation.

Future Development

Although new growth and development corridors would fall in the area flooded by a dam failure, given the limited potential of total dam failure and the large area that a dam failure would affect, development in the dam inundation area will continue to occur.

4.3.5. Drought and Water Shortage Vulnerability Assessment

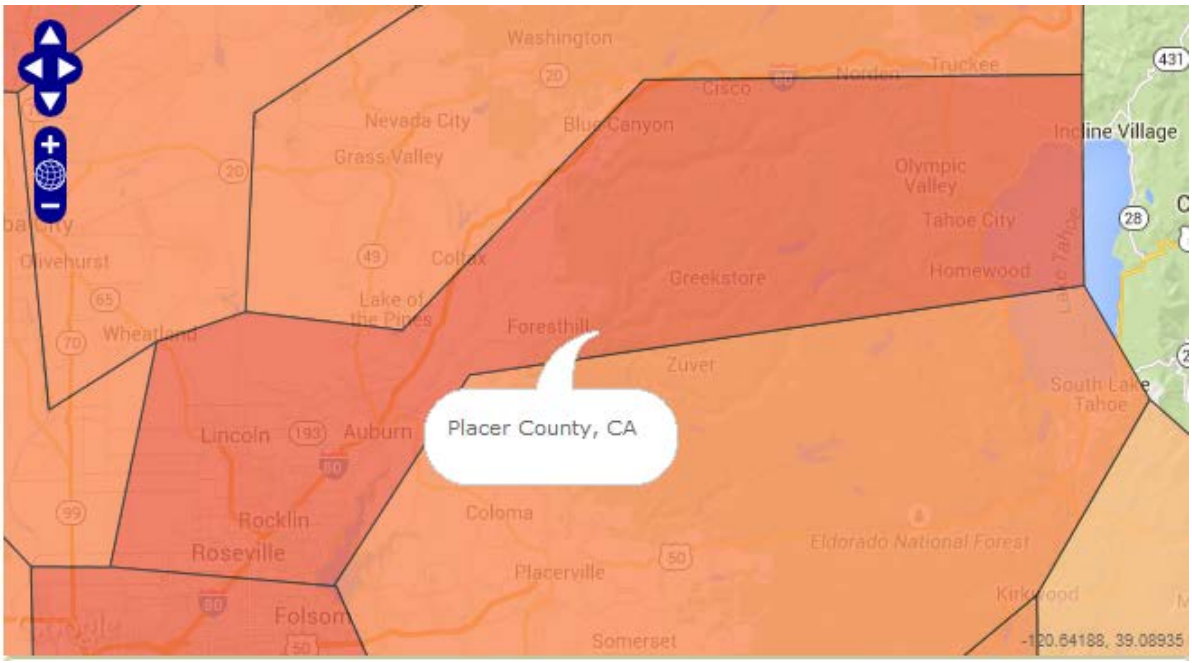
Likelihood of Future Occurrence—Drought - Likely; Water Shortage - Occasional
Vulnerability—Extremely High

Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue for agricultural, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

Based on historical information, the occurrence of drought in California, including Placer County, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts is often extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. The vulnerability of Placer County to drought is countywide, but impacts may vary and include reduction in water supply, agricultural losses, and an increase in dry fuels.

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Tracking drought impacts can be difficult. The Drought Impact Reporter from the NDMC is a useful reference tool that compiles reported drought impacts nationwide. Figure 4-74 and Table 4-42 show drought impacts for the Placer County Planning Area from 1850 to July 2015. The data represented is skewed, with the majority of these impacts from records within the past ten years.

Figure 4-74 Drought Impact Monitor for Placer County, 1850 to 2015



Source: National Drought Mitigation Center

Table 4-42 Placer County Drought Impacts

Category	Number of Impacts
Agriculture	530
Business and Industry	162
Energy	27
Fire	245
Plants & Wildlife	334
Relief, Response, and Restrictions	922
Society and Public Health	580
Tourism and Recreation	132
Water Supply and Quality	1,232
Total	**4,164**

Source: National Drought Mitigation Center

The most significant qualitative impacts associated with drought in the Planning Area are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. Mandatory conservation measures are typically implemented during extended droughts. A reduction of electric power generation and water quality deterioration are also potential problems. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

It is difficult to quantitatively assess drought impacts to Placer County because not many county-specific studies have been conducted. Some factors to consider include: the impacts of fallowed agricultural land, habitat loss and associated effects on wildlife, and the drawdown of the groundwater table. The most direct and likely most difficult drought impact to quantify is to local economies, especially agricultural economies. The State has conducted some empirical studies on the economic effects of fallowed lands with regard to water purchased by the State's Water Bank; but these studies do not quantitatively address the situation in Placer County. It can be assumed, however, that the loss of production in one sector of the economy would affect other sectors. This is especially true of agriculture in Placer County, which is highly vulnerable to drought conditions.

The drawdown of the groundwater table is one factor that has been recognized to occur during repeated dry years. Lowering of groundwater levels results in the need to deepen wells, which subsequently lead to increased pumping costs. These costs are a major consideration for residents relying on domestic wells and agricultural producers that irrigate with groundwater and/or use it for frost protection. Land subsidence can also occur when the groundwater table is depleted.

Drought and Bark Beetles

One of the specific vulnerabilities of drought in Placer County is the increased risk to trees from beetle kill. Bark beetles mine the inner bark (the phloem-cambial region) on twigs, branches, or trunks of trees and shrubs. This activity often starts a flow of tree sap in conifers, but sometimes even in hardwoods like elm and walnut. The sap flow (pitch tube) is accompanied by the sawdustlike frass created by the beetles. Frass accumulates in bark crevices or may drop and be visible on the ground or in spider webs. Small emergence holes in the bark are a good indication that bark beetles were present. Removal of the bark with the emergence holes often reveals dead and degraded inner bark and sometimes new adult beetles that have not yet emerged. Bark beetles frequently attack trees weakened by drought, disease, injuries, or other factors that may stress the tree. Bark beetles can contribute to the decline and eventual death of trees; however only a few aggressive species are known to be the sole cause of tree mortality (see Figure 4-75).

Figure 4-75 Monterey Pine Killed by Engraver Beetles

Source: University of California

In addition to attacking larger limbs, some species such as cedar and cypress bark beetles feed by mining twigs up to 6 inches back from the end of the branch, resulting in dead tips. These discolored shoots hanging on the tree are often referred to as "flagging" or "flags." (see Figure 4-76) Adult elm bark beetles feed on the inner bark of twigs before laying eggs. If an adult has emerged from cut logs or a portion of a tree that is infected by Dutch elm disease, the beetle's body will be contaminated with fungal spores. When the adult beetle feeds on twigs, the beetle infects healthy elms with the fungi that cause Dutch elm disease. Elms showing yellowing or wilting branches in spring may be infected with Dutch elm disease.

Figure 4-76 Flag Tips from Cypress Bark Beetle Feeding

Source: University of California

More information regarding beetle kill is discussed in the wildfire vulnerability in Section 4.3.12.

Future Development

According to the 2010 Urban Water Management Plan, Placer County has access to large quantities of water through surface water and water supplies purchased under an agreement with PG&E. However, population growth in the County will add additional pressure to water companies during periods of drought and water shortage. Water companies will need to continue to plan for and add infrastructure capacity for population growth.

4.3.6. Earthquake Vulnerability Assessment

Likelihood of Future Occurrence—Occasional
Vulnerability—Medium

Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable.

Ground shaking is the primary earthquake hazard. Many factors affect the survivability of structures and systems from earthquake-caused ground motions. These factors include proximity to the fault, direction of rupture, epicentral location and depth, magnitude, local geologic and soils conditions, types and quality of construction, building configurations and heights, and comparable factors that relate to utility, transportation, and other network systems. Ground motions become structurally damaging when average peak accelerations reach 10 to 15 percent of gravity, average peak velocities reach 8 to 12 centimeters per second, and when the Modified Mercalli Intensity Scale is about VII (18-34 percent peak ground acceleration), which is considered to be very strong (general alarm; walls crack; plaster falls).

Fault ruptures itself contributes very little to damage unless the structure or system element crosses the active fault. In general, newer construction is more earthquake resistant than older construction because of improved building codes and their enforcement. Manufactured housing is very susceptible to damage because their foundation systems are rarely braced for earthquake motions. Locally generated earthquake motions, even from very moderate events, tend to be more damaging to smaller buildings, especially those constructed of unreinforced masonry, as was seen in the Oroville, Coalinga, Santa Cruz, and Paso Robles earthquakes.

Common impacts from earthquakes include damage to infrastructure and buildings (e.g., crumbling of unreinforced masonry, failure of architectural facades, rupturing of underground utilities, and road closures). Earthquakes also frequently trigger secondary hazards, such as dam failures, landslides and rock falls, explosions, and fires that can become disasters themselves.

Various Hazus earthquake scenarios have been developed for the Planning Area as presented in the previous LHMPs. These scenarios still provide a valid representation of potential impacts to the Planning Area and are captured below.

Estimating Potential Losses

Earthquake losses will vary across the Placer County Planning Area depending on the source and magnitude of the event. The earthquake scenarios run for the 2005 LHMP for eastern and western Placer County provide a good estimate of loss to the Planning Area based on a realistic earthquake scenario. The results of these scenarios are reproduced below in Table 4-43. To further evaluate potential losses associated with earthquake activity in the Planning Area, a HAZUS-MH probabilistic earthquake scenario was run for the 2010 LHMP Update, using HAZUS-MH MR3.

2005 Earthquake Scenarios

HAZUS-MH was utilized to model earthquake losses for Placer County. Two different scenarios were chosen to represent two very distinct differences in earthquake hazards and vulnerabilities between eastern and western Placer County based on current and historic data. The division between eastern and western Placer County is not based on any identifiable boundary between the eastern and western portion of the County, but utilizes the faults with the greatest potential for a damaging earthquake in the County. For western Placer, the epicenter was located on a Late Quaternary age fault located in Auburn. For eastern Placer, the epicenter was located on a Holocene age fault submerged under Lake Tahoe. These scenarios are arbitrary “what if” events defined by the HMPC based on historical earthquake data in and around

Placer County. Specifically, the probable magnitude used for eastern Placer County was based on recent (1999) data on earthquake hazards in the Lake Tahoe basin. The probable magnitude used for western Placer County utilized the 5.7 magnitude of the Oroville earthquake, which had the greatest historical impact to the western portion of the County. Level 1 analyses were run, meaning that only the default data was used and not supplemented with local building inventory or hazard data. There are certain data limitations when using the default data, so the results should be interpreted accordingly; this is a planning level analysis. The two scenarios were defined as follows:

Eastern Placer County Scenario

- Epicenter located on Holocene age (200-10,000 years old) fault submerged under Lake Tahoe (Lat: 39.15; Long: -120.05)
- 6.9 Magnitude at 32 km (20 miles) depth

According to HAZUS this moderate sized event in eastern Placer County could induce significant economic loss in the vicinity of $125.4 million.

Western Placer County Scenario

- Epicenter located on a Late Quaternary age (10,000-700,000 years old) fault located in Auburn (Lat: 38.89; Long: -121.08)
- 5.7 Magnitude at 8 km (5 miles) depth.

According to HAZUS this moderate sized event could induce significant economic loss in the vicinity of $217.81 million. Table 4-43 summarizes these results.

Table 4-43 HAZUS-MH Earthquake Scenario Results

Impacts/Earthquake	Eastern Placer County M5.7/Depth 5 miles	Western Placer County M6.9/ Depth 20 miles
Residential Bldgs. Damaged (Based upon buildings)	Slight: 4,640 Moderate: 1,585 Extensive: 130 Complete: 28	Slight: 9,264 Moderate: 2,641 Extensive: 304 Complete: 22
Injuries (Based upon 2pm time of occurrence)	Without requiring hospitalization: 31 Requiring hospitalization: 6 Life Threatening: 1 Fatalities: 2	Without requiring hospitalization: 35 Requiring hospitalization: 5 Life Threatening: 1 Fatalities: 1
Displaced Households	36	78
Economic Loss	Property and Lifeline Damage: $125.40M	Property and Lifeline Damage: $217.81M
Damage to Schools (Based upon 26 buildings)	None with at least moderate damage	None with at least moderate damage
Damage to Hospital	None with at least moderate damage	None with at least moderate damage
Damage to Transportation Systems	None with at least moderate damage	None with at least moderate damage

Impacts/Earthquake	Eastern Placer County M5.7/Depth 5 miles	Western Placer County M6.9/ Depth 20 miles
Households w/out Power & Water Service (Based upon 7,211 households)	No loss of power Water loss @ Day 1: 126 Water loss @ Day 3: 0 Water loss @ Day 7: 0 Water loss @ Day 30: 0	No loss of power No loss of water

Source: Placer County

2008 Earthquake Scenario

The methodology for running the probabilistic earthquake scenario used probabilistic seismic hazard contour maps developed by the U.S. Geological Survey (USGS) for the 2002 update of the National Seismic Hazard Maps that are included with HAZUS-MH. The USGS maps provide estimates of potential ground acceleration and spectral acceleration at periods of 0.3 second and 1.0 second, respectively. The 2,500 year return period analyzes ground shaking estimates with a 2 percent probability of being exceeded in 50 years, from the various seismic sources in the area. The International Building Code uses this level of ground shaking for building design in seismic areas and is more of a worst case scenario.

The results of the probabilistic scenario are captured in Table 4-44. Key losses included the following:

- Total economic loss estimated for the earthquake was $2.5 billion, which includes building losses and lifeline losses based on the HAZUS-MH inventory.
- Building-related losses, including direct building losses and business interruption losses, totaled $2.35 billion.
- Over 20 percent of the buildings in the County were at least moderately damaged. 941 buildings were completely destroyed.
- Over 60 percent of the building- and income-related losses were residential structures.
- 13 percent of the estimated losses were related to business interruptions.
- The mid-day earthquake caused the most casualties: 728.
- 68 percent of the households experienced a loss of potable water the first day after the earthquake.

Table 4-44 HAZUS-MH Earthquake Loss Estimation 2,500-Year Scenario Results

Type of Impact	Impacts to County
Total Buildings Damaged	Slight: 31,833 Moderate: 17,031 Extensive: 3,360 Complete: 941
Building and Income Related Losses	$2.35 billion 62 percent of damage related to residential structures 13 percent of loss due to business interruption
Total Economic Losses (Includes building, income and lifeline losses)	$2.5 billion
Casualties (Based on 2 a.m. time of occurrence)	Without requiring hospitalization: 335 Requiring hospitalization: 57 Life threatening: 5 Fatalities: 8

Type of Impact	Impacts to County	
Casualties (Based on 2 p.m. time of occurrence)	Without requiring hospitalization: 728 Requiring hospitalization: 179 Life threatening: 27 Fatalities: 51	
Casualties (Based on 5 p.m. time of occurrence)	Without requiring hospitalization: 580 Requiring hospitalization: 168 Life threatening: 89 Fatalities: 47	
Damage to Transportation Systems	13 highway bridges, moderate damage 1 airport facility, moderate damage $37.5 million in economic losses	
Damage to Essential Facilities	No facilities with at least moderate damage >50 percent; 2 hospitals, 98 schools, 10 police stations, 12 fire stations with functionality >50 percent on day 1	
Damage to Utility Systems	1 utility system facility with at least moderate damage Potable water breaks: 1,089 Wastewater breaks: 861 Natural gas breaks: 920 $117.4 million economic losses	
Households without Power/Water Service (Based on 252,940 total households)	Power loss, Day 1: 4,727 Power loss, Day 3: 2,875 Power loss, Day 7: 1,150 Power loss, Day 30: 215 Power loss, Day 90: 7	Water loss, Day 1: 63,234 Water loss, Day 3: 61,312 Water loss, Day 7: 57,022 Water loss, Day 30: 17,529 Water loss, Day 90: 0
Displaced Households	1,060	
Shelter Requirements	634	
Debris Generation	0 million tons	

Source: HAZUS-MH MR3

Future Development

Although new growth and development corridors would fall in the area affected by earthquake, given the small chance of major earthquake and the building codes in effect, development in the earthquake area will continue to occur.

4.3.7. Flood: 100/500 year Vulnerability Assessment

Likelihood of Future Occurrence—100-year – Occasional; 500-year - Unlikely
Vulnerability—High

Flooding is a significant problem in Placer County. Historically, the Placer County Planning Area has been at risk to flooding primarily during the winter and spring months when river systems in the County swell with heavy rainfall and snowmelt runoff. Normally, storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage. Flooding has occurred both within the 100- and 500-year floodplains and in other localized areas.

Historically, much of the growth in the County has occurred adjacent to streams, resulting in significant damages to property, and losses from disruption of community activities when the streams overflow. Additional development in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase in stormwater runoff. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

Flood Hazard Assessment

This risk assessment for the Placer County LHMP Update assessed the flood hazard specific to Placer County. This included an evaluation of multiple flood hazards including the Special Flood Hazard Area (SFHA) shown on the DFIRM; Repetitive Loss (RL) Areas; localized, stormwater flooding areas; other areas that have flooded in the past, but not identified on the DFIRM; other areas of shallow flooding identified through other studies and sources; levee failure flooding; dam failure flooding; seiche-related flooding; and mudflow flooding especially in significant post-burn areas. This comprehensive flood risk assessment included an assessment of less-frequent flood hazards, areas likely to be flooded, and flood problems that are likely to get worse in the future as a result of changes in floodplain development and demographics, development in the watershed, and climate change or sea level rise. Existing studies, maps, historical data, and federal, state, and local community expertise and knowledge contributed to this current flood assessment for Placer County. An evaluation of the success of completed and ongoing flood control projects and associated maintenance aspects contributed to this flood hazard assessment and the resulting flood mitigation strategy for the Placer County planning area. This flood risk assessment for this LHMP Update includes an assessment of future flooding conditions based on historic development in the floodplains and proposed future development as further described throughout this plan. Due to GIS mapping constraints, the remainder of this flood vulnerability assessment focuses on the flood hazard based on the updated FEMA DFIRMs.

Assets at Risk

Unincorporated Placer County and its incorporated jurisdictions have mapped FEMA flood hazard areas. GIS was used to determine the possible impacts of flooding within the County and how the risk varies across the Planning Area. The following methodology was followed in determining improved parcel counts and assets at risk to the 1% annual chance flood event and 0.2% annual chance flood events. Analysis on assets at risk to floods in the County is provided for two different areas in this base plan:

- Placer County Planning Area
- Unincorporated Placer County

The Placer County Planning Area includes both the unincorporated County and each jurisdiction, essentially the entire geographical area of Placer County. Summary tables for the Planning Area are presented below. For the unincorporated County, both summary and detail tables are shown and discussed below. Detail tables for the participating jurisdictions are included in their respective annexes to this plan.

Methodology

Placer County's 2015 parcel layer and Assessor's data were used as the basis for the countywide inventory of developed parcels, acres, and values. Placer County has a preliminary FEMA DFIRM dated March 29, 2010 which was utilized to perform the flood analysis.

In some cases there are parcels in multiple flood zones, such as Zone A, Zone X, or Shaded X. GIS was used to create a centroid, or point representing the center of the parcel polygon. DFIRM flood data was then overlaid on the parcel layer. For the purposes of this analysis, the flood zone that intersected a parcel centroid was assigned the flood zone for the entire parcel. The parcels were segregated and analyzed in this fashion for the entire Placer County Planning Area.

The model assumes that every parcel with a structure or other improved value greater than zero is improved in some way. This approach was used to support the parcel layer analysis as there was no associated building layer available for this analysis. Once completed, the parcel boundary layer was joined to the centroid layer and values were transferred based on the identification number in the Assessors database and the GIS parcel layer.

The property use summary categories (derived from the Use Code categories) previously assigned to the detailed assessor database were used to develop content value and show potential loss from hazards. Content values estimations are based on FEMA Hazus methodologies, which estimates value as a percent of improved structure values by property type/use. Table 4-45 shows the breakdown of the different property types in Placer County and their estimated content replacement value percentages.

Table 4-45 Content Replacement Factors

Property Use	Content Replacement Values
Residential	50%
Agricultural	100%
Commercial	100%
Institutional	100%
Other	100%
Industrial	150%
Vacant Land	0%

Source: Hazus

The loss estimate for flood is based on the total of improved and contents value. Improved parcels include those with structures as well as other improvements identified in the Assessor's database such as mobile homes and winery equipment. Only improved parcels and the value of their improvements were included in the flood loss analysis. The value of land is not included in the loss estimates as generally the land is not at loss to floods, just the value of improvements and structure contents. The land value is represented in the detailed flood tables, but are only present to show the value of the land associated with each flood zone.

Once the potential value of affected parcels was calculated, a damage factor was applied to obtain loss estimates by flood zone. When a flood occurs, seldom does the event cause total destruction of an area.

Potential losses from flooding are related to a variety of factors including flood depth, flood velocity, building type, and construction. The percent of damage is primarily related to the flood depth. FEMA's flood benefit/cost module uses a simplified approach to model flood damage based on building type and flood depth. The assets at risk in the flood analysis tables were refined by applying an average damage estimation of 20% of the total building value. The 20% damage estimate utilized FEMA's Flood Building Loss Table based on an average flood depth of 2 feet.

It also should be noted that the resulting flood loss estimates may actually be more or less than that presented in the below tables as the Planning Area may include structures located on parcels within the 100-year floodplain that are actually outside the floodplain boundaries or otherwise elevated at or above the level of the base flood elevation, according to local floodplain development requirements. Also, it is important to keep in mind that these assessed values may be well below the actual market value of improved parcels located within the 100-year floodplain.

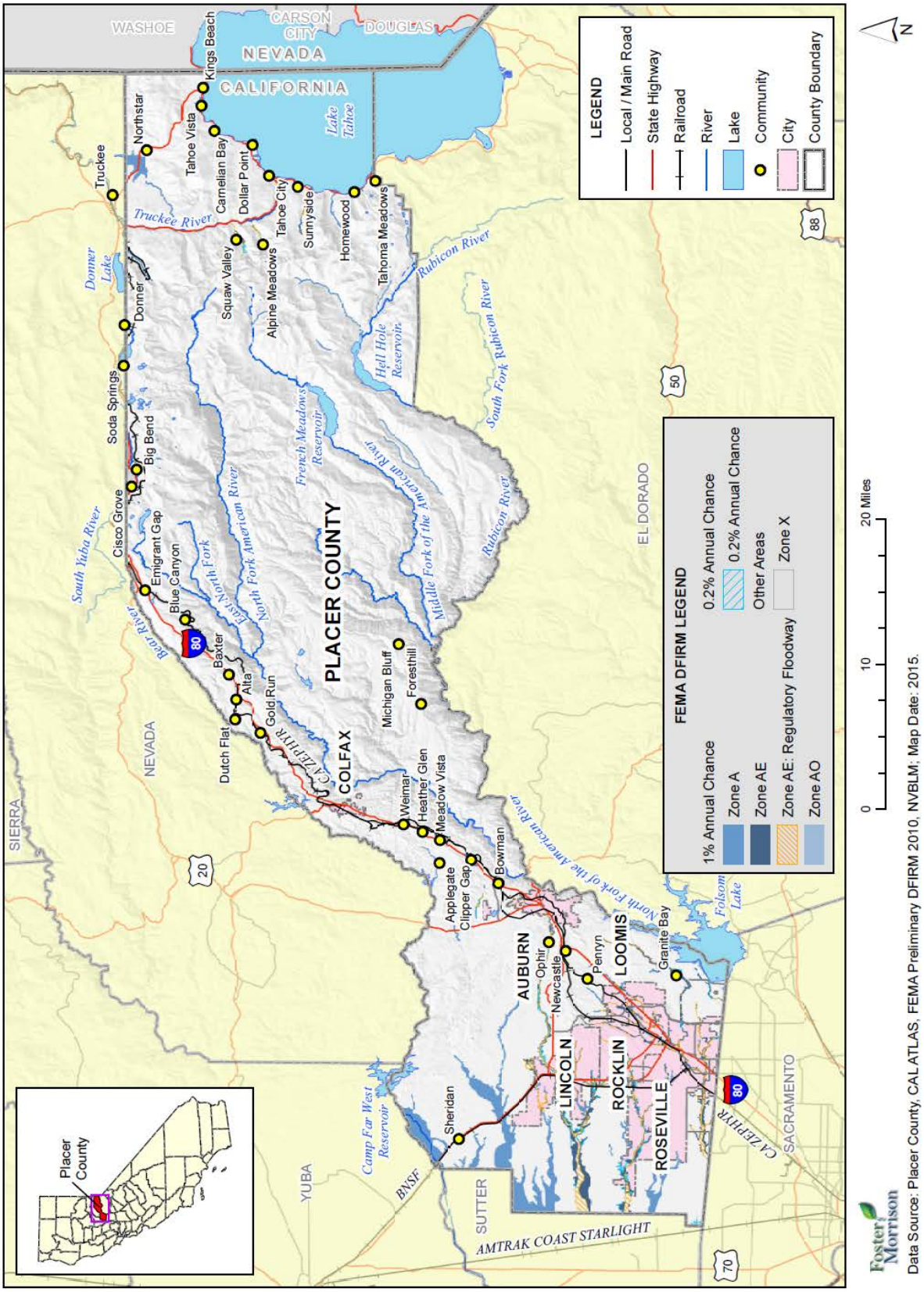
Each of the DFIRM flood zones that begins with the letter 'A' depict the Special Flood Hazard Area, or the 1% annual chance flood event (commonly referred to as the 100-year flood). Table 4-46 explains the difference between DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the Planning Area. The effective DFIRM maps for the Placer County Planning Area are shown on Figure 4-77.

Table 4-46 Placer County Planning Area – DFIRM Flood Hazard Zones

Flood Zone	Description
A	100-year Flood: No base flood elevations provided
AE	100-year Flood: Base flood elevations provided
AO	Areas subject to inundation by 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet.
Shaded X	500-year flood the areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood
X	No flood hazard

Source: FEMA

Figure 4-77 Placer County Planning Area – DFIRM Flood Zones



The end result of the flood hazard analysis is an inventory of the numbers, types, and values of parcels subject to the flood hazard. Results are presented here first for the Placer County Planning Area and secondly for unincorporated County. Results for the incorporated jurisdictions are presented in their annexes to the plan.

In addition to the centroid analysis used to obtain numbers of parcels and assets at risk to flood hazards, parcel boundary analysis was performed to obtain total acres and flooded acres by flood zone for each parcel. The parcel layer was intersected with the FEMA DFIRM data to obtain the acres flooded. The results of the flooded acres analysis methodology and results are presented at the end of this section.

Placer County Planning Area

Table 4-47 and Table 4-48 contain flood analysis results for the entire Placer County Planning Area. This includes unincorporated Placer County and the incorporated jurisdictions. These tables show the number of parcels and assets at risk to the 1% and 0.2% annual chance event for the entire Placer County Planning Area. Table 4-47 shows the value of improved parcels by jurisdiction. Table 4-48 shows the improved parcels by property use category in each flood zone for the entire Planning Area.

Table 4-47 Placer County Planning Area – Count and Improved Value of Parcels in Flood Zone by Jurisdiction

	1% Annual Chance			0.2% Annual Chance		
Jurisdiction	Total Parcel Count*	Improved Parcels*	Total Improved Value	Total Parcel Count	Improved Parcels	Total Improved Value
Auburn	43	18	$5,307,326	0	0	$0
Colfax	0	0	$0	0	0	$0
Lincoln	114	19	$14,766,193	54	49	$6,595,122
Loomis	135	114	$24,222,937	14	13	$1,991,622
Rocklin	238	168	$63,080,444	89	79	$12,450,668
Unincorporated	2,042	1,118	$264,765,594	325	303	$84,401,409
Total	**2,572**	**1,437**	**$372,142,494**	**482**	**444**	**$105,438,821**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

Table 4-48 Placer County Planning Area – Count and Improved Value by Property Use and 1% and 0.2% Annual Chance Flood Zone

Property Use	1% Annual Chance Flood Zone			0.2% Annual Chance Flood Zone		
	Total Parcel Count*	Improved Parcel Count*	Total Improved Value	Total Parcel Count	Improved Parcel Count	Total Improved Value
Agricultural	82	16	$984,229	2	0	$0
Commercial	588	34	$24,408,867	36	8	$7,611,434
Industrial	124	20	$29,659,702	9	4	$3,021,798
Institutional	75	0	$0	3	1	$88,383
Natural/ Open	272	164	$13,795,221	1	1	$2,857,778
Residential	1,431	1,203	$303,294,475	431	430	$91,859,428
Total	**2,572**	**1,437**	**$372,142,494**	**482**	**444**	**$105,438,821**

Source: Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

Table 4-49 shows potential losses summarized by the 1% and 0.2% annual chance flood event with loss estimate and loss ratios for the Planning Area. The loss ratio is the loss estimate divided by the total potential exposure (i.e., total of improved and contents value for all parcels located in the Planning Area) and displayed as a percentage of loss. FEMA considers loss ratios greater than 10% to be significant and an indicator that a community may have more difficulties recovering from a flood. The County should keep in mind that the loss ratio could increase with additional development in the 1% and 0.2% annual chance floodplain, unless development is elevated in accordance with the local floodplain management ordinance.

Table 4-49 Placer County Planning Area – Flood Loss Estimates

Flood Zone	Improved Parcel Count*	Total Improved Value	Estimated Contents Value	Total Value	Loss Estimate	Loss Ratio
1% Annual Chance	1,437	$372,142,494	$235,325,088	$607,467,582	$121,493,516	0.30%
0.2% Annual Chance	444	$105,438,821	$61,020,009	$166,458,830	$33,291,766	0.08%
Total	**1,881**	**$477,581,315**	**$296,345,097**	**$773,926,412**	**$154,785,282**	**0.38%**

Source: Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

According to the information in Table 4-47 through Table 4-49, the Placer County Planning Area has 1,437 improved parcels and roughly $607 million of structure and contents value in the 1% annual chance floodplain. There are 444 improved parcels and roughly $166 million of structure and contents value in the 0.2% annual chance flood event. A loss ratio of 0.38% indicates that while the County does have assets at risk, those asset values do not indicate a disproportionate number of assets in the FEMA regulated floodplains.

Unincorporated Placer County

Table 4-50 and Table 4-51 contain information for unincorporated Placer County only. Table 4-50 shows the number of improved parcels and associated structure and other improved assets at risk to the each of the FEMA flood zones using the DFIRM data in the unincorporated areas and Table 4-51 shows potential losses summarized by 1% and 0.2% annual chance flood events with loss estimates and loss ratios.

Table 4-50 Unincorporated Placer County– Count and Improved Value by Property Use and Detailed Flood Zone

Flood Zone	Property Use	Total Parcel Count *	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value**
A	Agricultural	58	$32,253,440	9	$321,156	$32,574,596
	Commercial	307	$8,342,528	13	$4,078,137	$12,420,665
	Industrial	67	$5,120,291	6	$1,634,916	$6,755,207
	Institutional	34	$0	0	$0	$0
	Natural/Open	220	$2,567,661	163	$13,779,261	$16,346,922
	Residential	766	$141,035,570	560	$136,417,203	$277,452,773
	Totals	**1,452**	**$189,319,490**	**751**	**$156,230,673**	**$345,550,163**
AE	Agricultural	22	$13,467,179	7	$663,073	$14,130,252
	Commercial	132	$10,260,037	5	$1,183,774	$11,443,811
	Industrial	18	$954,974	0	$0	$954,974
	Institutional	39	$0	0	$0	$0
	Natural/Open	11	$1,114,605	0	$0	$1,114,605
	Residential	366	$74,193,066	353	$106,537,386	$180,730,452
	Total	**588**	**$99,989,861**	**365**	**$108,384,233**	**$208,374,094**
AO	Agricultural	0	$0	0	$0	$0
	Commercial	0	$0	0	$0	$0
	Industrial	0	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	2	$59,095	2	$150,688	$209,783
	Total	**2**	**$59,095.00**	**2**	**$150,688**	**$209,783**
Shaded X	Agricultural	2	$82,987	0	$0	$82,987
	Commercial	20	$4,678,307	5	$5,357,720	$10,036,027
	Industrial	7	$1,582,367	4	$3,021,798	$4,604,165
	Institutional	2	$0	0	$0	$0

Flood Zone	Property Use	Total Parcel Count *	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value**
	Natural/Open	1	$99,993	1	$2,857,778	$2,957,771
	Residential	293	$41,842,494	293	$73,164,113	$115,006,607
	Total	**325**	**$48,286,148**	**303**	**$84,401,409**	**$132,687,557**
X	Agricultural	653	$199,366,223	145	$24,836,288	$224,202,511
	Commercial	11,437	$1,055,286,243	1,135	$634,197,752	$1,689,483,995
	Industrial	1,022	$162,384,105	316	$223,140,409	$385,524,514
	Institutional	584	$20,625,025	93	$182,302,503	$202,927,528
	Natural/Open	1,014	$92,808,562	93	$74,267,562	$167,076,124
	Residential	54,165	$7,339,354,862	48,533	$13,795,222,836	$21,134,577,698
	Total	**68,875**	**$8,869,825,020**	**50,315**	**$14,933,967,350**	**$23,803,792,370**
Grand Totals		**71,242**	**9,207,479,614**	**51,736**	**15,283,134,353**	**24,490,613,967**

Source: FEMA Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

**With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**Land and structure values

Table 4-51 Unincorporated Placer County – Flood Loss Estimates

Flood Zone	Improved Parcel Count*	Improved Structure Value	Estimated Contents Value	Total Value	Loss Estimate	Loss Ratio
1% Annual Chance	1,118	$264,765,594	$144,030,395	$408,795,989	$81,759,198	0.33%
0.2% Annual Chance	303	$84,401,409	$49,330,253	$133,731,662	$26,746,332	0.11%
Total	**1,421**	**$349,167,003**	**$193,360,648**	**$542,527,651**	**$108,505,530**	**0.44%**

Source: FEMA Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

According to Table 4-50 and Table 4-51, unincorporated Placer County has 1,118 improved parcels and roughly $409 million of structure and contents value in the 1% annual chance floodplain. The unincorporated County has 303 parcels and roughly $133 million in structure and contents values in the 0.2% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described, there is a 1% chance in any given year of a flood event causing roughly $81,759,198 in damage in the unincorporated areas of Placer County. Applying the same factor, there is a 0.2% chance of a flood event causing $108,505,530 in damage to the unincorporated County (since the 500-year floodplain also encompasses the 100-year floodplain). A loss ratio of 0.44% indicates that while the unincorporated County has assets at risk in the floodplain, flood losses would be limited compared to the total built environment and the community would likely be able to recover adequately.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the County in comparison to total area within the unincorporated county and city limits of each jurisdiction.

Methodology

GIS was used to calculate acres flooded by FEMA flood zones and property use categories. The Placer County parcel layer and effective DFIRM were intersected, and each segment divided by the intersection of flood zone and parcels was calculated for acres. This process was conducted for 1% flood chance areas, with each segment being defined by zone type (A, AE, AO) and acres, and the process repeated for 0.2% flood chance areas. The resulting data tables with flooded acreages were then imported into a database and linked back to the original parcels, including total acres and land/improvement values, by parcel number. Once this was completed, each parcel contained acreage values for flooded acre by zone type within the parcel. In some cases, a single parcel had multiple flooded acres values (e.g. parcels overlapping a 1%-0.2% flood chance boundary). In the tables below each flood zone is represented and then split out by property use, their total flooded acres, total improved acres, and percent of improved acres that are flooded.

Limitations

One limitation created by this type of analysis is that improvements are uniformly found throughout the parcel, while in reality, only portions of the parcel are improved, and improvements may or may not fall within the flood zone portion of a parcel; thus, areas of improvements flooded calculated through this method may be higher or lower than those actually seen in a similar real world event.

The following tables represent a detailed and summary analysis of total acres for each FEMA DFIRM flood zone. Table 4-52 gives summary information for the Planning Area. Table 4-53 gives detailed information by property use for the unincorporated County. This information is available for each jurisdiction in their respective annexes.

Table 4-52 Placer County Planning Area – Flooded Acres

Jurisdiction	Flood Zone	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
Auburn	1% Annual Chance	72.71	10.15	14.0%
	0.2% Annual Chance	-	-	0.0%
Colfax	1% Annual Chance	-	-	0.0%
	0.2% Annual Chance	-	-	0.0%
Lincoln	1% Annual Chance	1,192.63	188.32	15.8%
	0.2% Annual Chance	14.70	11.37	77.4%
Loomis	1% Annual Chance	166.73	131.25	78.7%
	0.2% Annual Chance	16.26	15.64	96.2%
Rocklin	1% Annual Chance	661.68	149.78	22.6%

Jurisdiction	Flood Zone	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
	0.2% Annual Chance	26.34	16.27	61.8%
Unincorporated County	1% Annual Chance	33,978.12	10,305.50	30.3%
	0.2% Annual Chance	407.38	253.51	62.2%
TOTALS	1% Annual Chance	**36,071.86**	**10,785.00**	**29.9%**
	0.2% Annual Chance	**464.68**	**296.80**	**63.9%**

Source: Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

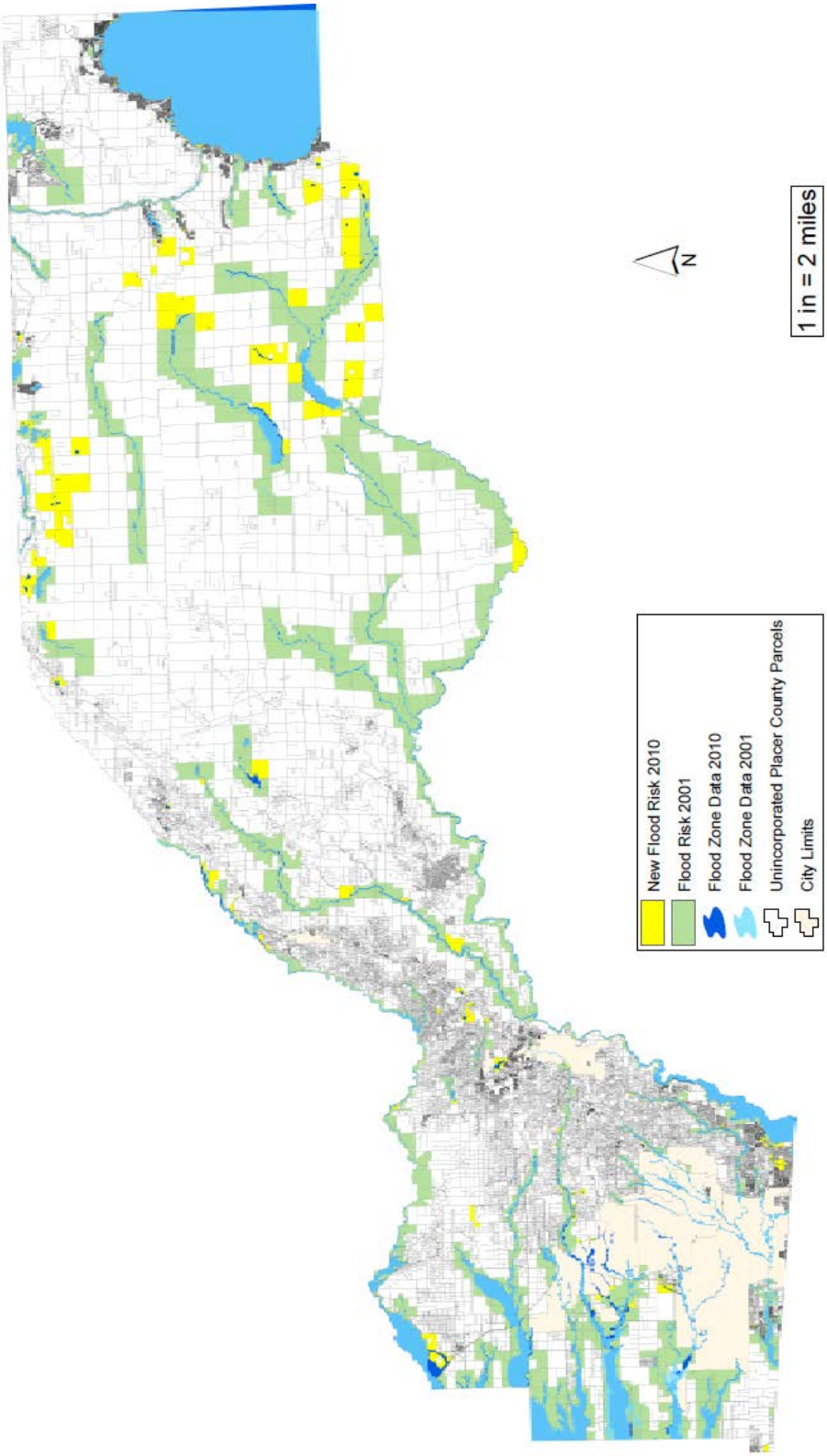
Table 4-53 Unincorporated Placer County – Flooded Acres by Property Use and Detailed Flood Zone

Flood Zone	Property Use	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
A	Agricultural	6,707.12	1,769.42	26.4%
	Commercial	7,958.12	112.33	1.4%
	Industrial	1,352.63	81.53	6.0%
	Institutional	1,069.50	0	0.0%
	Natural/Open	3,316.28	345.06	10.4%
	Residential	7,053.61	5,044.03	71.5%
AE	Agricultural	2,147.01	847.87	39.5%
	Commercial	929.43	4.19	0.0%
	Industrial	66.84	0	0.0%
	Institutional	58.99	0	0.0%
	Natural/Open	160.66	0	0.0%
	Residential	3,157.37	2,100.50	66.5%
AO	Agricultural	0	0	0.0%
	Commercial	0	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0.56	0.56	100.0%
Total 1%		**33,978.12**	**10,305.50**	**30%**
Shaded X	Agricultural	49.42	0	0.0%
	Commercial	109.95	33.34	30.3%
	Industrial	25.41	7.86	31.0%
	Institutional	10.30	0	0.0%
	Natural/Open	0.30	0.30	100.0%
	Residential	212.01	212.01	100.0%
Total 0.2%		**407.38**	**253.51**	**62.2%**

Source: Preliminary DFIRM 2010, Placer County 2015 Parcel/Assessor's Data

Figure 4-78 below represents a review of data for the difference in the current FEMA maps (2001) and the preliminary 2010 DFIRMs. Placer County digitized the 2001 paper maps, and then performed a review based on a comparison to the preliminary 2010 DFIRMs. Placer County is working on finalizing the 2010 DFIRM's with FEMA. An updated version was released Oct 2015: however, this LHMP was nearly complete and utilized the 2010 version for all flood analysis. Finalized maps are expected in March 2017. Based on the differences between the 2001 maps analyzed in the 2010 plan and this 2016 plan update, new areas with detailed mapping are Pleasant Grove Creek, Auburn Ravine, Strap Ravine and Linda Creek as well as Lake Tahoe.

Figure 4-78 Comparison of 2001 to 2010 FEMA Flood Maps for Unincorporated Placer County



Source: Placer County

Insurance Coverage, Claims Paid, and Repetitive Losses

Unincorporated Placer County joined the NFIP on April 18, 1983, and the CRS on October 1, 1991. There current effective date is May 1, 2009. According to the CRS listing of eligible communities dated May 1, 2014, the County is currently a Class 5, which provides a 25 percent discount on flood insurance for those located within the special flood hazard area (SFHA) and a 10 percent discount for those located in non-SFHA areas.

NFIP insurance data indicates that as of September 30, 2015, there were 568 policies in force in the unincorporated County, resulting in $163,034,100 of insurance in force. Of these, 546 are for residential properties; 22 are nonresidential. 201 of these are in A zones; 367 policies are for parcels in the B, C, & X zones.

There have been 167 closed paid losses totaling $4,154,874.85; 161 of these were for residential properties and 6 were nonresidential. Of these 167 paid losses, 86 were parcels in A zones and 79 parcels were in B, C, & X zones. Information was not provided on the other 2 claims. Of the 167 claims, 133 claims were associated with pre-FIRM structures and 32 with post-FIRM structures; 2 claims unknown. There have been 16 substantial damage claims since 1978.

Based on this analysis of insurance coverage, unincorporated Placer County has significant assets at risk to the 100-year and greater floods. Of the 1,118 improved parcels within the 100-year floodplain, only 201 (or 18 percent) of those parcels maintain flood insurance. This can be seen on Table 4-54.

Table 4-54 Placer County Planning Area – Percentages of Policy Holders to Parcels in the 1% Annual Chance Floodplain

Jurisdiction	Improved Parcels in 1% Annual Chance Floodplain*	Insurance Policies in the A (1% Annual Chance) Zone	Percentage of 1% Annual Chance Floodplain Parcels Currently Insured
City of Auburn	18	9	50%
City of Colfax	0	0	N/A
City of Lincoln	19	1	5.3%
Town of Loomis	114	48	42.1%
City of Rocklin	168	151	89.9%
Unincorporated County	1,118	201	18%
Total	**1,437**	**410**	**28.5%**

Source: FEMA; 9/30/2015

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

Repetitive Loss Analysis

Unincorporated Placer County's vulnerability to flooding can be seen in the number of Repetitive Loss properties. Based on the April 16, 2015 NFIP data, there are nine repetitive loss buildings in the County, but only one of these repetitive loss structures is a post-FIRM structure. There are no severe repetitive losses. This can be seen in Figure 4-79 and Table 4-55.

Figure 4-79 Placer County Planning Area – Repetitive Loss Properties

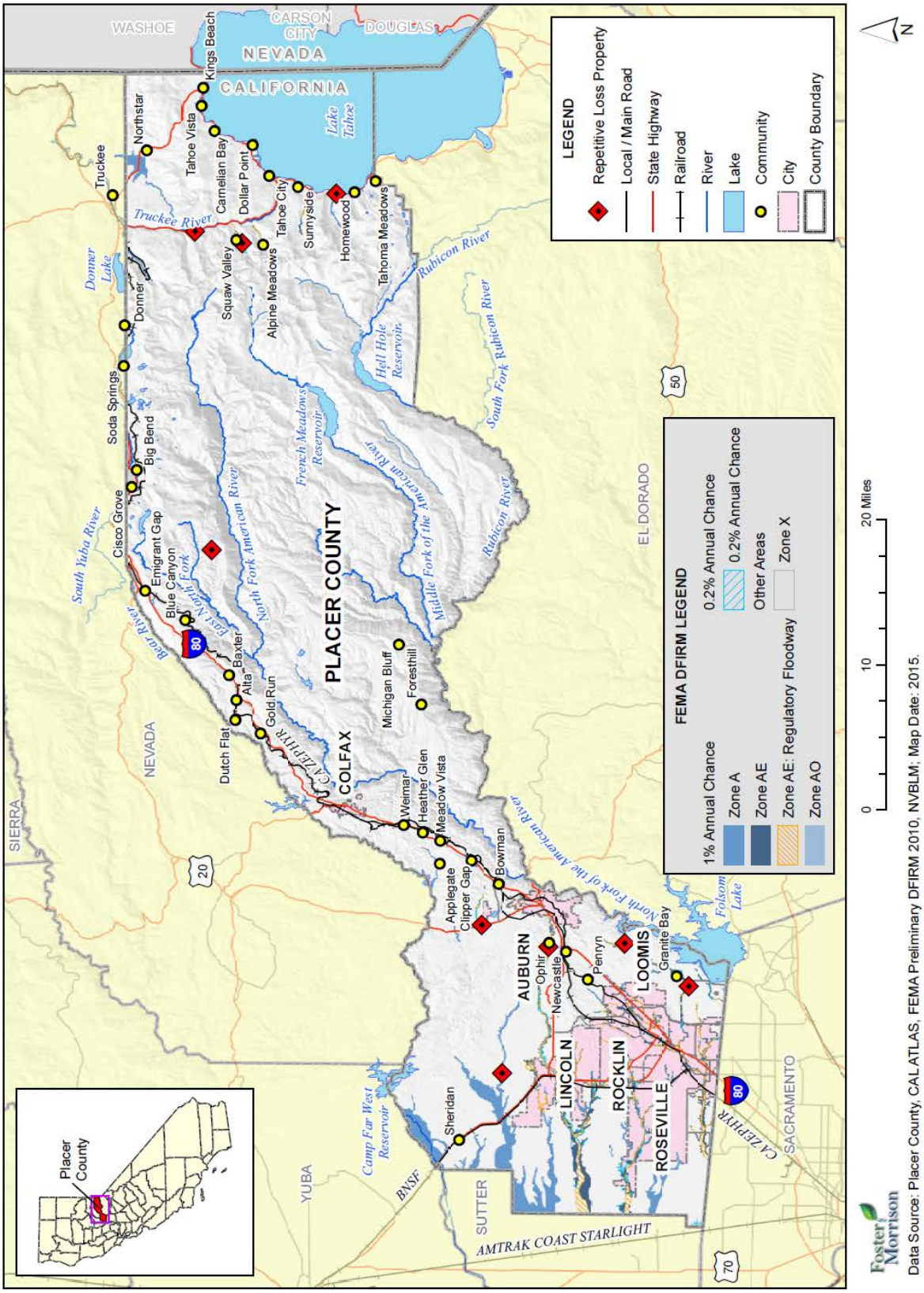


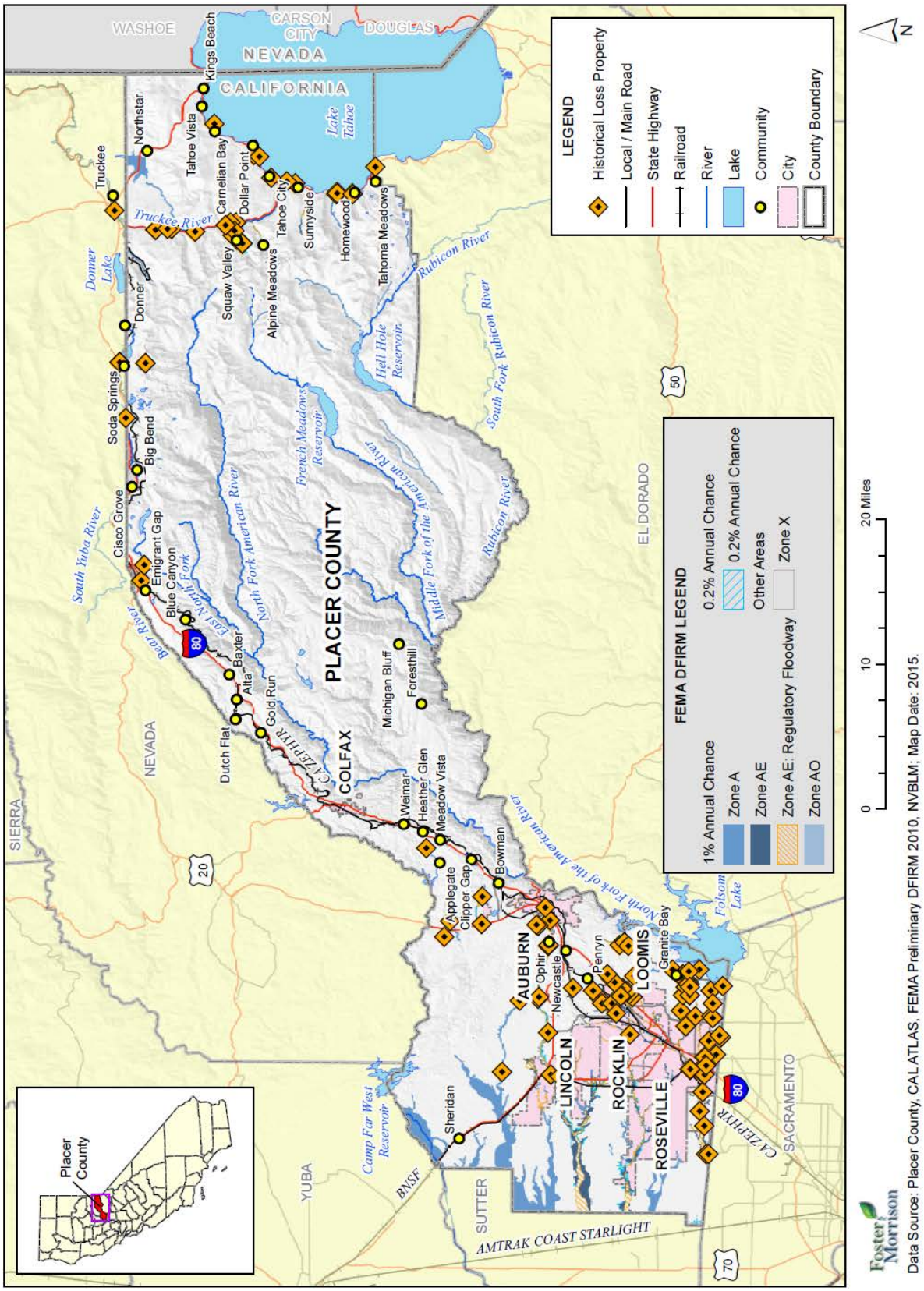
Table 4-55 Placer County Repetitive Loss and Severe Repetitive Loss

Repetitive Severity	Current Flood Zone	Property ID	Building Count	Content Payments	Building Payments	Total Payments
Repetitive Loss	AE	A	2	$0	$83,578	$83,578
	A	B	2	$10,674	$143,659	$154,333
	X	C	5	$41,422	$138,737	$180,159
	Total		**9**	**$52,096**	**$365,974**	**$418,070**
Severe Repetitive Loss	-	-		$0	$0	$0
	-	-		$0	$0	$0
	-	-		$0	$0	$0
	Total		**0**	**$0**	**$0**	**$0**
Grand Total			**9**	**$52,096**	**$365,974**	**$418,070**

Source: FEMA

Historical loss properties for the years 1983-2014 amounts to 163 properties with a total paid amount of $4,135,943.46 based on the 2014 NFIP data. This list of addresses was geocoded into GIS and mapped in Figure 4-80. Analyzing the historical loss properties is important in understanding the next potential RL and SRL areas in the County.

Figure 4-80 Placer County Planning Area – Historical Loss Properties



Population at Risk

A separate analysis was performed to determine population in flood zones. Using GIS, the DFIRM Flood dataset was overlayed on the improved residential parcel data. Those parcel centroids that intersect a flood zone were counted and multiplied by the Census Bureau Placer County average household size; results were tabulated by jurisdiction and flood zone (see Table 4-56). According to this analysis, there is a population of 3,746 in the 1% annual chance flood event, and 382 in the 0.2% annual chance flood event.

Table 4-56 Placer County Planning Area – Population at Risk to Flooding

	1% Annual Chance		0.2% Annual Chance	
Jurisdiction	**Improved Residential Parcels***	**Population****	**Improved Residential Parcels***	**Population****
Auburn	14	32	0	0
Colfax	0	0	0	0
Lincoln	16	41	0	0
Loomis	111	302	13	35
Rocklin	156	423	76	206
Unincorporated	1,134	2,948	293	762
Total	**1,431**	**3,746**	**382**	**1,003**

Source: DFIRM, US Census Bureau, Placer County 2015 Assessor/Parcel Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**Census Bureau 2010 average household sizes are: Auburn – 2.27, Colfax – 2.38, Lincoln – 2.59, Loomis – 2.72, Rocklin – 2.71, Unincorporated – 2.60

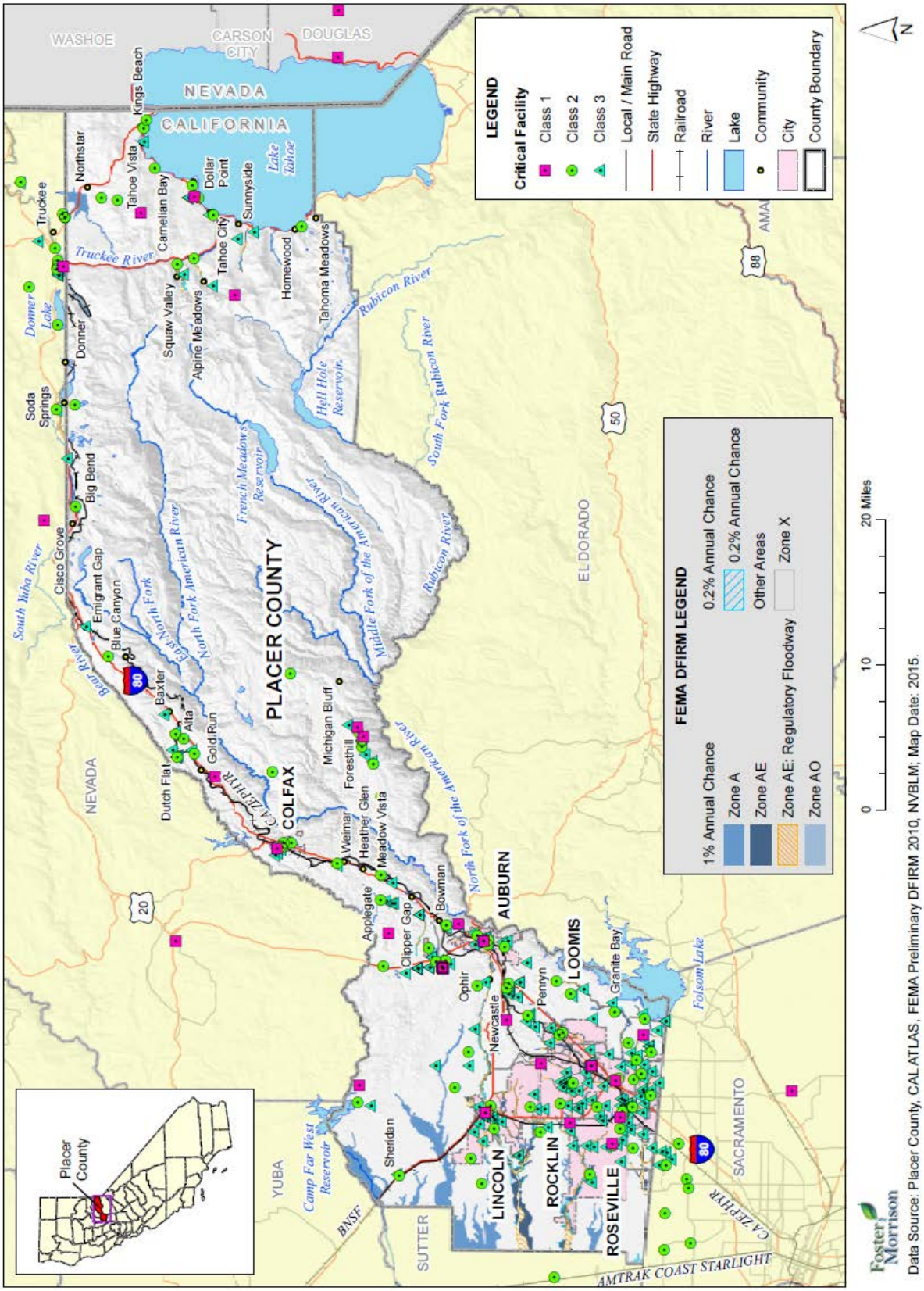
Cultural and Natural Resources at Risk

The Placer County Planning Area has significant cultural and natural resources located throughout the County as previously described. Risk analysis of these resources was not possible due to data limitations. However, as previously described, natural areas, such as wetlands and riparian areas within the floodplain, often benefit from periodic flooding as a naturally recurring phenomenon. These natural areas often reduce flood impacts by allowing absorption and infiltration of floodwaters. Preserving and protecting these areas and associated functions are a vital component of sound floodplain management practices for the Placer County planning area.

Critical Facilities at Risk

A separate analysis was performed on the critical facility inventory in Placer County and all jurisdictions to determine critical facilities in the 1% and 0.2 annual chance floodplains. Using GIS, the Preliminary DFIRM flood zones were overlayed on the critical facility location data. Figure 4-81 shows critical facilities, as well as the DFIRM flood zones. Table 4-57 details critical facilities by facility type and count. Details of critical facility definition, type, name and address and jurisdiction by flood zone are listed in Appendix F.

Figure 4-81 Placer County Planning Area – Critical Facilities in DFIRM Flood Zones



Data Source: Placer County, CALATLAS, FEMA Preliminary DFIRM 2010, NVBLM; Map Date: 2015.

Table 4-57 Placer County Planning Area – Critical Facilities in DFIRM Flood Zones

Flood Zone	Critical Facility Category	Facility Type	Facility Count
City of Auburn			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - City of Auburn			**0**
City of Colfax			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - City of Colfax			**0**
City of Lincoln			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - City of Lincoln			**0**
City of Rocklin			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**

Flood Zone	Critical Facility Category	Facility Type	Facility Count
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - City of Rocklin			**0**
Town of Loomis			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - Town of Loomis			**0**
Unincorporated Placer County			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - Unincorporated Placer County			**0**
Total Flood - Planning Area			**0**
City of Roseville			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	**0**
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**

Flood Zone	Critical Facility Category	Facility Type	Facility Count
Total Flood - Roseville			**0**
Adjacent Counties			
0.2% Annual Chance	Class 1		-
	Class 2		-
	Class 3		-
		Total 0.2% Annual Chance	0
1% Annual Chance (Zone AE, AE Floodway)	Class 1		-
	Class 2		-
	Class 3		-
		Total 1% Annual Chance	**0**
Total Flood - Adjacent Counties			**0**

Source: 2010 Preliminary DFIRM, Placer County GIS

Overall Community Impact

Floods and their impacts vary by location and severity of any given flood event and will likely only affect certain areas of the County during specific times. Based on the risk assessment, it is evident that floods will continue to have potentially devastating economic impacts to certain areas of the County. However, many of the floods in the County are minor, localized flood events that are more of a nuisance than a disaster. Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure and services;
- Health hazards associated with mold and mildew, contamination of drinking water, etc.;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community;
- Negative impact on commercial and residential property values; and
- Significant disruption to students and teachers as temporary facilities and relocations would likely be needed.
- Impact on the overall mental health of the community.

Future Development and Future Flood Conditions

This section provides an analysis of the flood hazard and proposed future development within the County based on FEMA DFIRMs and also discusses considerations in evaluating future flooding conditions.

Future Development: General Considerations

Where and how to build is generally addressed in local floodplain ordinances. These ordinances should be reviewed and updated as development in new areas is considered, including changes to the County's Flood Damage Prevention Ordinance with the includes the incorporation of higher regulatory standards. Master planning will be necessary to assure that open channel flood flow conveyances serving the smaller internal

streams and drainage areas are adequately prepared to accommodate the flows. These developments can bring the revenue needed to solve existing flooding problems by constructing ecologically sensitive water conveyance areas with peak flow detention. Preservation and maintenance of natural and riparian areas should also be an ongoing priority to realize the flood control benefits of the natural and beneficial functions of these areas. Also to be considered in reducing flooding in areas of existing and future development is to promote the clearing of vegetation from natural and man-made drains that are critical to flood protection. Both native and invasive species can clog drains, and reduce flows of floodwaters, which slow that natural drainage process and can exacerbate flooding.

One of the most effective ways to reduce vulnerability to potential flood damage is through careful land use planning that fully considers applicable flood management information and practices. California's 2007 flood legislation (Senate Bill 5) directly linked system-wide flood management planning to local land use planning, requiring local jurisdictions to demonstrate an urban level of flood protection before approving new development in urban and urbanizing areas. "Urban level of flood protection" means the level of protection necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year (California Government Code Section 65007). DWR is developing criteria to guide local jurisdiction compliance with the new requirements. In addition to developing criteria to help local jurisdictions in their land use planning, DWR is preparing criteria for use in the design of levees protecting urban and urbanizing areas. DWR is also working with local partners to develop guidance related to nonurban flood protection levels.

These standards are under development and will become effective over the next several years as ongoing technical studies are performed. Once these standards become effective, cities and counties within the Sacramento-San Joaquin Valley cannot enter into development agreements or issue a permit to construct a new structure in areas located within a flood hazard zone unless the following is established:

- Find that existing facilities protect urban and urbanizing areas to a 1-in 200 chance of flooding in any given year or the FEMA standard of flood protection in non-urbanized areas, or
- Find that the local flood management agency has made adequate progress on the construction of the flood protection system to provide the required level of protection, or
- Impose conditions on the development agreement that will provide the required level of protection.

California Department of Water Resources (DWR) is currently developing technical information to assist cities and counties with their compliance with these new requirements.

Future Development: DFIRM Analysis

Placer County's GIS parcel layer was used as the basis for the countywide inventory of parcels and acres values. In this analysis, the parcel data was converted to a point layer using a centroid conversion process, in which each parcel was identified by a central point containing the assessor's data. In addition, Placer County provided and table and GIS spatial file identifying the 25 future development areas for which the analysis was to be performed. Utilizing the future development spatial layer, the parcel centroid data was intersected to determine the parcel counts within each development. The following hazards data was collected to perform the additional analysis:

- Flood Hazard Data: Placer County has a 11/21/2001 effective FEMA DFIRM and a preliminary DFIRM dated March 29, 2010 which was utilized to perform the flood analysis.
- In some cases there are future development areas in multiple flood zones, such as Zone A, Zone AE, the 2% Annual Chance Zone, or Zone X. GIS was used to intersect the DFIRM flood data with the development areas. For the purposes of this analysis, the development polygon that intersected any flood zones was assigned the flood zones for the entire development polygon. The development areas were segregated and analyzed in this fashion for the Placer County area.

The model assumes that Placer County's GIS parcel layer can be intersected by each future development area to determine the parcel counts and approximate acreage totals. This approach was used to support the parcel layer analysis as there was no associated building layer available for this analysis. Table 4-58 shows the breakdown of the future development parcel counts in Placer County and their acreages. Future development in the County is shown on Figure 4-82 for the eastern portion of the County, and on Figure 4-83 for the western portion of the County.

Table 4-58 Placer County Future Development Areas by Flood Zone

Future Development Project	Parcel Count	Acres	Flood Zone	Jurisdiction
Palisades at Squaw	6	3	0.2%, X	Placer County Unincorporated Areas
Reason Farms	29	1,737	A, AE, AE FLOODWAY, 0.2%, X	City of Roseville
Creekview	12	498	A, AE, AE FLOODWAY, 0.2%, X	City of Roseville
West Roseville	4,943	3,135	A, AE, AE FLOODWAY, 0.2%, X	City of Roseville
Placer Parkway	62	1,644	A, AE, AE FLOODWAY, 0.2%, X	City of Roseville, Placer County Unincorporated Areas
Antonio Mt. Ranch	19	812	A, AE, AE FLOODWAY, 0.2%, X	Placer County Unincorporated Areas
Lincoln Village 5	192	4,927	A, AE, AE FLOODWAY, 0.2%, X	Placer County Unincorporated Areas
Placer Ranch	115	2,208	A, AE, AE FLOODWAY, 0.2%, X	Placer County Unincorporated Areas
Placer Vineyards	314	5,231	A, AE, AE FLOODWAY, 0.2%, X	Placer County Unincorporated Areas
Riolo Vineyards	19	506	A, AE, AE FLOODWAY, X	Placer County Unincorporated Areas
Sierra Vista	52	2,049	A, X	City of Roseville
Brookfield	13	682	A, X	Placer County Unincorporated Areas
Regional University	24	1,176	A, X	Placer County Unincorporated Areas
The Village at Squaw Valley	11	8	AE FLOODWAY, X	Placer County Unincorporated Areas

Future Development Project	Parcel Count	Acres	Flood Zone	Jurisdiction
Lincoln 270	30	263	AE, AE FLOODWAY, 0.2%, X	City of Lincoln
The Village at Squaw Valley	63	81	AE, AE FLOODWAY, 0.2%, X	Placer County Unincorporated Areas
Western Regional Sanitary Landfill	5	314	X	Placer County Unincorporated Areas
Western Regional Sanitary Landfill Expansion Site	11	465	X	Placer County Unincorporated Areas
Palisades at Squaw	10	17	X	Placer County Unincorporated Areas
Alpine Sierra Subdivision	18	44	X	Placer County Unincorporated Areas
Brockway Campground	10	116	X	Placer County Unincorporated Areas
Martis Valley West Parcel	22	1,046	X	Placer County Unincorporated Areas
Bickford Ranch	158	1,902	X	Placer County Unincorporated Areas
Bickford Ranch	9	38	X	Placer County Unincorporated Areas
The Village at Squaw Valley	4	3	X	Placer County Unincorporated Areas
Totals	**6,151**	**28,906**		

Source: 2010 Preliminary DFIRM, Placer County GIS

Figure 4-82 Placer County East – Future Development Areas in Flood Zones

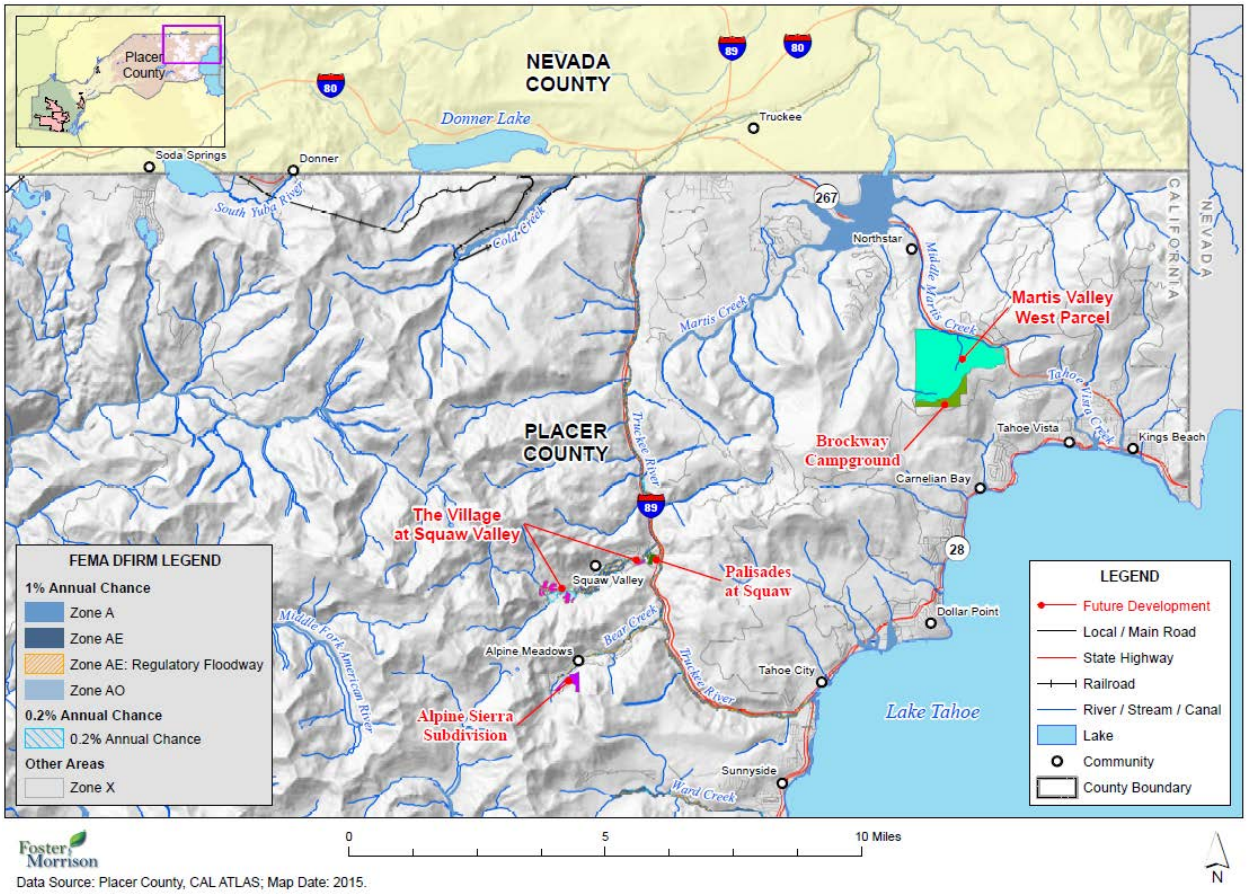
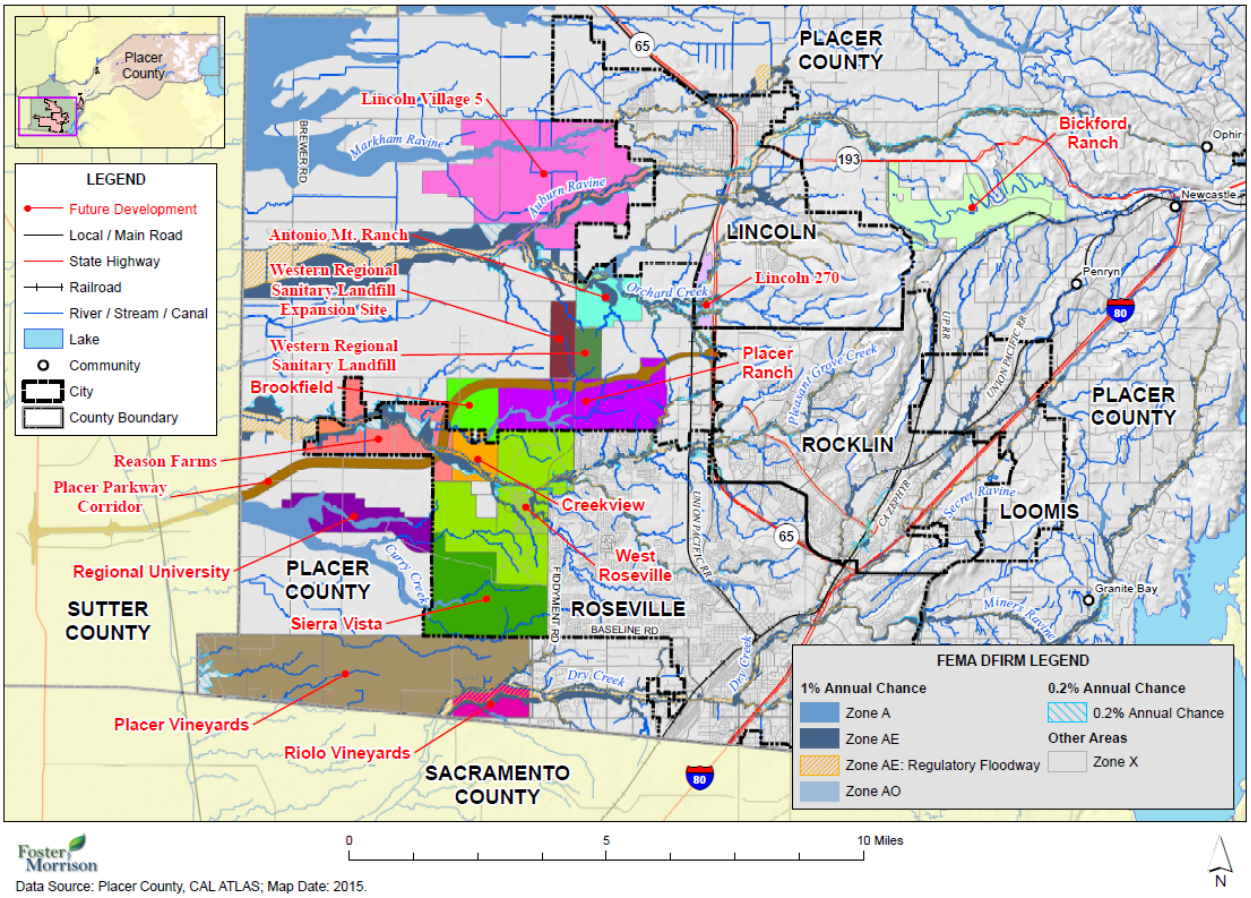


Figure 4-83 Placer County West – Future Development Areas in Flood Zones



Future Flooding Conditions

The flood risk assessment included a detailed analysis of historic and existing conditions through documentation of past occurrences and various mapping efforts conducted by multiple agencies, as well as an evaluation of areas likely to flood in the future/future flooding conditions. Future flooding conditions were considered by the County for this assessment using a variety of tools:

- The new preliminary FEMA DFIRMs (3/29/2010) and updated FIS, still yet to be finally adopted, provide information on the updated 1% and 0.2% annual chance floods based on the latest studies and considering recent growth and development in the County. This new mapping is a more accurate representation of areas subject to major floods in the future and is used for regulatory and future planning and development purposes.
- The Flood Hazard Awareness mapping developed and maintained by the County in conjunction with the Placer County Flood Control and Water Conservation District (PCFCWD). This Flood Awareness mapping includes 1% and 0.2% annual chance floodplains, all critical facilities, sand/sandbags locations, road crossings likely to flood, and more. The 0.1% floodplain also includes a 250 setback limit to assist emergency responders and planners in identifying local flood hazard areas for both response and planning for future flood conditions. The County/PCFCWD has created both a western

Placer Map and individual maps for each jurisdiction. All maps are located in the Placer County Flood Response Handbook.

- The County, in conjunction with the PCFCWD and its member agencies, has also developed a database and Flood Prone Property mapping of both residential and commercial structures that are likely subject to flooding from future flood events. In addition to maintaining a database of properties previously impacted by flood events, this mapping is useful in planning future flood mitigation strategies, elevation/acquisition projects, and regional flood control projects to focus community efforts on areas likely to flood in the future.
- The County also maintains a separate database and mapping effort of all RL and historical loss properties in the County. This RL/historical loss analysis is also used to identify areas likely to flood in the future and to assist with the development of mitigation measures to mitigate future flood damage to these areas.
- Also to be considered when evaluating future flood conditions in the Placer County planning area, the California DWR developed Flood Awareness Maps (shown on Figure 4-40 through Figure 4-44). These maps were developed to provide communities with an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. These preliminary maps include both the 100- and potential 200-year floodplain to provide information on the true risk of flooding to allow communities to make informed floodplain management and property use decisions. These advisory maps are intended to help communities begin implementing activities to meet SB 5 requirements calling for a minimum of 200-year protection for new development in urban and urbanizing area. Currently within the Placer County planning area, the 200-year floodplain mapping has not yet been created by the County for unincorporated areas. The cities of Rocklin and Roseville have completed this mapping; the City of Auburn and the Town of Loomis have declared they are not subject to the State's 200-year Urban Level of Protection (ULOP) standards due to location considerations which include population and contributing watershed size. The City of Colfax does not have any floodplains. More specifically within the unincorporated areas, it has been determined that the 200-year requirement through the ULOP is within the 100-year floodplain (according to the requirements of 3 feet of flooding, part of FEMA flood mapping in urban areas of 10,000 or more, and in the Sacramento-San Joaquin Watershed). Mapping of these areas will be part of implementation of the program moving forward.

Regulatory Considerations for Future Flood Conditions

As previously described, Placer County has been evaluating and determining the impact of both existing and future flood conditions, including development of a local program to address the 200-year state requirement for the ULOP. As part of this program, the County developed an update document to the General Plan with regard to new flood protection requirements. This included changes to the Safety Element and other areas of the General Plan and includes the introduction of the term "County Regulatory Floodplains" that includes both the 100-year FEMA floodplain and the 200-year floodplain. It has been determined that within unincorporated areas that the 200-year floodplain is within the 100-year floodplain based on state requirements. As such, no update to the flood damage prevention ordinance is required since current regulations already regulate projects in the floodplains. Under this program the County is also considering the 200-year storm when reviewing projects. The Central Valley Flood Protection Board (CVFPB) is currently reviewing the updated General Plan update document. Any CVRPB comments will be incorporated and the final General Plan updates will be finalized later in 2016.

Future Flood Conditions: The Effects of Climate Change

The effects of climate change on future flood conditions should also be considered. While the risk and associated short and long term impacts of climate change are uncertain, experts in this field tend to agree that among the most significant impacts include those resulting from increased heat and precipitation events that cause increased frequency and magnitude of flooding. Changes associated with climate change and flooding could be significant given the higher elevations in the County where winter snow could turn to more significant rain events. Increases in damaging flood events will cause greater property damage, public health and safety concerns displacement, and loss of life. In addition an increase in the magnitude and severity of flood events can lead to potential contamination of potable water and contamination of food crops given the agricultural industry in the County. Displacement of residents can include both temporary and long-term displacement, increase in insurance rates or restriction of coverage in vulnerable areas.

Placer County will continue to study the risk and vulnerability associated with future flood conditions, both in terms of future growth areas and other considerations such as climate change, as they evaluate and implement their flood mitigation and adaptation strategy for the Placer County Planning Area.

Future Flood Conditions: ARkStorm Scenario

Also to be considered in evaluating potential "worst case" future flood conditions, is the ARkStorm Scenario. Although much attention in California's focuses on the "Big One" as a high magnitude earthquake, there is the risk of another significant event in California – a massive, statewide winter storm. The last such storms occurred in the 19th century, outside the memory of current emergency managers, officials, and communities. However, massive storms are a recurring feature of the state, the source of rare but inevitable disasters. The USGS Multi Hazards Demonstration Project's (MHDP) developed a product called ARkStorm, which addressed massive U.S. West Coast storms analogous to those that devastated California in 1861-1862. Over the last decade, scientists have determined that the largest storms in California are the product of phenomena called Atmospheric Rivers, and so the MHDP storm scenario is called the ARkStorm, for Atmospheric River 1000 (a measure of the storm's size).

Scientific studies of offshore deposits in northern and southern California indicate that storms of this magnitude and larger have occurred about as often as large earthquakes on the southern San Andreas Fault. Such storms are projected to become more frequent and intense as a result of climate change. This scientific effort resulted in a plausible flood hazard scenario to be used as a planning and preparation tool by hazard mitigation and emergency response agencies.

For the ARkStorm Scenario, experts designed a large, scientifically realistic meteorological event followed by an examination of the secondary hazards (e.g., landslides and flooding), physical damages to the intense winter storms of 1861-62 that left California's Central Valley impassible. Storms far larger than the ARkStorm, dubbed megastorms, have also hit California at least six times in the last two millennia.

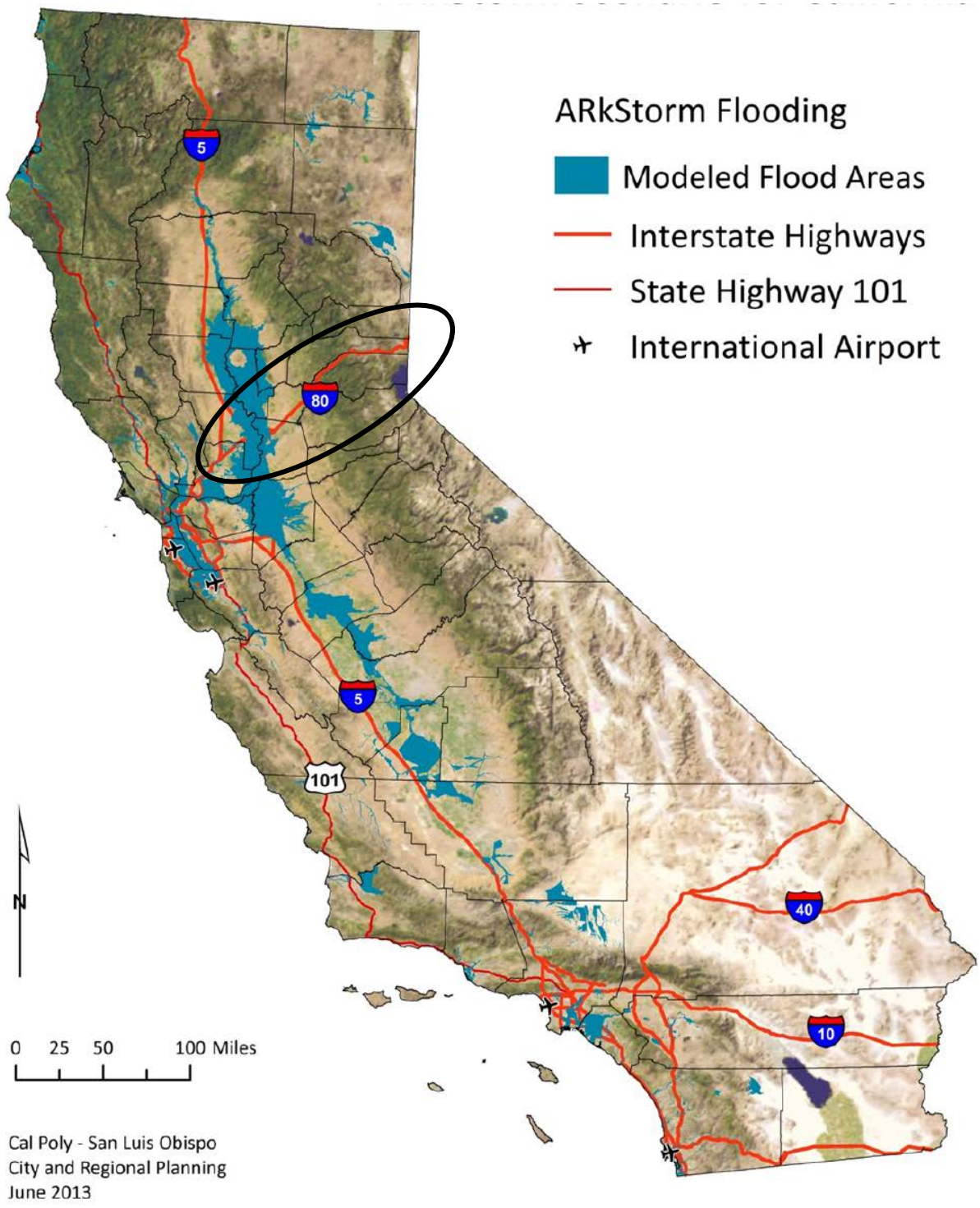
The ARkStorm produces precipitation in many places exceeding levels experienced on average every 500 to 1,000 years. Extensive flooding in many cases overwhelms the state's flood protection system, which is at best designed to resist 100- to 200-year runoffs (many flood protection systems in the state were designed for smaller runoff events). The Central Valley experiences widespread flooding. Serious flooding also

occurs in Orange County, Los Angeles County, San Diego, the San Francisco Bay Area, and other coastal communities. In some places, winds reach hurricane speeds, as high as 125 miles per hour. Hundreds of landslides occur, damaging roads, highways, and homes. Property damage exceeds $300 billion, most of it from flooding. Agricultural losses and other costs to repair lifelines, dewater flooded islands, and repair damage from landslides brings the total direct property loss to nearly $400 billion, of which only $20 to $30 billion would be recoverable through public and commercial insurance. Power, water, sewer, and other lifelines experience damage that takes weeks or months to restore. Flooding evacuation could involve over one million residents in the inland region and Delta counties.

A storm of ARkStorm's magnitude has important implications: 1) it raises serious questions about the ability of existing national, state, and local disaster policy to handle an event of this magnitude; 2) it emphasizes the choice between paying now to mitigate, or paying a lot more later to recover; 3) innovative financing solutions are likely to be needed to avoid fiscal crisis and adequately fund response and recovery costs; 4) responders and government managers at all levels could be encouraged to conduct self-assessments and devise table-top exercises to exercise their ability to address a similar event; 5) the scenario can be a reference point for application of FEMA and Cal OES guidance connecting federal, state, and local natural hazards mapping and mitigation planning under the NFIP and Disaster Mitigation Act of 2000; and 6) common messages to educate the public about the risk of such an extreme event could be developed and consistently communicated to facilitate policy formulation and transformation.

Figure 4-84 depicts an ARkStorm modeled scenario showing the potential for flooding in the Central Valley as the result of a large storm. In Placer County, the modeled scenario suggests the westernmost portion of the County would face inundation.

Figure 4-84 Projected ARkStorm Flooding in California



Source: USGS ArkStorm

4.3.8. Flood: Localized Stormwater Flooding Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Medium

Historically, the Planning Area has been at risk to flooding primarily during the spring months when stream systems in the County swell with heavy rainfall. Localized flooding also occurs throughout the Planning Area at various times throughout the year with several areas of primary concern unique to each City. Placer County Public Works and Facilities tracks localized flooding areas as shown in Table 4-20 in Section 4.2.11.

Future Development

The risk of stormwater/localized flooding to future development can be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater or choosing not to develop in areas that often are subject to localized flooding will reduce future risks of losses due to stormwater/localized flooding.

Much of the growth in Placer County is occurring through expansion of the urban areas, causing a significant increase in peak flow and stormwater runoff. Such growth will consume previously undeveloped acres, and the impacts may overwhelm existing drainage and flood control facilities.

The potential for flooding may increase as stormwater is channeled due to land development. Such changes can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. Floodplain modeling and master planning should be based on build out property use to ensure that all new development remains safe from future flooding. While local floodplain management, stormwater management, and water quality regulations and policies address these changes on a site-by-site basis, their cumulative effects can have a negative impact on the floodplain.

4.3.9. Seiche (Lake Tsunami) Vulnerability Assessment

Likelihood of Future Occurrence—Unlikely
Vulnerability—High

Research from the University of Nevada estimates that an earthquake must be at least a magnitude 6.5 to cause a damaging seiche at Lake Tahoe. The two faults directly underneath the lake are considered capable of generating magnitude 7.1 earthquakes. Computer models of seiche activity at Lake Tahoe prepared by the University of Nevada research team estimate that waves as high as 30 feet could strike the shore. These projections suggest largest waves might hit Sugar Pine Point, Rubicon Point and the casinos in South Lake Tahoe. The seiche risk is potentially devastating as hundreds of houses are built along the lake and more than 17,000 people enjoy the Lake Tahoe shoreline every day in the summer.

In a recent 2008 California Statewide Exercise conducted to evaluate state and regional response capabilities, a seiche scenario was conducted on the Lake Tahoe Basin Area. The potential scenario was developed with input from researchers from the University of Nevada. This exercise scenario provides

information on the potential risk and vulnerability of a seiche occurring on Lake Tahoe. The exercise timeline and ground truths provided is reproduced below:

Golden Guardian 2008 Exercise

Timeline and Ground Truths

TIMELINE:

- 8:55 am on November 6 - Mt. Rose is hit with a subterranean magnitude 6.8 earthquake, which causes minor to major damage in the Lake Tahoe Basin. An underwater shelf, in the Crystal Bay area, experiences a sluffing of a large mass of earth, which pushes a large volume of water southward and a smaller amount northward (generating seiche waves). The first wave at 6 ft in height begins to travel southward the width of the lake in Lake Tahoe at 180 miles per hour. As the wave approaches the southern part of Lake Tahoe it meets the rising floor of the lake and pushes up the wave's height to 18-20 feet. It will take the first wave 5 minutes to travel the length of the lake. The wave has pushed 6 ft of water back into Crystal Basin and the Tahoe City area. The wave caused overflow of the dam at "Fannie Bridge" causing the overflowing water downstream into the Truckee River picking up and depositing large amount of debris along the way. A large portion of Tahoe City is underwater. The South Lake Tahoe area is also heavily impacted and underwater, specifically the City of South Lake Tahoe and Tahoe Keys areas.
- 9:03 am - The second wave strikes the South Lake Tahoe area. This wave is moving at 80 miles per hour and is 18-20 feet or better in height. The water continues to push into the already damaged and submerged areas.
- 9:08 am - The second wave strikes the northern area of Lake Tahoe. There is considerable damage and debris into the lake. Any low areas around the lake are reporting damage, flooding and debris (including people and animals).
- 9:13 am - The third wave has traveled the length of the lake and struck the South Lake Tahoe area again. This one was traveling less than 80 miles per hour and is 15-19 feet in height.
- 9:18 am - The third wave strikes the northern end of Lake Tahoe. This time the wave is only traveling at 50 miles per hour and is only 12 feet in height.
- 9:23 am - The fourth and last wave strikes the South Lake Tahoe area and is traveling 30 miles per hour and only 9-12 feet in height.
- 9:28 am - The fourth and last wave strike the North Lake Tahoe area traveling 15 miles per hour and only 3-6 feet in height.

The seiche wave has traveled north to south on Lake Tahoe much like a bath tub wave. There is considerable damage in all low areas near the lake.

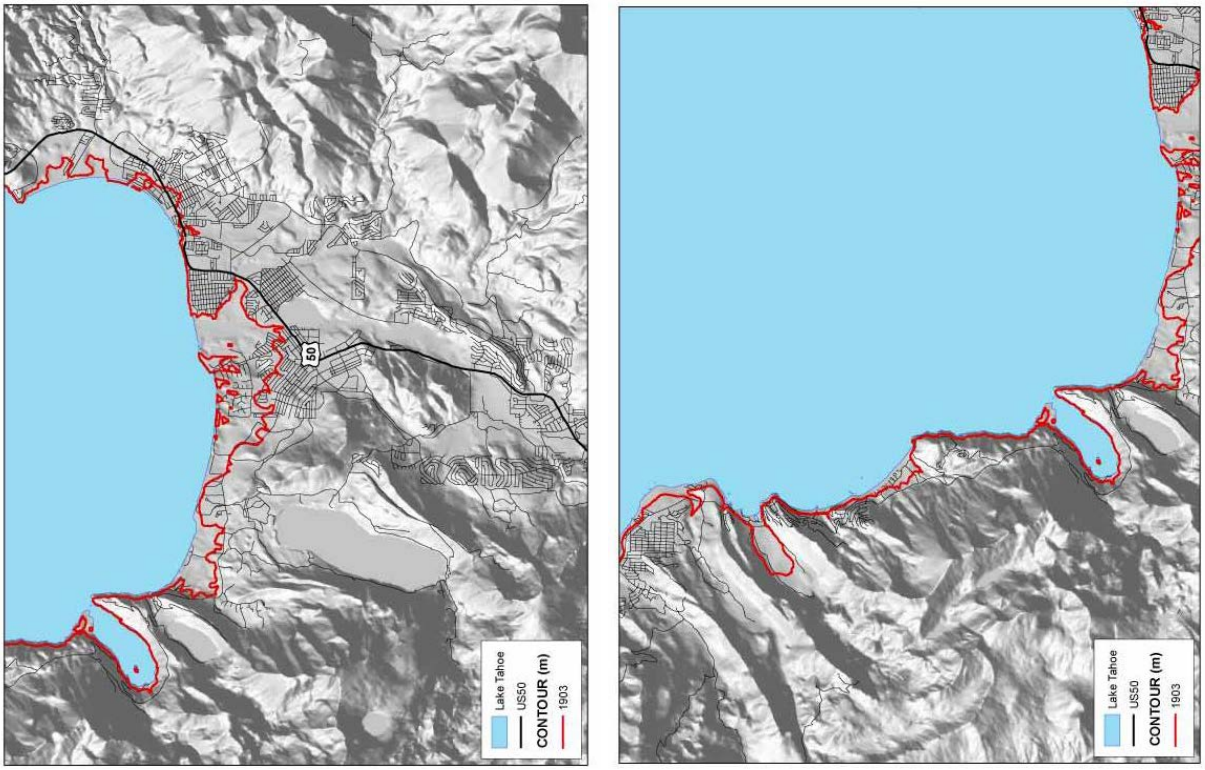
GROUND TRUTHS:

- Shoreline and nearby inland low lying areas of north Lake Tahoe of Placer County will be impacted, specifically west shores, Tahoe City and King Beach.
- HWY 89 from the "Y south will be closed in certain sections for a minimum of 24-48 hrs due to washout of the highway and or blockage from debris.

- The large & strong waves overflowed the dam located near "Fannie Bridge" resulting HWY 89 from the "Y" north along the Truckee River corridor to close for 24-48 hrs due blockage of the highway from debris and a landslide near Alpine Meadows Road/River Ranch Inn.
- HWY 28 will be close for approx. 24 hrs due to blockage of debris, but unlike HWY 89 no damage/washout of sections of the highway.
- HWY 28 & HWY 267 junction temporarily close for approx. 12 hrs due to blockage by debris; however, HWY 267 remain open.

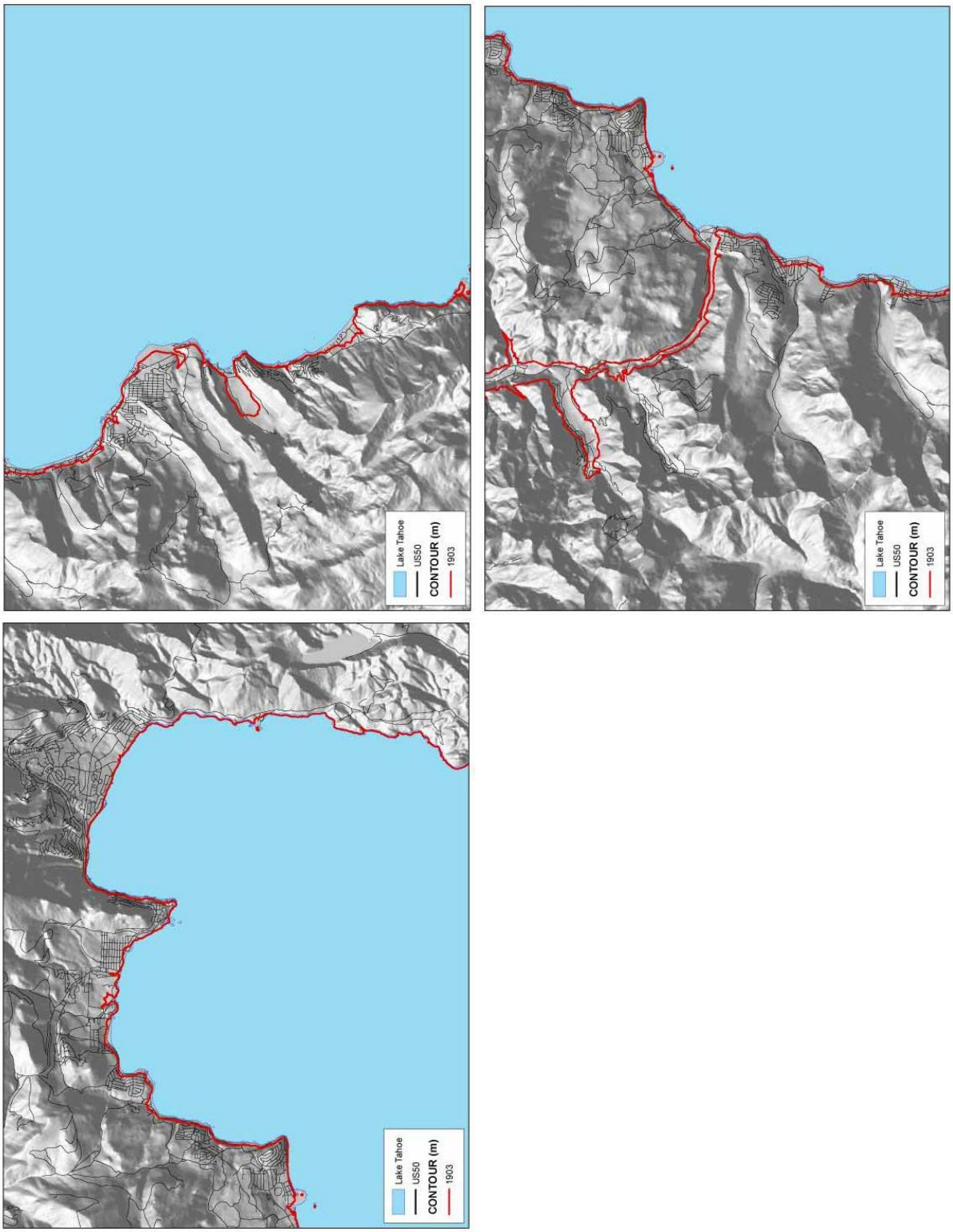
The magnitude 6.8 earthquake modeled for this exercise resulted in a peak acceleration of 0.1 to 0.2 g, a peak velocity of 5-10 cm/s, with felt effects being estimated at a Modified Mercalli Intensity Scale of VI to VII. The seiche was generated by a landslide at the north end of Lake Tahoe. This scenario estimated run-up of waters to elevations 6 m above lake level, with water arriving at shoreline 5 minutes after the earthquake. Inundation mapping of the seiche scenario done as part of the exercise identifies those areas most vulnerable to damage including loss of life and property damage. Figure 4-85 and Figure 4-86 illustrate these inundation areas along Lake Tahoe. The red line on the maps defines the 1903 contour line where floodwaters are expected to reach. It is estimated that about 4,200 people live below the 1903 m countour line using 2002 census data. Estimates indicated that flooding to the 1,903 m elevation will only flood the ground-level floor of structures with entrances near 1,903 m, but will flood more in structures with entrances closer to the lake elevation. Again, depending on the time of day, the potential exists for many more people to be present recreating in the shoreline areas.

Figure 4-85 Placer Seiche Scenario 2008 Exercise: Tahoe Inundation Areas



Source: Placer County

Figure 4-86 Placer Seiche Scenario 2008 Exercise: Tahoe Inundation Areas



Source: Placer County

Future Development

Development in areas located around the lake in potential seiche impact areas consist of primarily infill and redevelopment of both residential and commercial areas.

4.3.10. Severe Weather: Freeze and Snow Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Medium

Freeze and snow events happen in Placer County each year. Winter weather and freeze can occasionally be accompanied by high winds, which can cause downed trees and power lines, power outages, accidents, and road closures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets to impacts of severe winter weather in the County. The ability for the County to continue to operate during periods of winter storm and freeze is paramount. Vulnerable populations to winter weather and freeze include:

- Homeless
- Infants and children under age five
- Elderly (65 and older)
- Individuals with disabilities
- Individuals dependent on medical equipment
- Individuals with impaired mobility

In addition to vulnerable populations, pets and livestock are at risk to freeze and cold. However many residents of Placer County are self-sufficient and accustomed to rural living and the climate extremes that are part of the territory. The residents of nursing homes and elder care facilities are especially vulnerable to extreme temperature events. It is encouraged that such facilities have emergency plans or backup power to address power failure during times of extreme cold and heavy snows.

The varying elevations in the County, in part, determine the extent to which a given area is affected by freeze and snow. The agricultural industry is especially vulnerable to extreme temperatures. Freezing temperatures can cause significant loss to crops, and excessive heat can cause high levels of mortality among livestock as well as damage to crops. Historically, extreme temperatures have caused large losses to agricultural crops and have resulted in several USDA disaster declarations.

Other impacts to the County as a result of winter snow storms include damage to infrastructure, frozen pipes, utility outages, road closures, traffic accidents, and interruption in business and school activities. Also of concern is the impact to populations with special needs such as the elderly and those requiring the use of medical equipment. Delays in emergency response services can be of significant concern. Further, there are economic impacts associated with areas prone to heavy snow. Although the eastern portion of the county is the most vulnerable to the effects of snow, snowfall occurring in the lower elevations can create significant issues, as residents working and living in those areas may not be as prepared for snowfall.

Future Development

Future development built to code (for those areas with building codes) should be able to withstand snow loads from severe winter storms. Pipes at risk of freezing should be mitigated be either burying or insulating them from freeze as new facilities are improved or added. Current County codes provide such provisions for new construction. Vulnerability to extreme cold will increase as the average age of the population in the County shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the Planning Area. However, as previously mentioned, many of the residents of Placer County are self-sufficient and accustomed to rural living. An updated snow removal plan including an assessment of available snow removal equipment will be important as development occurs in more remote areas of the County.

4.3.11. Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes) Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—High

According to historical hazard data, severe weather is an annual occurrence in Placer County. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rain and thunderstorms are the most frequent type of severe weather occurrences in the County. Wind and lightning often accompany these storms and have caused damage in the past. However, actual damage associated with the primary effects of severe weather have been limited. It is the secondary hazards caused by weather, such as floods, fire, and agricultural losses that have had the greatest impact on the County. The risk and vulnerability associated with these secondary hazards are discussed in other sections of this plan (Section 4.3.7 Flood: 100/500-year, Section 4.3.8 Flood: Localized Stormwater, and Section 4.3.4 Dam Failure).

Future Development

New critical facilities should be built to withstand hail damage, lightning, and thunderstorm winds. While minimal damages have occurred to critical facilities in the past due to lightning, hail, or high winds and tornadoes, there still remains future risk. With development occurring in the region, future losses to new development may occur.

4.3.12. Wildfire Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Extremely High

Risk and vulnerability to the Placer County Planning Area from wildfire is of significant concern, with some areas of the Planning Area being at greater risk than others as described further in this section. High fuel loads in the Planning Area, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low

relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. Even the relatively flat and more urbanized area of western Placer is not immune from fire. During the May to October fire season, the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the Planning Area, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

The wildfire hazard is the highest priority hazard in the County, and is the hazard with the greatest potential for catastrophic loss. Wildfires can cause short-term and long-term disruption to the County. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the County by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires may result in casualties and can destroy buildings and infrastructure.

Although the physical damages and casualties arising from wildland-urban interface fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. In some cases, the economic impact of this loss of services may be comparable to the economic impact of physical damages or, in some cases, even greater. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Fires can also cause major damage to power plants and power lines needed to distribute electricity to operate facilities.

Placer County Communities at Risk to Wildfire

The National Fire Plan is a cooperative, long-term effort between various government agency partners with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. For purposes of the National Fire Plan, the California Department of Forestry and Fire Protection (CAL FIRE) generated a list of California communities at risk for wildfire. The intent of this assessment was to evaluate the risk to a given area from fire escaping off federal lands. Three main factors were used to determine the wildfire threat in the wildland-urban interface areas of California: fuel hazards, probability of fire, and areas of suitable housing density that could create wildland urban interface fire protection strategy situations. The preliminary criteria and methodology for evaluating wildfire risk to communities is published in the Federal Register, January 4, 2001. The National Fire Plan identifies 39 “Communities at Risk” in Placer County. These are shown in Table 4-59.

Table 4-59 Placer County Communities at Risk to Wildfire

Communities at Risk		
Alpine Meadows (Rampart)	Foresthill	North Auburn
Alta	Gold Hill	Northstar
Auburn	Gold Run	Ophir
Baxter	Heather Glen - Applegate	Penryn
Bowman	Homewood	Rocklin
Cape Horn	Iowa Hill	Roseville

Communities at Risk		
Carnelian Bay	Kings Beach	Secret Town
Casa Loma	Lincoln	Shady Glen
Christian Valley (Nielsburg)	Loomis	Sunnyside-Tahoe City
Colfax	Magra	Tahoe Pines
Dollar Point	Meadow Vista	Tahoe Vista
Dutch Flat	Michigan Bluff	Twin Pines – Weimar
Emigrant Gap	Newcastle	Virginiatown

Source: CAL FIRE

Beetle Kill and Tree Mortality

Drought can weaken trees, making them less resistant to bark beetles. These beetles attack trees weakened trees and can kill them. These trees then become fuel for wildfires. This is discussed in greater detail in Section 4.3.5.

The HMPC noted that the Volcano Fire of 1960 destroyed over 50,000 acres of forest. In order to mitigate the effect of that fire, the area was planted with Ponderosa pines which are now at the age to be the perfect target for the Pine Beetle. There is the potential to lose 55 years of forest restoration and watershed work in that area of the County.

On October 30, 2015, Governor Brown proclaimed a State of Emergency and included provisions to expedite the removal and disposal of dead and dying hazardous trees. As a result, costs related to identification, removal, and disposal of dead and dying trees caused from drought conditions may be eligible for California Disaster Assistance Act (CDAA) reimbursement.

Wildfire and Air Quality

During many summer months in past years, Placer County residents have had to breathe wildfire smoke. Smoke from wildfires is made up of gas and particulate matter, which can be easily observed in the air. While the summer of 2015 brought terrible wildfires along with severe smoke impacts to numerous locations in California, impacts in Placer County were of a shorter duration then previous summers. During the summers of 2013 and 2014, several wildfire incidents occurred in Northern California and Placer County which significantly influenced the PM2.5 concentration measurements within Placer County.

The heavy smoke from these wildfires impacted air quality throughout the Sierra Foothills and Tahoe areas. Wildfire smoke caused ambient air levels of fine particulate matter to increase to more than 100 times higher than air quality standards. This caused the cancellation of an Iron Man event in the Tahoe area. This cancellation caused financial impacts to the County and the Tahoe area. There is concern that the event will not return in the future to the Tahoe area.

Air quality standards have been established to protect human health with the pollutant referred to as PM2.5 which consists of particles 2.5 microns or less in diameter. These smaller sizes of particles are responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract.

With the critically poor air quality conditions, the Placer County Health Officer along with the Placer County Air Pollution Control Officer issued several health advisories to residents in Placer County regarding the widespread wildfire smoke impacts. These advisories were sent to the media, including newspapers, TV, radio, the community, and were posted on county websites, the California Smoke Information Blog, and Spare the Air. More information may be found in Section 4.4.4 of this document.

Insurance in WUI Areas

The HMPC noted that in the WUI areas, there has been increased difficulty in obtaining home insurance. This increases costs to those who live in the WUI.

Assets at Risk

Unincorporated Placer County and the incorporated jurisdictions have mapped CAL FIRE fire severity areas. GIS was used to determine the possible impacts of wildfire within the County and how the wildfire risk varies across the Planning Area. The following methodology was followed in determining improved parcel counts and values by fire severity. Analysis on assets at risk to wildfire in the County is provided for two different areas in this base plan:

- Placer County Planning Area
- Unincorporated Placer County

The Placer County Planning Area includes both the unincorporated County and all of the incorporated jurisdictions, essentially the entire geographical area of Placer County. Summary tables for the Planning Area are presented below. For the unincorporated County, both summary and detail tables are shown and discussed below. Detail tables for the participating jurisdictions are included in their respective annexes to this plan.

Methodology

As part of the Fire and Resource Assessment Program (FRAP), CAL FIRE was mandated to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), then define the application of various mitigation strategies to reduce risk associated with wildland fires.

Fire hazard is a way to measure the physical fire behavior so that people can predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and most importantly, the burning fire brands (embers) that the fire sends ahead of the flaming front.

The fire hazard model developed by CAL FIRE considers the wildland fuels. Fuel is that part of the natural vegetation that burns during the wildfire. The model also considers topography, especially the steepness of the slopes. Fires burn faster as they burn up-slope. Weather (temperature, humidity, and wind) has a significant influence on fire behavior. The model recognizes that some areas of California have more frequent and severe wildfires than other areas. Finally, the model considers the production of burning fire brands how far they move, and how receptive the landing site is to new fires.

In 2007, CAL FIRE updated its fire hazard severity zone maps for the State of California to provide updated map zones, based on new data, science, and technology that will create more accurate zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The zones will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources. The program is still ongoing with fire hazard severity zone maps being updated based on designated responsibility areas: State Responsibility Area (SRA) and Local Responsibility Area (LRA)

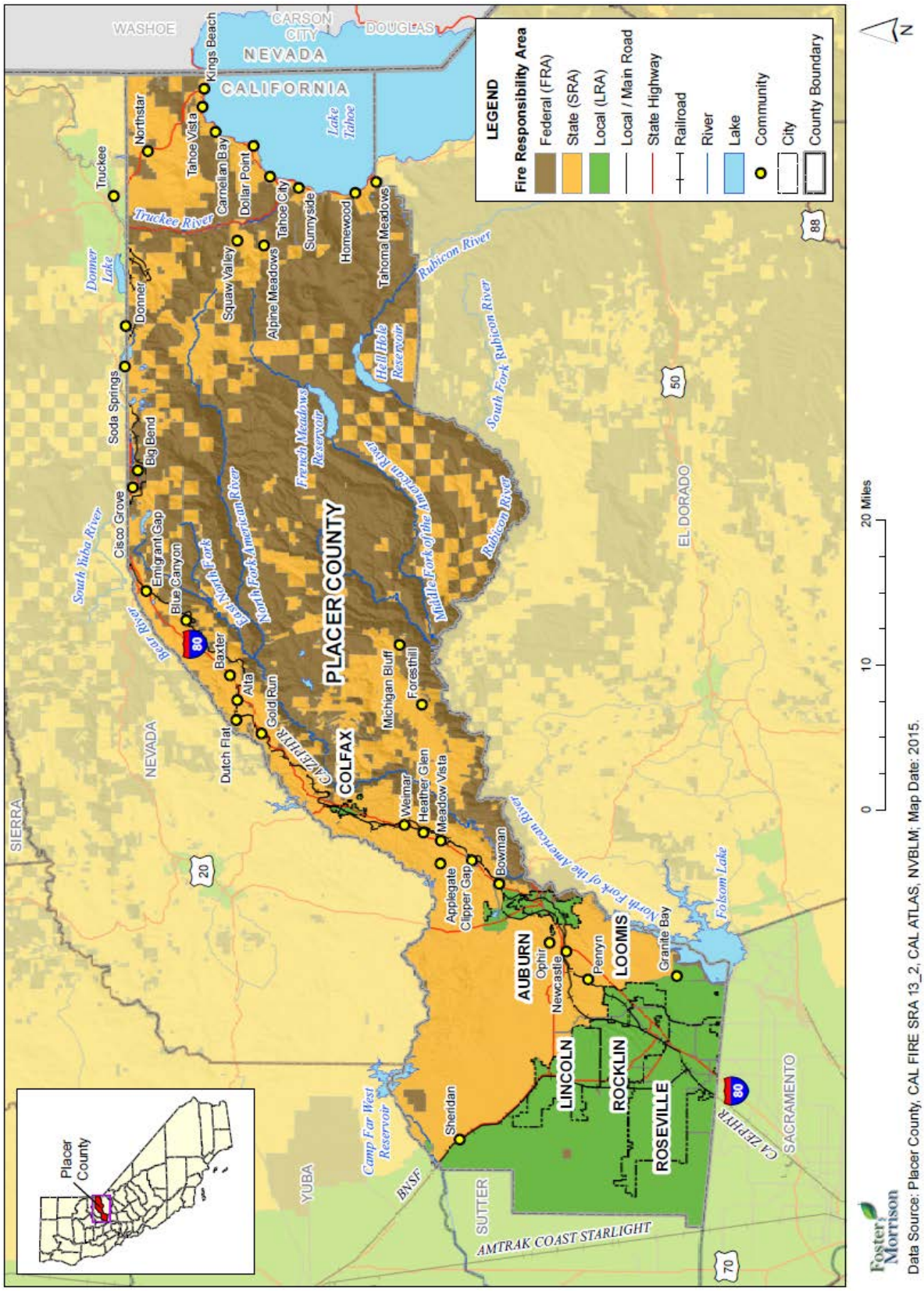
Responsibility Areas

CAL FIRE has a legal responsibility to provide fire protection on all SRA lands, which are defined based on land ownership, population density and property use. CAL FIRE is now also responsible for determining parcels subject to the SRA Fire Prevention Fee under AB X1 29. This dataset (SRA14_2) represents SRA status as of 7/1/14 and was used for the final determination of which parcels were potentially eligible for the fee. CAL FIRE's State Responsibility Area layer was used in this analysis to show Placer County's values, inventory and population by Federal Responsibility Area (FRA), SRA, and LRA. Where neither the SRA nor LRA layers provided coverage, the 'Draft' 2008 LRA layer was applied and the parcels denoted with a "D" preceding the RA type (DLRA, DFRA, etc.). The FRA in the County contains a relatively small number of improved properties. The largest is the LRA. Locations of each responsibility area are shown in Figure 4-87.

Limitations

Within the 'Draft SRA' layer there are 29 very small areas that are not assigned to SRA, FRA, or LRA. The field is simply blank. These areas are denoted as "none" in the analysis of responsibility area and fire hazard severity zone.

Figure 4-87 Placer County FRA, SRA, LRA Wildfire Responsibility Areas



The FRA contains 2,411 parcels, with an improved value of $46,895,434. The SRA contains 55,081 parcels, with over $11.2 billion in total value. The LRA has 63,199 parcels with $15.2 billion in total value. It should be noted that fire does not just affect structural values, fire can also affect land values. As such the Assessor's land values and all parcels were accounted for in this analysis to represent total county assets at risk. However, it is highly unlikely the whole County will ever be on fire at once. The County parcel inventory and associated values by responsibility area are provided in Table 4-60.

Table 4-60 Placer County Planning Area – Assets in Local, State, and Federal Responsibility Areas by Property Use

Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
Draft Federal Responsibility Area					
Agricultural	2	$190,000	0	$0	$190,000
Commercial	1,684	$1,546,654	0	$0	$1,546,654
Industrial	46	$15,013	1	$54,141	$69,154
Institutional	241	$0	0	$0	$0
Natural/Open Space	61	$30,751	0	$0	$30,751
Residential	377	$21,405,331	165	$46,841,293	$68,246,624
Total	**2,411**	**$23,187,749**	166	**$46,895,434**	**$70,083,183**
State Responsibility Area					
Agricultural	487	$102,763,196	104	$20,297,623	$123,060,819
Commercial	8,798	$811,422,656	776	$317,794,975	$1,129,217,631
Industrial	678	$37,190,829	133	$47,903,142	$85,093,971
Institutional	316	$5,668,771	57	$43,805,184	$49,473,955
Natural/Open Space	1,148	$88,420,055	252	$80,394,306	$168,814,361
Residential	43,651	$6,149,405,272	38,666	$10,725,784,190	$16,875,189,462
Total	**55,078**	**$7,194,870,779**	**39,988**	**$11,235,979,420**	**$18,430,850,199**
Draft State Responsibility Area					
Commercial	1	$64,975	0	$0	$64,975
Residential	2	$86,837	2	$483,785	$570,622
Total	**3**	**$151,812**	2	$483,785	$635,597
Local Responsibility Area					
Agricultural	0	$0	0	$0	$0
Commercial	406	$18,605,320	75	$22,495,204	$41,100,524
Industrial	48	$6,532,994	22	$10,946,876	$17,479,870
Institutional	30	$757,740	10	$5,018,232	$5,775,972
Natural/Open Space	7	$85,689	1	$1,515,040	$1,600,729
Residential	1,173	$73,879,439	1,155	$162,214,195	$236,093,634
Total	**1,664**	**$99,861,182**	**1,263**	**$202,189,547**	**$302,050,729**

Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
Draft Local Responsibility Area					
Agricultural	268	$146,076,293	62	$6,077,718	$152,154,011
Commercial	5,306	$929,768,274	1,494	$1,223,248,849	$2,153,017,123
Industrial	1,015	$245,226,712	521	$403,066,620	$648,293,332
Institutional	308	$43,739,574	120	$299,076,532	$342,816,106
Natural/Open Space	317	$19,743,804	20	$13,874,181	$33,617,985
Residential	54,341	$5,170,760,418	51,685	$13,104,394,866	$18,275,155,284
Total	**61,555**	**$6,555,315,075**	**53,902**	**$15,049,738,766**	**$21,605,053,841**
None					
Agricultural	1	$3,155	0	$0	$3,155
Commercial	63	$831,730	0	$0	$831,730
Industrial	2	$0	0	$0	$0
Institutional	8	$0	0	$0	$0
Natural/Open Space	2	$2,518	0	$0	$2,518
Residential	76	$4,485,545	67	$10,687,265	$15,172,810
Total	**152**	**$5,322,948**	**67**	**$10,687,265**	**$16,010,213**
Grand Total	**120,863**	**$13,878,709,545**	**95,388**	**$26,545,974,217**	**$40,424,683,762**

Source: CAL FIRE, Placer County 2015 Parcel/Assessor's Data
*Land and structure values

Fire Hazard Severity Analysis

CAL FIRE mapped the SRA Fire Hazard Severity Zones (FHSZs), or areas of significant fire hazard, based on fuels, terrain, weather, and other relevant factors. Zones are designated with Very High, High, Moderate, Non-Wildland/Urban and Urban Unzoned hazard classes. The goal of this mapping effort is to create more accurate fire hazard zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The fire hazard zones will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources. WUI construction standards will apply to areas that fall within the High and Very High Zones.

CAL FIRE also mapped the LRA Very High Fire Hazard Severity Zones (VHFHSZ). Mapping of these areas is based on data and models of potential fuels over a 30-50 year time horizon and their associated expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including fire brands) to buildings. The California Building Commission adopted California Building Code Chapter 7A requiring new buildings in VHFHSZs to use ignition resistant construction methods and materials. These new codes include provisions to improve the ignition resistance of buildings, especially from fire brands. The updated very high fire hazard severity zones will be used by building officials for new building permits in LRA. The updated zones will also be used to identify property whose

owners must comply with natural hazards disclosure requirements at time of property sale and 100 foot defensible space clearance. It is likely that the fire hazard severity zones will be also used for updates to the safety element of general plans.

The combination of the FHSZ (fhszs06_3) dated December 2007 and the "Recommended" VHFHSZs (c11fhszl06_3) dated June 2008 layers yielded gaps in data for Placer County so the "Draft" FHSZ (fhszall06a1) dated August 2007 layer was used to supplement these areas to get a complete coverage of Fire Hazards. Thus a combination of GIS layers were used to analyze Fire Hazard Severity Zones in the County. The CAL FIRE layers utilized for the analysis were:

- SRA Adopted 11/2007 = fhszs06_3_31
- LRA Recommended 12/2008 = c31fhszl06_3
- Draft LRA Recommended 9/2007 = c31fhszl06_1

Analysis was performed using these three datasets. Using GIS, the parcel layer were overlaid on the Recommended FHSZ and VHFHSZ and the Draft FHSZ layers. For the purposes of this analysis, if the parcel centroid intersects the zone's area, it will be assumed that the entire parcel is in that area. This analysis illustrates the Fire Hazard Severity Zones specific to the Planning Area.

Assets at Risk

Results are presented by total Planning Area, unincorporated county, and for the participating jurisdictions (in their respective annexes to the plan), and detailed tables show improved parcel counts and their land and structure values by property use (residential, industrial, etc.) within each severity zone. According to the information in Table 4-61, almost two thirds of the assets of the County fall in the moderate or higher fire severity category.

Placer County Planning Area

Analysis results for the entire Placer County Planning Area are summarized in Table 4-61, which summarizes total parcel counts, improved parcel counts, and their improved and land values by property use, as well as the percentage of parcels affected by each fire severity zone. Fire severity is shown in Figure 4-88.

Figure 4-88 Placer County Planning Area Fire Severity Zones

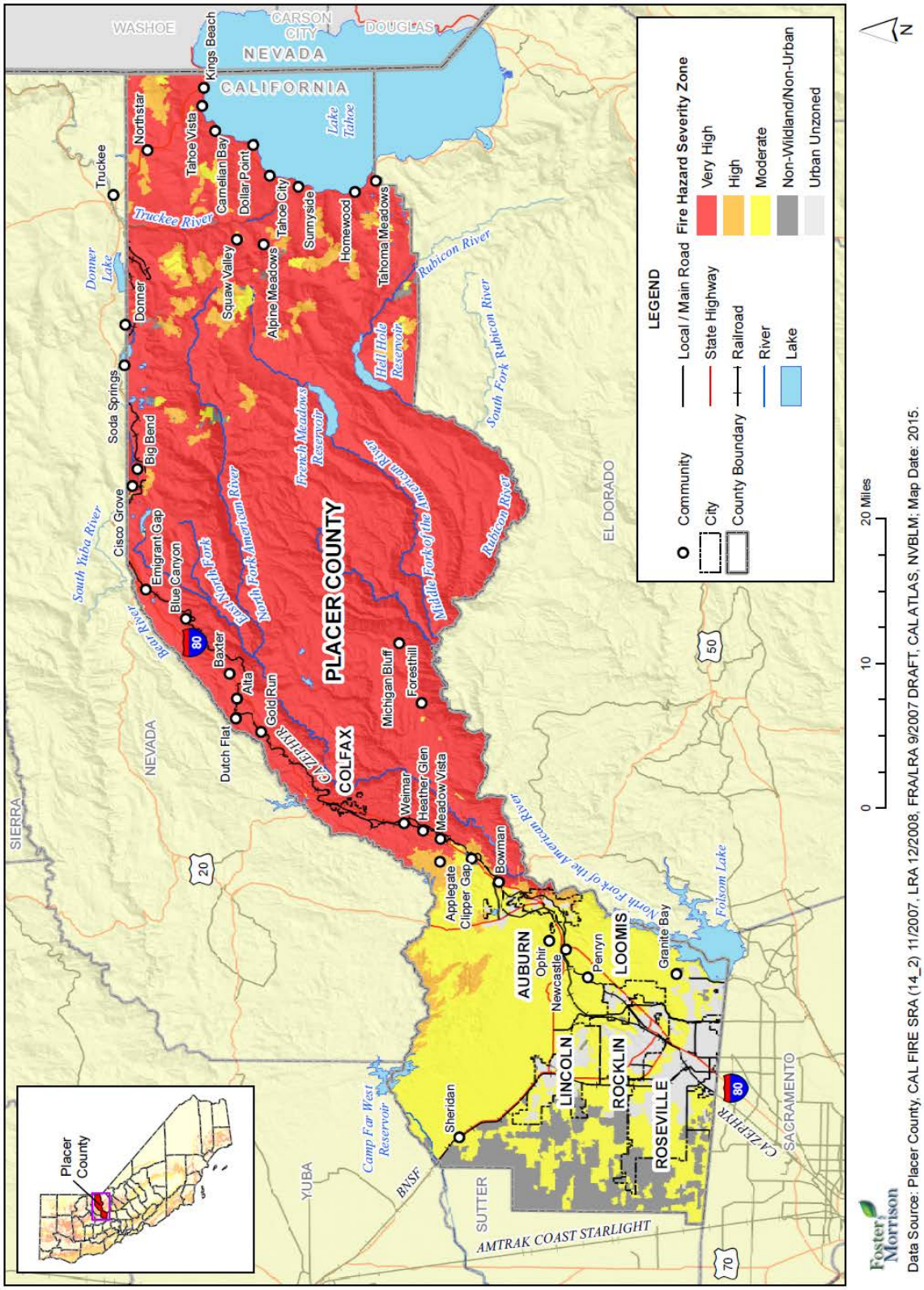


Table 4-61 Placer County Planning Area – Count and Value of Parcels by Jurisdiction and Fire Severity Zone

Fire Severity/ Jurisdiction	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value*
Very High Fire Severity					
Auburn	721	$45,276,282	542	$88,178,340	$133,454,622
Colfax	897	$51,245,431	695	$106,512,114	$157,757,545
Lincoln	0	$0	0	$0	$0
Loomis	0	$0	0	$0	$0
Rocklin	0	$0	0	$0	$0
Unincorporated	36,596	$4,695,334,716	24,349	$7,074,315,227	$11,769,649,943
Total	**38,214**	**$4,791,856,429**	**25,586**	**$7,269,005,681**	**$12,060,862,110**
High Fire Severity					
Auburn	1,510	$108,803,612	1,306	$218,511,742	$327,315,354
Colfax	0	$0	0	$0	$0
Lincoln	0	$0	0	$0	$0
Loomis	38	$2,343,351	27	$5,827,719	$8,171,070
Rocklin	46	$15,856,004	12	$12,907,216	$28,763,220
Unincorporated	3,965	$415,962,150	2,861	$827,470,305	$1,243,432,455
Total	**5,559**	**$542,965,117**	**4,206**	**$1,064,716,982**	**$1,607,682,099**
Moderate Fire Severity					
Auburn	2,723	$252,057,972	2,259	$527,845,087	$779,903,059
Colfax	0	$0	0	$0	$0
Lincoln	8,421	$769,933,263	6,797	$1,880,077,230	$2,650,010,493
Loomis	1,277	$158,785,819	1,029	$278,625,374	$437,411,193
Rocklin	5,197	$636,037,523	4,144	$1,403,489,000	$2,039,526,523
Unincorporated	22,924	$2,910,650,818	17,698	$4,902,567,061	$7,813,217,879
Total	**40,542**	**$4,727,465,395**	**31,927**	**$8,992,603,752**	**$13,720,069,147**
Urban Unzoned Fire Severity					
Auburn	1,152	$113,439,345	950	$258,984,156	$372,423,501
Colfax	0	$0	0	$0	$0
Lincoln	10,531	$877,558,291	10,005	$2,465,693,833	$3,343,252,124
Loomis	1,621	$121,251,100	1,438	$245,291,510	$366,542,610
Rocklin	14,704	$1,446,377,397	13,855	$3,631,639,842	$5,078,017,239
Unincorporated	7,115	$1,014,083,169	6,531	$2,413,409,878	$3,427,493,047
Total	**35,123**	**$3,572,709,302**	**32,779**	**$9,015,019,219**	**$12,587,728,521**
Non-Wildland/Non-Urban Fire Severity					
Auburn	0	$0	0	$0	$0

Fire Severity/ Jurisdiction	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value*
Colfax	0	$0	0	$0	$0
Lincoln	773	$71,770,716	587	$138,612,148	$210,382,864
Loomis	7	$493,825	6	$644,553	$1,138,378
Rocklin	3	$0	0	$0	$0
Unincorporated	505	$166,125,813	230	$54,684,617	$220,810,430
Total	**1,288**	**$238,390,354**	**823**	**$193,941,318**	**$432,331,672**
None Assigned					
Auburn	0	$0	0	$0	$0
Colfax	0	$0	0	$0	$0
Lincoln	0	$0	0	$0	$0
Loomis	0	$0	0	$0	$0
Rocklin	0	$0	0	$0	$0
Unincorporated	137	$5,322,948	67	$10,687,265	$16,010,213
Total	**137**	**$5,322,948**	**67**	**$10,687,265**	**$16,010,213**
Grand Total	**120,863**	**$13,878,709,545**	**95,388**	**$26,545,974,217**	**$40,424,683,762**

Source: CAL FIRE, Placer County 2015 Parcel/Assessor's Data
*Land and structure values

Unincorporated Placer County

Table 4-62 breaks out the details of fire severity class and property use type for the unincorporated County.

Table 4-62 Unincorporated Placer County – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value*
Very High	Agricultural	11	$2,407,325	3	$535,293	$2,942,618
	Commercial	7,588	$406,956,548	621	$276,711,733	$683,668,281
	Industrial	466	$20,426,869	90	$26,859,119	$47,285,988
	Institutional	441	$3,763,608	38	$22,619,952	$26,383,560
	Natural/Open Space	1,053	$76,465,988	236	$71,964,844	$148,430,832
	Residential	28,655	$4,281,836,091	24,598	$6,870,314,740	$11,152,150,831
	Total	**38,214**	**$4,791,856,429**	**25,586**	**$7,269,005,681**	**$12,060,862,110**
High	Agricultural	40	$7,645,585	1	$6,932	$7,652,517
	Commercial	782	$59,886,029	109	$56,528,509	$116,414,538

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value*
	Industrial	63	$5,923,475	15	$6,516,589	$12,440,064
	Institutional	42	$531,865	8	$3,572,513	$4,104,378
	Natural/Open Space	69	$5,034,310	6	$2,222,090	$7,256,400
	Residential	4,563	$463,943,853	4,067	$995,870,349	$1,459,814,202
	Total	**5,559**	**$542,965,117**	**4,206**	**$1,064,716,982**	**$1,607,682,099**
Moderate	Agricultural	563	$165,665,359	123	$23,683,982	$189,349,341
	Commercial	5,009	$814,841,608	537	$422,945,293	$1,237,786,901
	Industrial	765	$136,804,306	243	$179,161,236	$315,965,542
	Institutional	238	$18,263,592	66	$126,070,000	$144,333,592
	Natural/Open Space	258	$11,051,080	15	$8,453,268	$19,504,348
	Residential	33,709	$3,580,839,450	30,943	$8,232,289,973	$11,813,129,423
	Total	**40,542**	**$4,727,465,395**	**31,927**	**$8,992,603,752**	**$13,720,069,147**
Urban/ Unzoned	Agricultural	5	$9,037	1	$16,953	$25,990
	Commercial	2,629	$443,394,251	1,068	$777,011,913	$1,220,406,164
	Industrial	468	$102,865,797	329	$249,433,835	$352,299,632
	Institutional	176	$27,607,020	75	$195,637,483	$223,244,503
	Natural/Open Space	135	$11,974,232	14	$11,464,046	$23,438,278
	Residential	31,710	$2,986,858,965	31,292	$7,781,454,989	$10,768,313,954
	Total	**35,123**	**$3,572,709,302**	**32,779**	**$9,015,019,219**	**$12,587,728,521**
Non-Wildland/ Non-Urban	Agricultural	138	$73,302,183	38	$2,132,181	$75,434,364
	Commercial	194	$36,329,443	10	$30,341,580	$66,671,023
	Industrial	25	$22,945,101	0	$0	$22,945,101
	Institutional	6	$0	0	$0	$0
	Natural/Open Space	18	$3,754,689	2	$1,679,279	$5,433,968
	Residential	907	$102,058,938	773	$159,788,278	$261,847,216
	Total	**1,288**	**$238,390,354**	**823**	**$193,941,318**	**$432,331,672**
No Zone Assigned	Agricultural	1	$3,155	0	$0	$3,155
	Commercial	56	$831,730	0	$0	$831,730
	Industrial	2	$0	0	$0	$0

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value*
	Institutional	0	$0	0	$0	$0
	Natural/Open Space	2	$2,518	0	$0	$2,518
	Residential	76	$4,485,545	67	$10,687,265	$15,172,810
	Total	**137**	**$5,322,948**	**67**	**$10,687,265**	**$16,010,213**
Grand Total		**120,863**	**$13,878,709,545**	**95,388**	**26,545,974,217**	**40,424,683,762**

Source: CAL FIRE, Placer County 2015 Parcel/Assessor's Data
*Land and structure values

Population at Risk

A separate analysis was performed to determine population in fire severity zones. Using GIS, the CAL FIRE fire severity dataset was overlayed on the improved residential parcel data. Those parcel centroids that intersect a flood zone were counted and multiplied by the Census Bureau Placer County average household size (2.60 for the County); results were tabulated by jurisdiction and fire severity zone (see Table 4-56). According to this analysis, there is a population of 155,021 in the moderate or higher fire severity zone category.

Table 4-63 Placer County Planning Area – Population at Risk by Fire Severity Zone

Fire Severity Zone	Improved Residential Parcels	Population*
Very High	24,598	63,955
High	4,067	10,574
Moderate	30,943	80,452
Non-Wildland/Urban	31,292	81,359
Urban Unzoned	773	2,010
None/Undefined Zone	67	174
Total	**91,740**	**238,524**

Source: 2010 Preliminary DFIRM, US Census Bureau, Placer County 2015 Assessor/Parcel Data

Cultural and Natural Resources at Risk

Placer County has substantial cultural and natural resources located throughout the County as previously described. In addition, there are other natural resources at risk when wildland-urban interface fires occur. One is the watershed and ecosystem losses that occur from wildland fires. This includes impacts to water supplies and water quality as well as air quality. Another is the aesthetic value of the area. Major fires that result in visible damage detract from that value. Other assets at risk include wildland recreation areas, wildlife and habitat areas, and rangeland resources. The loss to these natural resources can be significant.

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a wildfire hazard areas provided by CAL FIRE, and if so, which zone it intersects. This is shown on Figure 4-89. There are 66 facilities in the very high fire, 11 in the high fire severity zone, and 83 facilities in the moderate fire severity zone, as shown in Table 4-64. All of the facilities in the moderate fire severity zone are located in the unincorporated County. Details of critical facility definition, type, name, address, and jurisdiction by fire severity zone are listed in Appendix F.

Figure 4-89 Placer County Planning Area – Critical Facilities in Fire Severity Zones

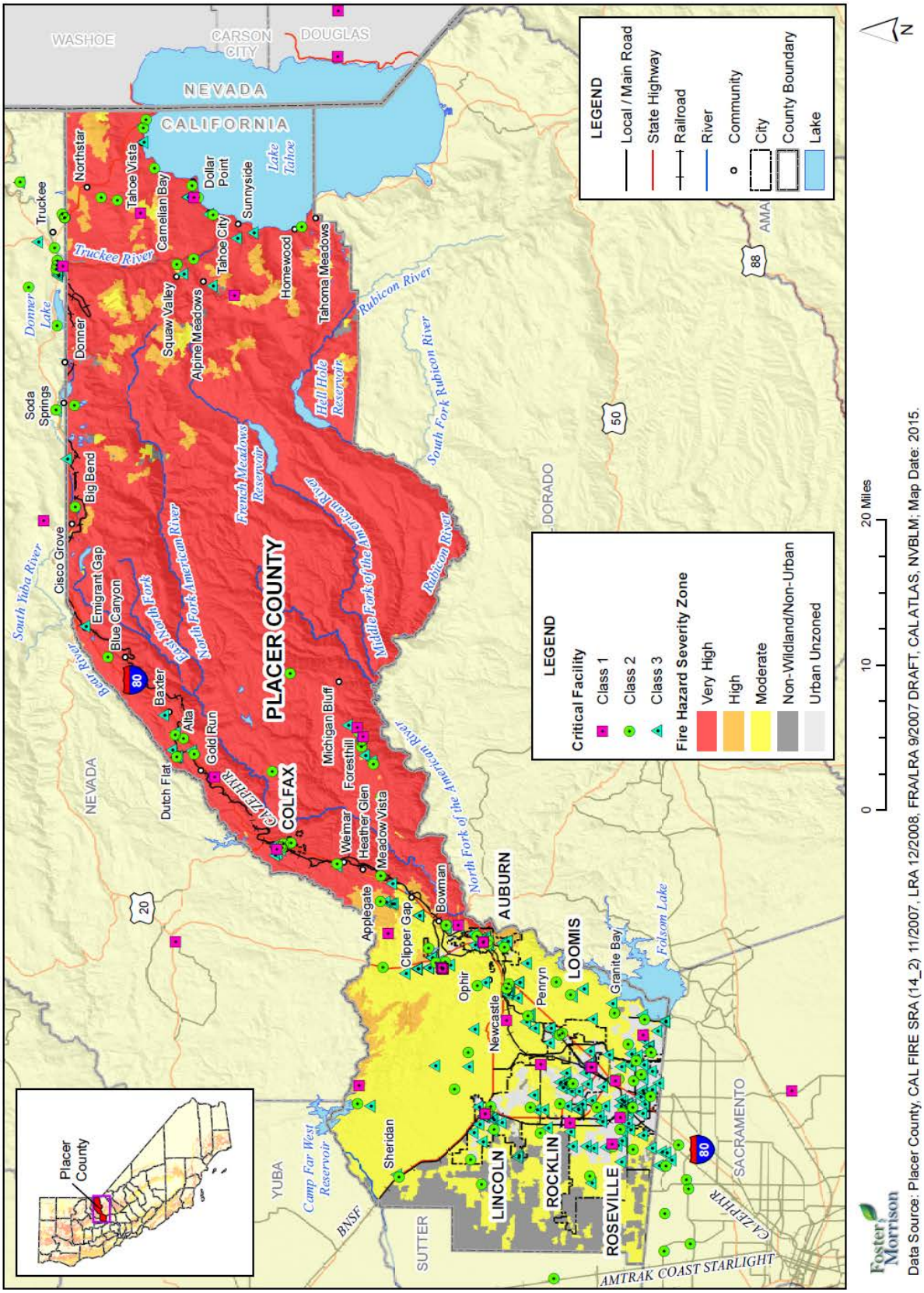


Table 4-64 Placer County Planning Area – Critical Facilities in Fire Severity Zones

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
City of Auburn			
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	School	2
		Total High	**2**
Moderate	Class 1	-	-
	Class 2	Fire Station	2
	Class 3	Hall	3
		Total Moderate	**5**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Airport	1
		Fire Station	1
		National/Coast Guard	1
		Police Station	1
	Class 3	Fairground	1
		Hall	2
		School	3
		Total Urban Unzoned	**12**
Total Fire - City of Auburn			**19**
City of Colfax			
Very High	Class 1	-	-
	Class 2	Fire Station	2
		PCSO	1
	Class 3	Hall	1
		Water Treatment Plant	1
		Total Very High	**5**

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Moderate	**0**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Urban Unzoned	**0**
Total Fire - City of Colfax			**5**
City of Lincoln			
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	Airport	1
		Fire Station	2
	Class 3	School	6
		Total Moderate	**9**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	School	1
		Water Treatment Plant	1
		Total Non-Wildland/Non-Urban	**2**

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	5
		Total Urban Unzoned	**12**
Total Fire - City of Lincoln			**23**
City of Rocklin			
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	Communication Transmission Sites	1
	Class 2	Fire Station	1
	Class 3	School	1
		Water Treatment Plant	1
		Total Moderate	**4**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	2
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	18
		Total Urban Unzoned	**26**
Total Fire - City of Rocklin			**30**

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Town of Loomis			
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	PCSO	1
	Class 3	-	-
		Total Moderate	**1**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	-	-
	Class 2	Fire Station	1
	Class 3	School	3
		Total Urban Unzoned	**4**
Total Fire - Town of Loomis			**5**
Unincorporated Placer County			
Very High	Class 1	Communication Transmission Sites	5
		Emergency Operation Center	1
	Class 2	Airport	1
		CHP Station	1
		Fire Station	23
		National/Coast Guard	1
		PCSO	3
	Class 3	Hall	9
		School	13
		Water Treatment Plant	4
		Total Very High	**61**
High	Class 1	Communication Transmission Sites	1

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
	Class 2	Fire Station	2
	Class 3	Hall	1
		Hazardous Materials Facility	2
		School	1
		Water Treatment Plant	2
		Total High	**9**
Moderate	Class 1	Communication Transmission Sites	5
		Telecommunications	2
	Class 2	CHP Station	1
		Fire Station	14
	Class 3	Hall	12
		Hazardous Materials Facility	6
		School	18
		Water Treatment Plant	6
		Total Moderate	**64**
Non-Wildland/Non-Urban	Class 1	Communication Transmission Sites	1
	Class 2	Fire Station	1
	Class 3	Hall	1
		Total Non-Wildland/Non-Urban	**3**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	4
		Hospital	1
		PCSO	2
	Class 3	Hall	1
		School	3
		Water Treatment Plant	1
		Total Urban Unzoned	**14**
Total Fire - Unincorporated Placer County			**151**
Total Fire - Planning Area			**233**

Source: CAL FIRE, Placer County GIS

Overall Community Impact

The overall impact to the community from a severe wildfire includes:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Decreased water quality in area watersheds;
- Increase in post-fire hazards such as flooding, sedimentation, and mudslides;
- Damage to natural resource habitats and other resources, such as timber and rangeland;
- Loss of water, power, roads, phones, and transportation, which could impact, strand, and/or impair mobility for emergency responders and/or area residents;
- Economic losses (jobs, sales, tax revenue) associated with loss of commercial structures;
- Negative impact on commercial and residential property values;
- Loss of churches, which could severely impact the social fabric of the community;
- Loss of schools, which could severely impact the entire school system and disrupt families and teachers, as temporary facilities and relocations would likely be needed; and
- Impact on the overall mental health of the community.

Future Development

Population growth and development in Placer County is on the rise. Additional growth and development within the WUI areas of the County would place additional assets at risk to wildfire.

GIS Analysis

Placer County's GIS parcel layer was used as the basis for the countywide inventory of parcels and acres values. In this analysis, the parcel data was converted to a point layer using a centroid conversion process, in which each parcel was identified by a central point containing the assessor's data. In addition, Placer County provided and table and GIS spatial file identifying the 25 future development areas for which the analysis was to be performed. Utilizing the future development spatial layer, the parcel centroid data was intersected to determine the parcel counts within each development. The following hazards data was collected to perform the additional analysis:

- The California Department of Forestry and Fire Protection (CAL FIRE; c25fhszl06_1) data was utilized to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), define the application of various mitigation strategies to reduce risk associated with wildland fires.

The model assumes that Placer County's GIS parcel layer can be intersected by each future development area to determine the parcel counts and approximate acreage totals. This approach was used to support the parcel layer analysis as there was no associated building layer available for this analysis. Table 4-65 shows the breakdown of the future development parcel counts in Placer County and their acreages. Future development areas for the eastern portion of the County are shown in Figure 4-90, while future development areas in the western portion of the County are shown in Figure 4-91. The County Planning Services Division indicated that the following future development areas may face wildfire risk:

Table 4-65 Placer County Future Development in Fire Severity Zones

Future Development Project	Parcel Count	Acres	Fire Severity Zone	Jurisdiction
Palisades at Squaw	6	3	Very High	Placer County Unincorporated Areas
Reason Farms	29	1,737	Moderate, Non-Wildland/Non-Urban	City of Roseville
Creekview	12	498	Moderate, Non-Wildland/Non-Urban	City of Roseville
West Roseville	4,943	3,135	Moderate, Non-Wildland/Non-Urban, Urban Unzoned	City of Roseville
Placer Parkway	62	1,644	Moderate, Non-Wildland/Non-Urban, Urban Unzoned	City of Roseville, Placer County Unincorporated Areas
Antonio Mt. Ranch	19	812	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
Lincoln Village 5	192	4,927	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
Placer Ranch	115	2,208	Moderate, Non-Wildland/Non-Urban, Urban Unzoned	Placer County Unincorporated Areas
Placer Vineyards	314	5,231	Moderate, Non-Wildland/Non-Urban, Urban Unzoned	Placer County Unincorporated Areas
Riolo Vineyards	19	506	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
Sierra Vista	52	2,049	Moderate, Non-Wildland/Non-Urban	City of Roseville
Brookfield	13	682	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
Regional University	24	1,176	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
The Village at Squaw Valley	11	8	Very High	Placer County Unincorporated Areas
Lincoln 270	30	263	Moderate	City of Lincoln
The Village at Squaw Valley	63	81	Very High	Placer County Unincorporated Areas
Western Regional Sanitary Landfill	5	314	Moderate, Non-Wildland/Non-Urban, Urban Unzoned	Placer County Unincorporated Areas
Western Regional Sanitary Landfill Expansion Site	11	465	Moderate, Non-Wildland/Non-Urban	Placer County Unincorporated Areas
Palisades at Squaw	10	17	Very High	Placer County Unincorporated Areas
Alpine Sierra Subdivision	18	44	Very High	Placer County Unincorporated Areas
Brockway Campground	10	116	Very High	Placer County Unincorporated Areas

Future Development Project	Parcel Count	Acres	Fire Severity Zone	Jurisdiction
Martis Valley West Parcel	22	1,046	Very High	Placer County Unincorporated Areas
Bickford Ranch	158	1,902	Moderate	Placer County Unincorporated Areas
Bickford Ranch	9	38	Moderate	Placer County Unincorporated Areas
The Village at Squaw Valley	4	3	Very High	Placer County Unincorporated Areas
Totals	**6,151**	**28,906**		

Source: CAL FIRE, Placer County GIS

Figure 4-90 Placer County East – Future Development in Fire Severity Zones

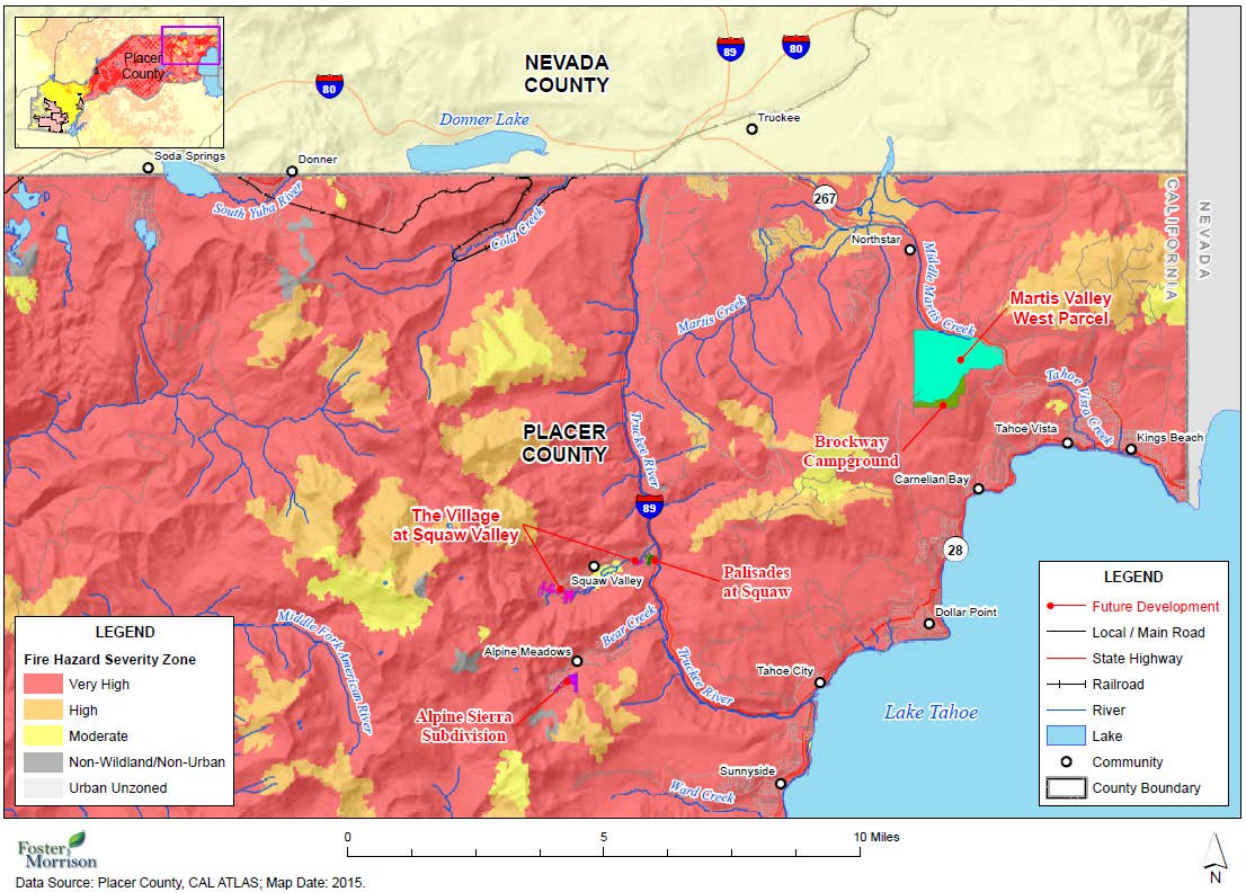
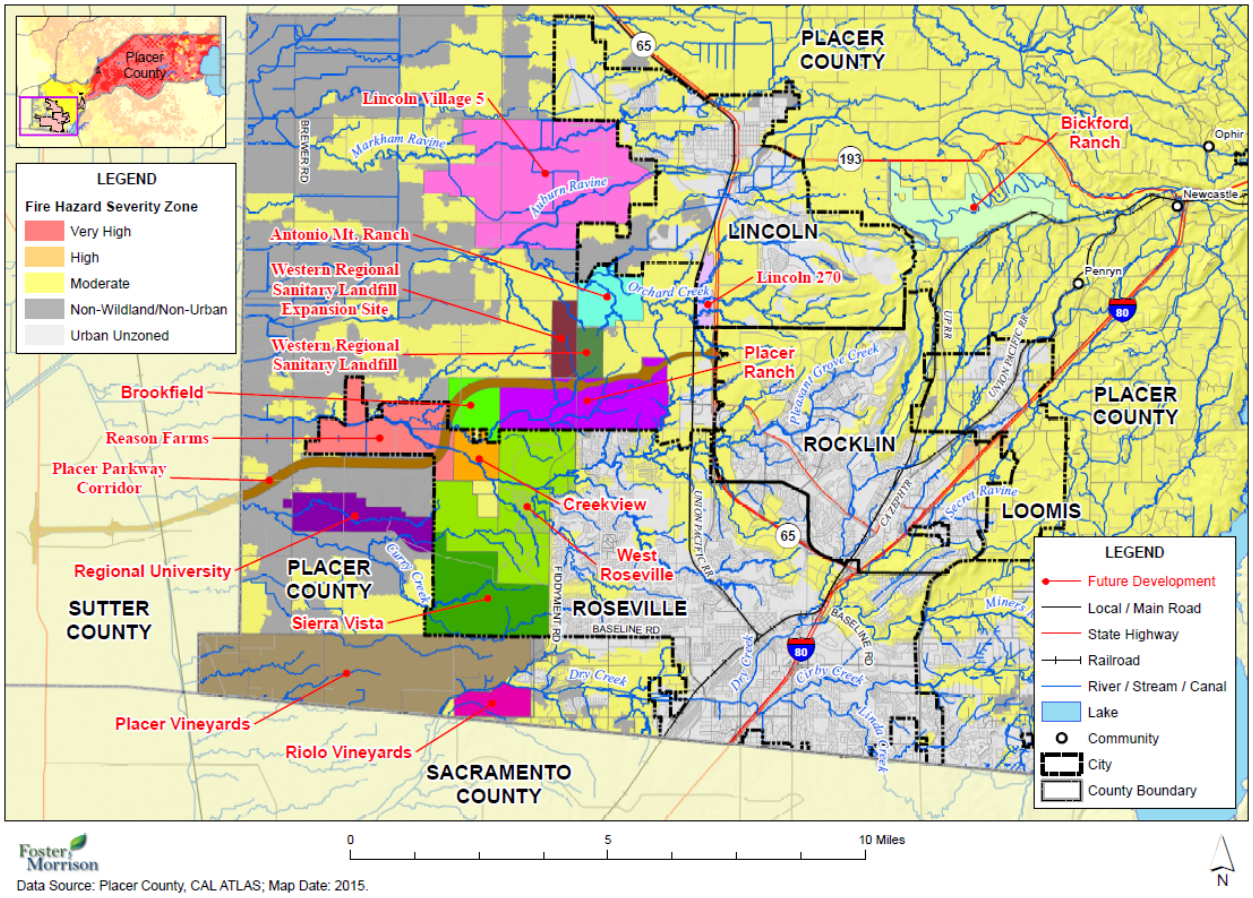


Figure 4-91 Placer County West – Future Development in Fire Severity Zones



4.3.13. Hazardous Materials Transport Vulnerability Assessment

Likelihood of Future Occurrence—Highly Likely
Vulnerability—High

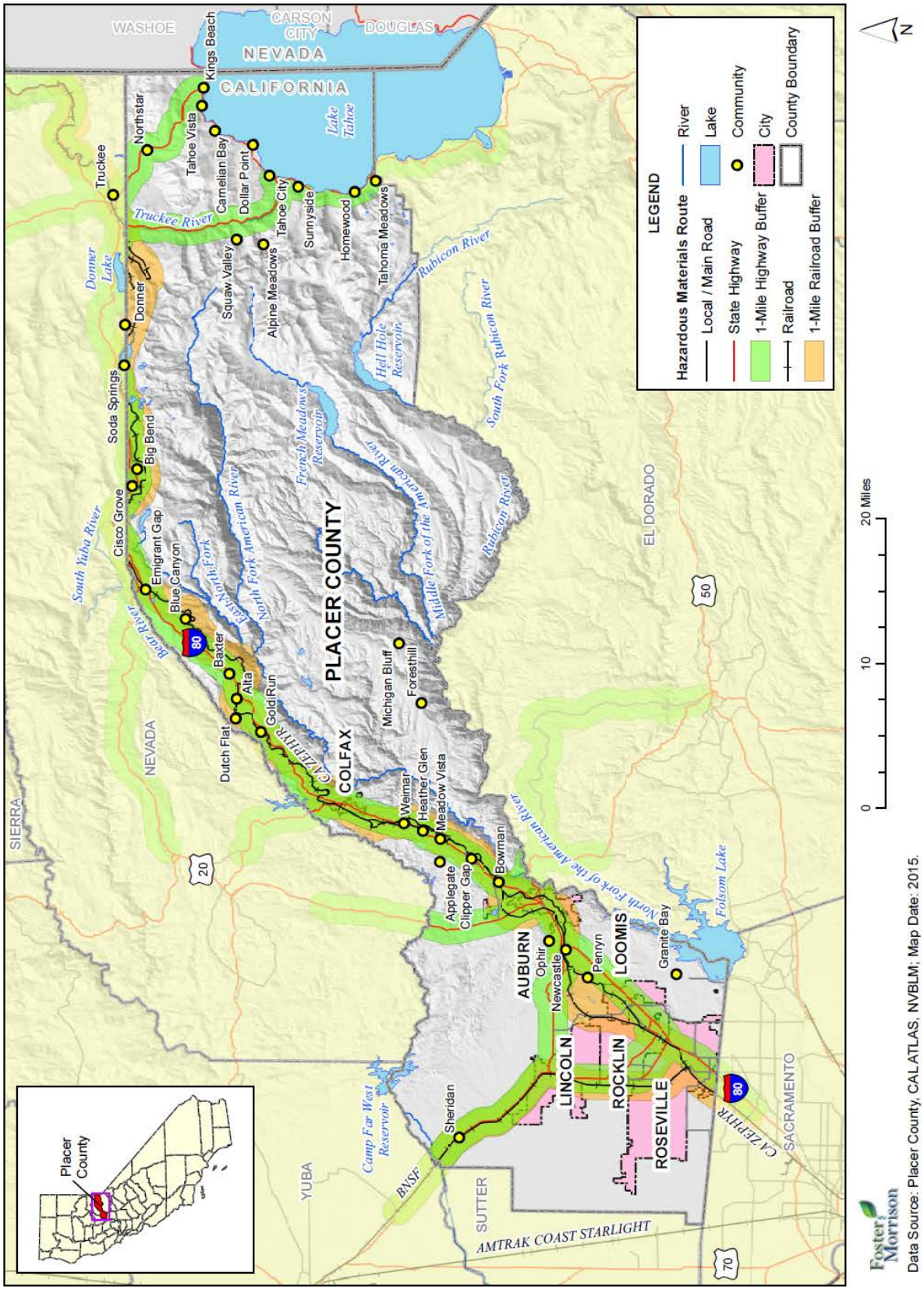
It is often quite difficult to quantify the potential losses from human-caused hazards. While the facilities themselves have a tangible dollar value, loss from a human-caused hazard often inflicts an even greater toll on a community, both economically and emotionally. The impact to identified assets will vary from event to event and depend on the type, location, and nature of a specific hazardous material incident. Given the difficulty in quantifying the losses associated with technological hazards, this section focuses on analyzing key Planning Area assets relative to the hazardous materials sites and transportation corridors identified above in Section 4.2.18. Figure 4-92 shows the hazardous materials transportation corridors in Placer County as well as the two mile buffer zone used this analysis as detailed further in the methodology below.

Methodology: Buffer Zone

An analysis of the potential vulnerability of the Planning Area to a transportation-related hazardous materials release was conducted using GIS within identified transportation corridors. To evaluate the areas

most vulnerable, a one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis. The buffer distance was based on guidelines in the U.S. Department of Transportation's Emergency Response Guidebook that suggest distances useful to protect people from vapors resulting from spills involving dangerous goods considered toxic if inhaled. The recommended buffer distance referred to in the guide as the "protective action distance" is the area surrounding the incident in which people are at risk of harmful exposure. For purposes of this plan, an buffer distance of one mile was used on either side of the transportation corridor. Actual buffer distances will vary depending on the nature and quantity of the release, whether the release occurred during the night or daytime, and prevailing weather conditions.

Figure 4-92 Placer County Planning Area – Hazardous Materials Routes and Buffer Zone



Assets at Risk

During a hazardous materials transportation spill, it is generally the people that are at risk to the effects of the spill. During a spill, buildings, property, and their values are at limited risk. Should a propane truck catch fire in a residential area, it may cause a building to burn, but will not burn all buildings inside the buffer zone. As such, no analysis on the values of assets in the buffer zone was performed.

HMPC Assets at Risk

The HMPC noted that there are additional assets at risk to hazardous materials spills. Problems arising from spills includes:

- The disruption of commerce including transportation and communication such as fiber optic cables.
- A tank car derailment of other loss could impact drinking water, wildlife, forest, recreation, area communities. Some take their water supply directly from the river, others through periodical PCWA pumps near the old Auburn Dam site, some from Folsom Reservoir (City of Folsom the only source is the reservoir; San Juan Water District and those is wholesales to like Citrus Heights), and the City of Sacramento. Water quality issues are a noted potential impact from train derailments which is an identified hazard in this plan.
- Train derailments in the North Fork could affect all of these drinking water programs. The number of people affected by remote canyon derailment actually includes the people dependent on drinking water downriver that could be affected by train derailments in the North Fork.

Population at Risk

To determine the populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS to determine the residential population that resides within the two-mile buffer zone of the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel data and results tabulated for the Planning Area, Unincorporated County, and incorporated jurisdictions as found in Table 4-66. Those parcel centroids that intersect the buffered corridor were counted and multiplied by the 2010 Census Bureau average household factors for Placer County communities. According to this analysis, there is a total population of 215,547 in the buffered corridor. There are 103,015 people in the buffered corridor in the unincorporated County.

Table 4-66 County Planning Area – Jurisdictional Populations at Risk in Haz-Mat Corridors

Jurisdiction	Residential Parcels	Population
Auburn	4,810	10,919
Colfax	610	1,452
Lincoln	17,528	45,398
Loomis	2,362	6,424
Rocklin	17,804	48,249
Unincorporated	39,621	103,015
Total	**113,658**	**215,457**

Source: Cal Trans, Placer County GIS, US Census Bureau

*Census Bureau 2010 average household sizes are: Auburn – 2.27, Colfax – 2.38, Lincoln – 2.59, Loomis – 2.72, Rocklin – 2.71, Unincorporated – 2.60

Critical Facilities at Risk

To determine the critical facilities at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS to determine the facilities located within the two-mile buffer zone of the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the Placer County critical facilities layer and results tabulated for the Planning Area, Unincorporated County, and incorporated jurisdictions as shown on Figure 4-93 and detailed in Table 4-64. There are 154 facilities in the buffered corridor in the Planning Area, 83 of which are in the unincorporated County.

Figure 4-93 Placer County Planning Area – Critical Facilities in the Haz Mat Buffer

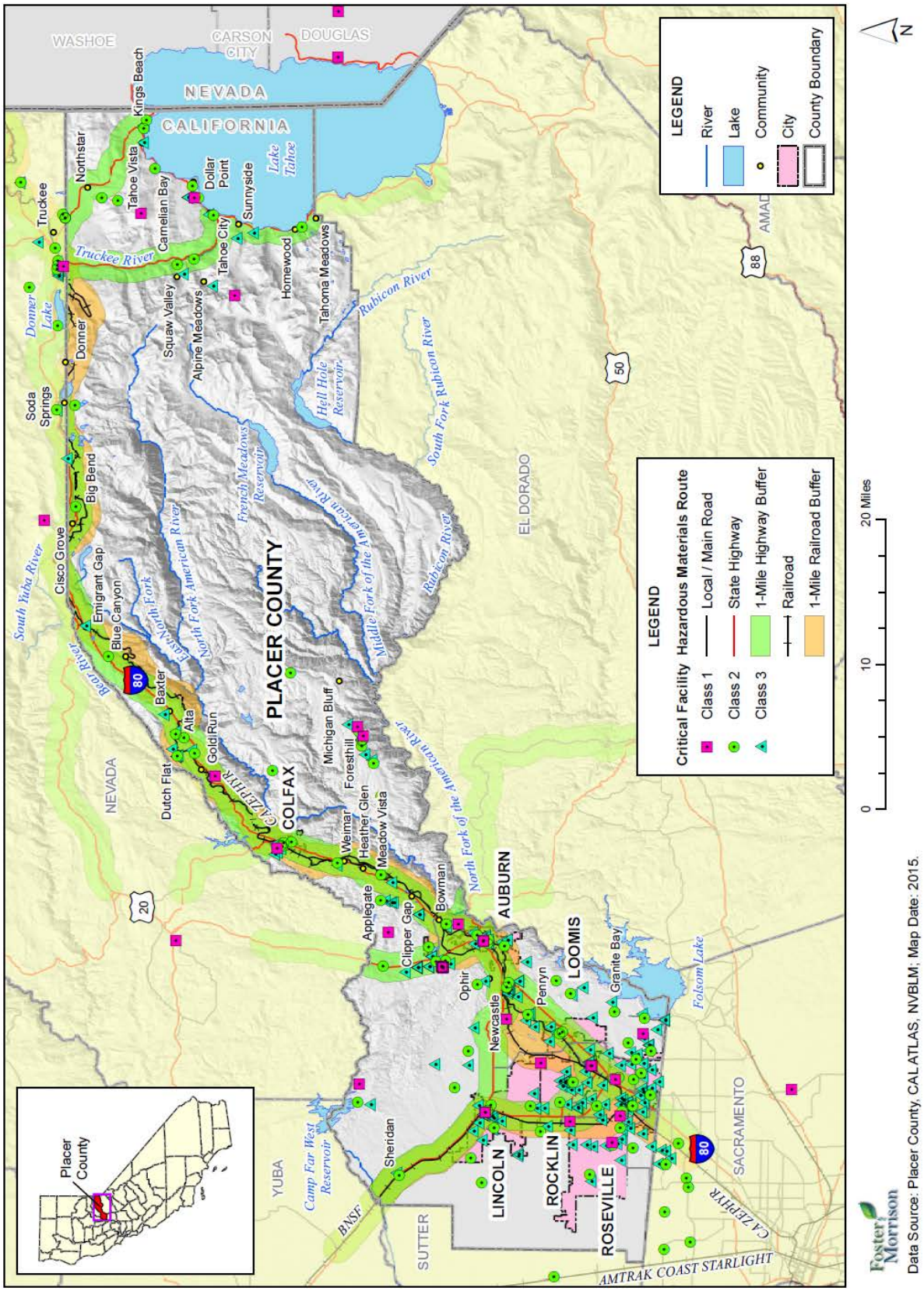


Table 4-67 Placer County Planning Area – Critical Facilities in the Haz Mat Buffer

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
City of Auburn			
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Highway Route	**0**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	School	1
		Total Hazardous Materials Railroad Route	**1**
Combined Hazardous Materials Highway and Railroad Route	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Airport	1
		Fire Station	3
		National/Coast Guard	1
		Police Station	1
	Class 3	Fairground	1
		Hall	5
		School	4
		Total Combined Routes	**18**
Total			**19**
City of Colfax			
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Highway Route	**0**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Railroad Route	**0**
Combined Hazardous Materials Highway and Railroad Route	Class 1	**-**	-
	Class 2	Fire Station	2
		PCSO	1

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
	Class 3	Hall	1
		Water Treatment Plant	1
		Total Combined Routes	5
Total			**5**
City of Lincoln			
Hazardous Materials Highway Route	Class 1		-
	Class 2	Fire Station	1
	Class 3	School	1
		Total Hazardous Materials Highway Route	**2**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Railroad Route	**0**
Combined Hazardous Materials Highway and Railroad Route	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	8
		Total Combined Routes	**15**
Total			**17**
City of Rocklin			
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	Fire Station	2
	Class 3	Fairground	1
		School	7
		Total Hazardous Materials Highway Route	**10**
Hazardous Materials Railroad Route	Class 1	Communication Transmission Sites	1
	Class 2		-
	Class 3	School	1
		Water Treatment Plant	1
		Total Hazardous Materials Railroad Route	**3**
	Class 1	Dispatch Center	1

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
Combined Hazardous Materials Highway and Railroad Route		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		School	6
		Total Combined Routes	**12**
Total			**25**
Town of Loomis			
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Highway Route	**0**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	School	1
		Total Hazardous Materials Railroad Route	**1**
Combined Hazardous Materials Highway and Railroad Route	Class 1		-
	Class 2	Fire Station	1
		PCSO	1
	Class 3	School	2
		Total Combined Routes	**4**
Total			**5**
Unincorporated Placer County			
Hazardous Materials Highway Route	Class 1	Communication Transmission Sites	1
		Dispatch Center	1
		Emergency Operation Center	1
		Telecommunications	2
	Class 2	Fire Station	7
		Hospital	1
		PCSO	2
	Class 3	Hall	4
		Hazardous Materials Facility	3
		School	5
		Water Treatment Plant	4

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
		Total Hazardous Materials Highway Route	**31**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	Fire Station	2
	Class 3	Hall	5
		School	1
		Total Hazardous Materials Railroad Route	**8**
Combined Hazardous Materials Highway and Railroad Route	Class 1	Communication Transmission Sites	4
	Class 2	Airport	1
		CHP Station	2
		Fire Station	11
	Class 3	Hall	4
		Hazardous Materials Facility	4
		School	12
		Water Treatment Plant	6
		Total Combined Routes	**44**
Total			**83**
Total - Planning Area			**154**

Source: Cal Trans, Placer County GIS

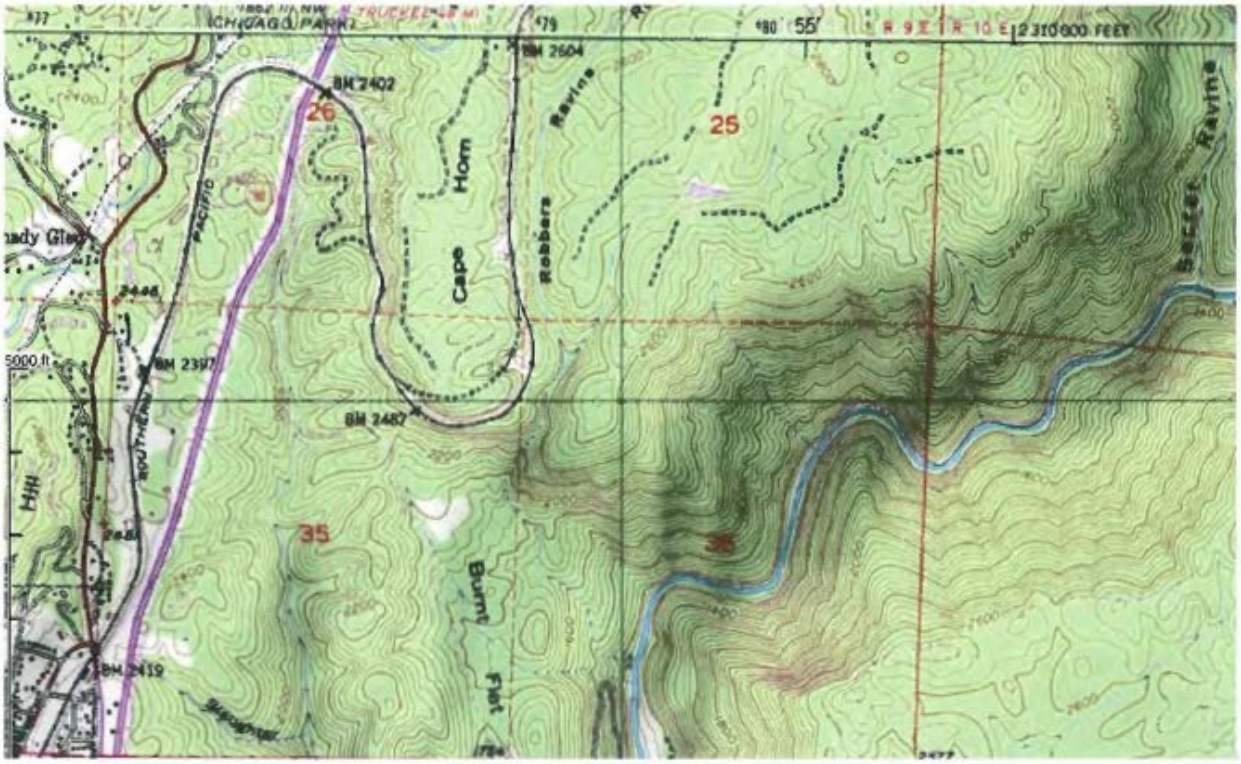
Cultural and Natural Resources at Risk

The Placer County Planning Area has significant cultural and natural resources located throughout the County as previously described. Vulnerability analysis of these resources was not possible due to data limitations.

Oil by Rail Vulnerabilities

The State of California (Cal OES) has designated the Cape Horn area (see Figure 4-94) as a "High Hazard Area." This is the only area in Placer and Nevada Counties that holds this designation. The topographic features illustrate the obvious reason why this area is considered hazardous. Due to the close proximity of the North Fork of the American River special response strategies are warranted. The canyon walls are steep and have direct access to the river via seasonal creeks that have formed natural funnels to the river. The catastrophic release of just one tank car (30,000 gals) would most likely cause crude oil to enter the American River. Diking, damming, and booming operations are all viable options to contain the crude oil and minimize environmental impact. The Alta Fire Department and Truckee Fire Department both have equipment to provide swift water booming operations for this area.

Figure 4-94 Cape Horn Hazard Area for Oil by Rail Spill



Source: Crude Oil/Hazmat by Rail Operational Guide 2015

Future Development

Development will continue to happen within hazardous materials transportation zones. Those who choose to develop in these areas should be made aware of the risks associated with living within close proximity to a hazardous materials transportation route.

4.4 Capability Assessment

Thus far, the planning process has identified the natural hazards posing a threat to the Planning Area and described, in general, the vulnerability of the County to these risks. The next step is to assess what loss prevention mechanisms are already in place. This part of the planning process is the mitigation capability assessment. Combining the risk assessment with the mitigation capability assessment results in the County's net vulnerability to disasters, and more accurately focuses the goals, objectives, and proposed actions of this plan.

The HMPC used a two-step approach to conduct this assessment for the County. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken if deemed appropriate. Second, the HMPC conducted an inventory and review of existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses or if they inadvertently contributed to increasing such losses.

This section presents the County's mitigation capabilities and discusses select state and federal mitigation capabilities that are applicable to the County.

Similar to the HMPC's effort to describe hazards, risks, and vulnerability of the County, this mitigation capability assessment describes the County's existing capabilities, programs, and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This assessment is divided into four sections: regulatory mitigation capabilities are discussed in Section 4.4.1; administrative and technical mitigation capabilities are discussed in Section 4.4.2; fiscal mitigation capabilities are discussed in Section 4.4.3; and mitigation education, outreach, and partnerships are discussed in Section 4.4.4. A discussion of other mitigation efforts follows in Section 4.4.5.

4.4.1. Placer County's Regulatory Mitigation Capabilities

Table 4-68 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities, and indicates those that are in place in the County. Excerpts from applicable policies, regulations, and plans and program descriptions follow to provide more detail on existing mitigation capabilities.

Table 4-68 Placer County Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y 2013	The General Plan Safety Element contains a program to address hazards. The Plan identifies mitigation actions and can be used to implement mitigation actions.
Capital Improvements Plan	Y	
Economic Development Plan	Y	

Local Emergency Operations Plan	Y 2010	The Placer County EOP update is in progress. It is scheduled to be completed by the end of July 2016.
Continuity of Operations Plan		
Transportation Plan	Y	Regional Plan
Stormwater Management Plan/Program	Y 2004	
Engineering Studies for Streams		
Community Wildfire Protection Plan	Y 2015	This project addresses fire hazards in the County. It contains mitigation actions and a mitigation strategy to reduce fire risk in the County.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y 2015	Oil by Rail plan for the County. The plan details risk to the County and how the County will respond to any oil by rail spill.
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: CBC 2013. It is enforced by the building department.
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score: 2/2
Fire department ISO rating:		Rating:
Site plan review requirements		The floodplain is identified through County GIS database
Property Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	This is an effective measure and is adequately administered and enforced.
Subdivision ordinance	Y	This is an effective measure and is adequately administered and enforced.
Floodplain ordinance	Y	The ordinance limits development in the floodplain and follows FEMAs guidelines. County staff administers and enforces ordinance
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	County enforces a Stormwater Quality Ordinance and WUI ordinance. There are also defensible space programs.
Flood insurance rate maps	Y	Maps are maintained at the County. New maps are being developed to better identify flood hazard. Mapping is part of County GIS database
Elevation Certificates	Y	All elevation certificates are maintained at the county. New development is required to provide an elevation certificate for any new or substantially improved structure that is within the special flood hazard area
Acquisition of land for open space and public recreation uses	Y	The County has a program to purchase open space and general and specific plans which detail uses
Erosion or sediment control program	Y	The County has a stormwater quality program and ordinance
Other		

How can these capabilities be expanded and improved to reduce risk?

As indicated in the tables above, Placer County has several plans and programs that guide the County's mitigation of development of hazard-prone areas. Starting with the Placer County General Plan, which is the most comprehensive of the County's plans when it comes to mitigation, some of these are described in more detail below.

Placer County General Plan (2013)

A general plan is a legal document, required by state law, that serves as a community's "constitution" for land use and development. The plan must be a comprehensive, long-term document, detailing proposals for the "physical development of the county or city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning" (Government Code §65300 et seq.). Time horizons vary, but the typical general plan looks 10 to 20 years into the future. The law specifically requires that the general plan address seven topics or "elements." These are land use, circulation (transportation), housing, conservation, open space, noise, and safety. The plan must analyze issues of importance to the community, set forth policies in text and diagrams for conservation and development, and outline specific programs for implementing these policies.

Goals and policies related to mitigation from the General Plan are the following:

Land Use Element

Goals/Policy	Explanation
Land Use Element	
Goal 1.A:	**To promote the wise, efficient, and environmentally-sensitive use of Placer County lands to meet the present and future needs of Placer County residents and businesses.**
Policy 1.A.1.	The County will promote the efficient use of land and natural resources.
Policy 1.A.2.	The County shall permit only low-intensity forms of development in areas with sensitive environmental resources or where natural or human-caused hazards are likely to pose a significant threat to health, safety, or property.
Goal 1.F:	**To designate adequately-sized, well-located areas for the development of public facilities to serve both community and regional needs.**
Policy 1.F.2.	The County shall seek to locate new public facilities necessary for emergency response, health care, and other critical functions outside areas subject to natural or built environment hazards.
Goal 1.K:	**To protect the visual and scenic resources of Placer County as important quality-of-life amenities for County residents and a principal asset in the promotion of recreation and tourism.**

Goals/Policy	Explanation
Policy 1.K.6.	The County shall require that new development on hillsides employ design, construction, and maintenance techniques that: a. Ensure that development near or on portions of hillsides do not cause or worsen natural hazards such as erosion, sedimentation, fire, or water quality concerns; b. Include erosion and sediment control measures including temporary vegetation sufficient to stabilize disturbed areas; c. Minimize risk to life and property from slope failure, landslides, and flooding; and, d. Maintain the character and visual quality of the hillside.

Public Facilities Element

Goals/Policy	Explanation
Public Facilities Element	
Goal 4.E	**To manage rainwater and stormwater at the source in a sustainable manner that least inconveniences the public, reduces potential water-related damage, augments water supply, mitigates storm water pollution, and enhances the environment.**
Policy 4.E.1	The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.
Policy 4.E.2.	The County shall support efforts to acquire land or obtain easements for drainage and other public uses of floodplains where it is desirable to maintain drainage channels in a natural state.
Policy 4.E.3.	The County shall consider using stormwater of adequate quality to replenish local groundwater basins, restore wetlands and riparian habitat, and irrigate agricultural lands.
Policy4.E.4.	The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.
Policy 4.E.5.	The County shall continue to implement and enforce its Grading, Erosion and Sediment Control Ordinance and Flood Damage Prevention Ordinance.
Policy 4.E.6.	The County shall continue to support the programs and policies of the watershed flood control plans developed by the Flood Control and Water Conservation District.
Policy 4.E.7.	The County shall prohibit the use of underground storm drain systems in rural and agricultural areas, unless no other feasible alternatives are available for conveyance of stormwater from new development or when necessary to mitigate flood hazards.
Policy 4.E.8.	The County shall consider recreational opportunities and aesthetics in the design of stormwater ponds and conveyance facilities.
Policy 4.E.9.	The County shall encourage good soil conservation practices in agricultural and urban areas and carefully examine the impact of proposed urban developments with regard to drainage courses.
Policy4.E.10.	The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate site design measures including, but not limited to vegetated swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, rooftop and impervious area disconnection, porous pavement, and other best management practices (BMPs).
Policy 4.E.11.	The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the unincorporated area and on properties in jurisdictions within and immediately adjacent to Placer County.
Policy 4.E.12.	The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions.

Goals/Policy	Explanation
Policy 4.E.13.	The County shall require that new development conforms with the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District.
Policy 4.E.14.	The County shall require projects that have significant impacts on the quantity and quality of surface water runoff to allocate land as necessary for the purpose of detaining post-project flows, evapotranspiring, infiltrating, harvesting/using, and biotreating stormwater, and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.
Policy 4.E.15.	The County shall require that new development in primarily urban development areas incorporate low impact development measures to reduce the amount of runoff, to the maximum extent practicable, for which retention and treatment is required.
Policy 4.E 16.	The County shall identify and coordinate mitigation measures with responsible agencies for the control of storm drainage systems, monitoring of discharges, and implementation of measures to control pollutant loads in urban storm water runoff (e.g., California Regional Water Quality Control Board, Placer County Environmental Health Division, Placer County Department of Public Works and Facilities, CDRA Engineering and Surveying Division, Placer County Flood Control and Water Conservation District).
Policy 4.E.17.	The County shall strive to protect domestic water supply canal systems from contamination resulting from spillage or runoff.
Policy 4.E.18	The County shall, wherever feasible, require that proponents of new projects encase, or otherwise protect from contamination, domestic water supply canals where they pass through developments with lot sizes of 2.3 acres or less; where subdivision roads are constructed within 100 feet upslope or upstream from canals; and within all commercial, industrial, institutional, and multi-family developments.
Policy 4.E.19.	The County shall require that proponents of new projects fence domestic water supply canals where they pass through development with lot sizes between 2.3 and 4.6 acres; and on a case-by-case basis as determined by the entity responsible for the canal. This fencing shall be installed inside the project property line, and the proponent or subsequent landowner shall be responsible for fence maintenance. Said fencing shall be designed to impede pedestrian trespass of the canal area and to impede any dumping of materials into the canal.
Policy 4.E.20.	The County shall continue to implement and enforce its Stormwater Quality Ordinance.
Goal 4.F	**To protect the lives and property of the citizens of Placer County from hazards associated with development in floodplains and manage floodplains for their natural resource values.**
Policy 4.F.1.	The County shall require that arterial roadways and expressways, residences, commercial and industrial uses and emergency facilities be protected, at a minimum, from a 100-year storm event.
Policy 4.F.2.	The County shall recognize floodplains as a potential public resource to be managed and maintained for the public's benefit.
Policy 4.F.3.	The County shall continue to work closely with the U.S. Army Corps of Engineers, the Resource Conservation District, the Federal Emergency Management Agency, the State Department of Water Resources, the Central Valley Flood Protection Board, and the Placer County Flood Control and Water Conservation District, in defining existing and potential flood problem areas.
Policy 4.F.4.	The County shall require evaluation of potential flood hazards prior to approval of development projects. The County shall require proponents of new development to submit accurate topographic and flow characteristics information and depiction of the 100-year floodplain boundaries under fully developed, unmitigated runoff conditions.
Policy 4.F.5.	The County shall attempt to maintain natural conditions within the 100-year floodplain of all rivers and streams except under the following circumstances: a. Where work is required to manage and maintain the stream's drainage characteristics and where such work is done in accordance with the Placer County Flood Damage Prevention Ordinance, California Department of Fish and Wildlife regulations, and Clean Water Act provisions administered by the U.S. Army Corps of Engineers.

Goals/Policy	Explanation
Policy 4.F.6.	The County shall continue to coordinate efforts with local, state, and federal agencies to achieve adequate water quality and flood protection.
Policy 4.F.7.	The County shall cooperate with the Placer County Flood Control and Water Conservation District, surrounding jurisdictions, the cities in the County, and other public agencies in planning and implementing regional flood control improvements, plans, and programs.
Policy 4.F.8.	The County shall, where possible, view flood waters as a resource to be used for waterfowl habitat, aquifer recharge, fishery enhancement, agricultural water supply, and other suitable uses.
Policy 4.F.9	The County shall continue to implement floodplain zoning and undertake other actions required to comply with state floodplain requirements, and to maintain the County's eligibility under the Federal Flood Insurance Program.
Policy 4.F.10.	The County shall preserve or enhance the aesthetic qualities of natural drainage courses in their natural or improved state compatible with flood control requirements and economic, environmental, and ecological factors.
Policy 4.F.11.	To the extent that funding is available, the County shall work to solve flood control problems in areas where existing development has encroached into a floodplain.
Policy 4.F.12.	The County shall promote the use of natural or non-structural flood control facilities, including off-stream flood control basins, to preserve and enhance creek corridors.
Policy 4.F.13.	The County shall continue to implement and enforce its Grading, Erosion and Sediment Control Ordinance and Flood Damage Prevention Ordinance.
Policy 4.F.14.	The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County's Land Development Manual.
Goal 4.I:	**To protect residents of and visitors to Placer County from injury and loss of life and to protect property and watershed resources from fires.**
Policy 4.I.1.	The County shall encourage local fire protection agencies in Placer County to maintain the following minimum fire protection standards (expressed as Insurance Service Organization (ISO) ratings): a. ISO 4 in urban areas b. ISO 6 in suburban areas c. ISO 8 in rural areas
Policy 4.I.2.	The County shall encourage local fire protection agencies in the County to maintain the following standards (expressed as average response times to emergency calls): a. 4 minutes in urban areas b. 6 minutes in suburban areas c. 10 minutes in rural areas
Policy 4.I.3.	The County shall require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards.
Policy 4.I.4.	The County shall work with local fire protection agencies to identify key fire loss problems and design appropriate fire safety education programs to reduce fire incidents and losses.
Policy 4.I.5.	The County shall work with local fire protection agencies and implement ordinances to control fire losses and fire protection costs through continued use of automatic fire detection, control, and suppression systems.
Policy 4.I.6.	The County shall continue to promote standardization of operations among fire protection agencies and improvement of fire service levels.
Policy 4.I.7.	The County shall maintain and strengthen automatic aid agreements to maximize efficient use of available resources.

Goals/Policy	Explanation
Policy 4.I.8.	The County shall work with local fire protection agencies to maintain a pre-fire planning program with selected high-risk occupancies reviewed at least annually.
Policy 4.I.9.	The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.
Policy 4.I.10.	The County shall work with local fire protection agencies to inventory and eliminate structurally unsafe and fire-hazardous housing units that are beyond repair or rehabilitation.
Policy 4.I.11.	The County shall encourage local fire protection agencies to provide and maintain advanced levels of emergency medical services (EMS) to the public.

Natural Resources Element

Goals/Policy	Explanation
Natural Resources Element	
Goal 6.A:	**To protect and enhance the natural qualities of Placer County's rivers, streams, creeks and groundwater.**
Policy 6.A.2	The County shall require all development in the 100-year floodplain to comply with the provisions of the Placer County Flood Damage Prevention Ordinance.
Policy 6.A.4.	Where stream protection is required or proposed, the County should require public and private development to: a. Preserve stream zones and stream setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a stream is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval; b. Designate such easement or dedication areas (as described in a. above) as open space; c. Protect stream zones and their habitat value by actions such as: 1) providing an adequate stream setback, 2) maintaining creek corridors in an essentially natural state, 3) employing stream restoration techniques where restoration is needed to achieve a natural stream zone, 4) utilizing riparian vegetation within stream zones, and where possible, within stream setback areas, 5) prohibiting the planting of invasive, non-native plants (such as Vinca major and eucalyptus) within stream zones or stream setbacks, and 6) avoiding tree removal within stream zones; d. Provide recreation and public access near streams consistent with other General Plan policies; e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas; and/or are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.
Policy 6.A.10	The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.
Policy 6.A.11.	Where the stream zone has previously been modified by channelization, fill, or other human activity, the County shall require project proponents to restore such areas by means of landscaping, revegetation, or similar stabilization techniques as a part of development activities.
Policy 6.A.15.	The County shall encourage the protection of floodplain lands and, where appropriate, acquire public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.

Goals/Policy	Explanation
Goal 6.B	**To protect wetland communities and related riparian areas throughout Placer County as valuable resources.**
Policy 6.B.1.	The County shall support the "no net loss" policy for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.
Policy 6.B.2.	The County shall require new development to mitigate wetland loss in both federal jurisdictional and non-jurisdictional wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation and conservation banking program that provides the opportunity to mitigate impacts to special status, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas. Non-jurisdictional wetlands may include riparian areas that are not federal "waters of the United States" as defined by the Clean Water Act.
Goal 6.D:	**To preserve and protect the valuable vegetation resources of Placer County.**
Policy 6.D.1	The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides, ridges, and along important transportation corridors.
Policy 6.D.2.	The County shall require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.
Policy 6.D.3.	The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.
Policy 6.D.7.	The County shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats. Such communities shall be restored or expanded, where possible.
Policy 6.D.9.	The County shall require that development on hillsides be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion.
Goal 6.E:	**To preserve and enhance open space lands to maintain the natural resources of the County.**
Policy 6.E.1.	The County shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The County shall permanently protect, as open space, areas of natural resource value, including wetlands, riparian corridors, unfragmented woodlands, and floodplains.
Policy 6.E.2	. The County shall require that new development be designed and constructed to preserve the following types of areas and features as open space to the maximum extent feasible: a. High erosion hazard areas; b. Scenic and trail corridors; c. Streams, riparian vegetation; d. Wetlands; e. Significant stands of vegetation; f. Wildlife corridors; and g. Any areas of special ecological significance.

Agriculture/Forestry Element

Goals/Policy	Explanation
Agriculture/Forestry Element	
Goal 7.A	**To provide for the long-term conservation and use of agriculturally-designated lands.**
Policy 7.A.4.	The County shall provide protection from flooding for agricultural and related activities from flooding.
Goal 7.D:	**To maximize the productivity of Placer County's agriculture uses by ensuring adequate supplies of water.**
Policy 7.D.1.	The County shall support efforts to deliver adequate surface water to agricultural areas with deficient water supplies.
Policy 7.D.2.	The County shall encourage water conservation by farmers. To this end, the County shall, through the Agricultural Commissioner and U.C. Cooperative Extension, continue to provide information on irrigation methods and best management practices. The County shall also support conservation efforts of the California Farm Bureau, resource conservation districts, Natural Resources Conservation Service, and irrigation districts.
Policy 7.D.3.	The County should participate with cities and special districts in establishing programs for the agricultural re-use of treated wastewater in a manner that would be economically beneficial to agriculture.
Policy 7.D.4.	The County shall participate and encourage multi-agency participation in water projects where such coordination can improve the likelihood of providing affordable irrigation water to areas of Placer County with deficient water supplies.
Policy 7.D.5.	The County will work with local irrigation districts to preserve local water rights to ensure that water saved through conservation may be stored and used locally, rather than appropriated and used outside of Placer County.
Policy 7.D.6.	The County shall encourage the use of reclaimed water where appropriate for agricultural production.

Safety Element

Goals/Policy	Explanation
Safety Element – Seismic and Geologic Hazards	
Goal 8.A	**To minimize the loss of life, injury, and property damage due to seismic and geological hazards.**
Policy 8.A.1	The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., ground shaking, landslides, liquefaction, critically expansive soils, avalanche).
Policy 8.A.2	The County shall require submission of a preliminary soils report, prepared by a California registered civil engineer and based upon adequate test borings, for every major subdivision and for each individual lot where critically expansive soils have been identified or are expected to exist.
Policy 8.A.3	The County shall prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils unless suitable mitigation measures are incorporated to prevent the potential risks of these conditions.
Policy 8.A.4	The County shall ensure that areas of slope instability are adequately investigated and that any development in these areas incorporates appropriate design provisions to prevent landsliding.

Goals/Policy	Explanation
Policy 8.A.5	In landslide hazard areas, the County shall prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.
Policy 8.A.6	The County shall require the preparation of drainage plans for development in hillside areas that direct runoff and drainage away from unstable slopes.
Policy 8.A.7	In areas subject to severe ground shaking, the County shall require that new structures intended for human occupancy be designed and constructed to minimize risk to the safety of occupants.
Policy 8.A.8	County shall continue to support scientific geologic investigations which refine, enlarge, and improve the body of knowledge on active fault zones, unstable areas, severe ground shaking, avalanche potential, and other hazardous conditions in Placer County.
Policy 8.A.9	The County shall require that the location and/or design of any new buildings, facilities, or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.
Policy 8.A.10	The County shall require that new structures permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.
Policy 8.A.11	The County shall limit development in areas of steep or unstable slopes to minimize hazards caused by landslides or liquefaction.
Safety Element – Flood Hazards	
Goal 8.B	**To minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from flood hazards.**
Policy 8.B.1	The County shall promote flood control measures that maintain natural conditions within the 100-year floodplain of rivers and streams.
Policy 8.B.2	The County shall continue to participate in the Federal Flood Insurance Program.
Policy 8.B.3	The County shall require flood proofing of structures in areas subject to flooding.
Policy 8.B.4	The County shall require that the design and location of dams and levees be in accordance with all applicable design standards and specifications and accepted state-of-the-art design and construction practices.
Policy 8.B.5	The County shall coordinate with neighboring jurisdictions to mitigate the impacts of new development in Placer County that could increase or potentially affect runoff onto parcels downstream in a neighboring jurisdiction.
Policy 8.B.6	The County shall prohibit the construction of facilities essential for emergencies and large public assembly in the 100-year floodplain, unless the structure and access to the structure are free from flood inundation.
Policy 8.B.7	The County shall require flood control structures, facilities, and improvements to be designed to conserve resources, incorporate and preserve scenic values, and to incorporate opportunities for recreation, where appropriate.
Policy 8.B.8	The County shall require that flood management programs avoid alteration of waterways and adjacent areas, whenever possible.
Safety Element – Fire Hazards	
Goal 8.C	**To minimize the risk of loss of life, injury, and damage to property and watershed resources resulting from unwanted fires.**
Policy 8.C.1	The County shall ensure that development in high-fire-hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and County fire standards.

Goals/Policy	Explanation
Policy 8.C.2	The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for fire-resistant vegetation, cleared fire breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.
Policy 8.C.3	The County shall require that new development meets state, County, and local fire district standards for fire protection.
Policy 8.C.4	The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied.
Policy 8.C.5	The County shall ensure that existing and new buildings of public assembly incorporate adequate fire protection measures to reduce the potential loss of life and property in accordance with state and local codes and ordinances.
Policy 8.C.6	The County shall encourage fire protection agencies to continue education programs in schools, service clubs, organized groups, industry, utility companies, government agencies, press, radio, and television in order to increase public awareness of fire hazards within the County.
Policy 8.C.7	The County shall work with local fire protection agencies, the California Department of Forestry and Fire Protection, and the U.S. Forest Service to promote the maintenance of existing fuel breaks and emergency access routes for effective fire suppression.
Policy 8.B.8	The County shall encourage and promote installation and maintenance of smoke detectors in existing residences and commercial facilities that were constructed prior to the requirement for their installation. 8.C.9. The County shall work with local fire agencies.
Policy 8.B.9	The County shall work with local fire agencies to develop high-visibility fire prevention programs, including those offering voluntary home inspections and promoting awareness of home fire prevention measures.
Policy 8.B.10	The County shall continue to implement state fire safety standards through enforcement of the applicable standards contained in the Placer County Land Development Manual.
Policy 8.B.11	The County shall continue to work cooperatively with the California Department of Forestry and Fire Protection and local fire protection agencies in managing wildland fire hazards.
Policy 8.B.12	The County shall support annexations and consolidations of fire districts and services to improve service delivery to the public.
Safety Element – Airport Hazards	
Goal 8.D	**To minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from airport hazards.**
Policy 8.D.1	The County shall ensure that new development around airports does not create safety hazards such as lights from direct or reflective sources, smoke, electrical interference, hazardous chemicals, or fuel storage in violation of adopted safety standards.
Policy 8.D.2	The County shall limit land uses in airport safety zones to those uses listed in the applicable airport comprehensive land use plans (CLUPs) as compatible uses. Exceptions shall be made only as provided for in the CLUPs. Such uses shall also be regulated to ensure compatibility in terms of location, height, and noise.
Policy 8.D.3	The County shall ensure that development within the airport approach and departure zones complies with Part 77 of the Federal Aviation Administration Regulations (objects affecting navigable airspace).

Goals/Policy	Explanation
Safety Element – Emergency Management	
Goal 8.E	**To ensure the maintenance of an Emergency Management Program to effectively prepare for, respond to, recover from, and mitigate the effects of natural or technological disasters.**
Policy 8.E.1	The County shall continue to maintain, periodically update, and test the effectiveness of its Emergency Operations Plan.
Policy 8.E.2	The County shall continue to coordinate emergency preparedness, response, recovery, and mitigation activities with special districts, service agencies, voluntary organizations, cities within the County, surrounding cities and counties, and state and federal agencies.
Policy 8.E.3	The County shall continue to provide promotional programs that inform the general public of emergency preparedness and disaster response procedures.
Policy 8.E.4	The County shall, through its Office of Emergency Services, maintain the capability to effectively respond to emergency incidents.
Policy 8.E.5	The County shall maintain an emergency operations center to coordinate emergency response, management, and recovery activities.
Policy 8.E.6	The County shall ensure that the siting of critical emergency response facilities such as hospitals, fire stations, sheriff's offices and substations, dispatch centers, emergency operations centers, and other emergency service facilities and utilities have minimal exposure to flooding, seismic and geological effects, fire, avalanche, and explosions.
Safety Element – Public Safety and Emergency Management Facilities	
Goal 8.F	**To protect public health and safety through safe location of structures necessary for the protection of public safety and/or the provision of emergency services.**
Policy 8.F.1	The County shall not locate new County structures necessary for the protection of public safety and/or the provision of emergency services in areas subject to inundation, subsidence, slope failure, surface rupture, or ground failure in a seismic event. Exception to this policy may be granted if the only alternative location would be so distant as to jeopardize the safety of the community, given that adequate precautions are taken to protect the facility.
Policy 8.F.2	The County shall, within its authority, ensure that emergency dispatch centers, emergency operations centers, communications systems, vital utilities, and other essential public facilities necessary for the continuity of government be designed in a manner that will allow them to remain operational during and following an earthquake or other disaster.
Safety Element – Hazardous Materials	
Goal 8.G	**To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.**
Policy 8.G.1	The County shall ensure that the use and disposal of hazardous materials in the County complies with local, state, and federal safety standards.
Policy 8.G.2	The County shall discourage the development of residences or schools near known hazardous waste disposal or handling facilities.
Policy 8.G.3	The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County's Hazardous Waste Management Plan (CHWMP).
Policy 8.G.4	The County shall ensure that the mining and processing of toxic metals in the County is conducted in compliance with applicable environmental protection standards and minimizes impacts on adjacent lands and the surrounding natural environment.
Policy 8.G.5	The County shall strictly regulate the storage of hazardous materials and wastes.

Goals/Policy	Explanation
Policy 8.G.6	The County shall require secondary containment and periodic examination for all storage of toxic materials.
Policy 8.G.7	The County shall ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards.
Policy 8.G.8	The County shall require that new industries that store and process hazardous materials provide a buffer zone between the installation and the property boundaries sufficient to protect public safety. The adequacy of the buffer zone shall be determined by the County.
Policy 8.G.9	The County shall require that applications for discretionary development projects that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.
Policy 8.G.10	The County shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.
Policy 8.G.11	The County shall encourage the State Department of Health Services and the California Highway Patrol to review permits for radioactive materials on a regular basis and to promulgate and enforce public safety standards for the use of these materials, including the placarding of transport vehicles.
Policy 8.G.12	The County shall identify sites that are in appropriate for hazardous material storage, maintenance, use, and disposal facilities due to potential impacts on adjacent land uses and the surrounding natural environment.
Policy 8.G.13	The County shall work with local fire protection and other agencies to ensure an adequate Countywide response capability to hazardous materials emergencies.
Safety Element – Avalanche Hazards	
Goal 8.H	**To minimize the risk of loss of life, injury, and damage to property due to avalanche.**
Policy 8.H.1	The County shall maintain maps of potential avalanche hazard areas.
Policy 8.H.2	The County shall require new development in areas of avalanche hazard to be sited, designed, and constructed to minimize avalanche hazards.
Policy 8.H.3	The County shall not issue permits for new development in potential avalanche hazard areas (PAHA) as designated in the Placer County Avalanche Management Ordinance unless project proponents can demonstrate that such development will be safe under anticipated snow loads and conditions of an avalanche.
Safety Element – Public Health	
Goal 8.I	**To provide municipal-type environmental health services to the unincorporated urban development areas in Western Placer County.**
Policy 8.I.1	Within overall County budgetary constraints, the County shall strive to provide one environmental health specialist per every 9,000 persons in the Western Placer County.
Policy 8.I.2	The County shall endeavor to identify and control important diseases transmitted by environmental factors in the Western Placer County.

Placer County Ordinances

The Placer County General Plan provides policy direction for land use, development, open space protection, and environmental quality; however, this policy direction must be carried out through numerous ordinances, programs, and agreements. The following ordinances are among the most important tools for implementing the General Plan and/or are critical to the mitigation of hazards identified in this plan.

Emergency Services (Chapter 2, Title 2.88)

The declared purposes of this article are to provide for the preparation and carrying out of plans for the protection of persons and property within this county in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions of this county with all other public agencies, corporations, organizations, and affected private persons. As used in this article, "emergency" means the actual or threatened existence of conditions of disaster or of extreme peril to the safety of persons and property within the county caused by such conditions as air pollution, fire, flood, storm, epidemic, riot, drought, sudden and severe energy shortage, or earthquake or other conditions including conditions resulting from war or imminent threat of war, but other than conditions resulting from a labor controversy, which conditions are or are likely to be beyond the control of the services, personnel, equipment, and facilities of the county, requiring the combined forces of other political subdivisions to combat, or with respect to regulated energy utilities, a sudden and severe energy shortage requiring extraordinary measures beyond the authority vested in the California Public Utilities Commission.

The Placer County disaster council is created and shall consist of the following:

- The county executive officer, who shall be chairperson;
- The assistant director of emergency services, who shall be vice-chairperson;
- Such chiefs of emergency services as are appointed by the board of supervisors, provided for in a current emergency plan of the county;
- Such representative of civic, business, labor, veterans, professional, or other organizations having an official emergency responsibility, as may be appointed by the board of supervisors.

It shall be the duty of the Placer County disaster council, and it is empowered, to develop and recommend for adoption by the board of supervisors, emergency and mutual aid plans and agreements and such ordinances and resolutions and rules and regulations as are necessary to implement such plans and agreements.

Fire Prevention (Chapter 9, Article 9.32)

Part 3, Fire Hazards

This fire hazards ordinance requires all structures to maintain a fire break or clearing for a distance of 30 feet from the structure and keep the roofs free from all flammable debris. This part also sets requirements for burning permits, smoking restrictions in fire danger areas, and for the use and possession of fireworks.

Part 4, Hazardous Vegetation Abatement on Unimproved Parcels

This Fire Prevention ordinance applies to areas defined as the North Tahoe Fire Protection District, Alpine Springs County Water District, Squaw Valley Public Service District and Northstar Community Services District.

The Placer County BOS supports the improved parcel defensible space obligations found in Public Resources Code (PRC) 4291. PRC 4291 does not address hazardous vegetation abatement on unimproved parcels and the potential impact that hazardous vegetation on an unimproved parcel could have on an

adjacent improved parcel. This part extends and supplements state law to ensure defensible space activities are accomplished on unimproved parcels adjacent to improved parcels and along roadways and fire access easements so that land owners benefit from the application of PRC 4291 on unimproved parcels.

Drainage of Water, Obstructing Natural Watercourse, Causing Flooding or Damage to County Highway Prohibited (Chapter 12, Article 12.12)

This article makes unlawful the draining of water from private land onto a public highway which results in flooding or damage to the highway. Also prohibited is obstruction of a natural watercourse so as to cause interference with, or damage or hazard to, public highways.

Avalanche Management Areas (Chapter 12, Article 12.40)

This article identifies potential avalanche hazard areas (PAHA) in order to give notice to the public of identified PAHAs; to minimize health and safety hazards, disruption of commerce, and extraordinary public expenditures; and to detail proper siting, design, and construction safeguards for constructing in PAHAs.

Water Conservation Requirements (Chapter 13, Article 13.04)

This article sets forth water conservation requirements applicable to all new and existing construction in the portion of Placer County lying east of the crest of the Sierra Nevada Range.

Dry Creek Watershed Drainage Improvement Zone (Chapter 15, Article 15.32)

This article specific to the Dry Creek Watershed area supplements existing County policies of requiring on- and off-site drainage improvements to accommodate increased runoff resulting from new development and the expansion of existing development. This article establishes a drainage improvement zone for the Dry Creek watershed area. It requires the payment of specified fees and annual assessments as a condition of new development and the expansion of existing development within the watershed area for the installation and maintenance of roadway drainage and stormwater drainage improvements.

Development Fees for Fire Protection (Chapter 15, Article 15.36)

The purpose of this article is to authorize the collection of development impact mitigation fees in any unincorporated area of Placer County to ensure the provision of the capital facilities necessary to maintain current levels of fire protection services necessitated by new development.

Grading, Erosion, and Sediment Control (Chapter 15, Article 15.48)

The purpose of this article is to regulate grading on property within the unincorporated area of Placer County to safeguard life, limb, health, property and public welfare; to avoid pollution of watercourses with hazardous materials, nutrients, sediments, or other earthen materials generated on or caused by surface runoff on or across the permit area; and to ensure that the intended use of a graded site is consistent with the Placer County general plan, any specific plans adopted thereto and applicable Placer County ordinances including the zoning ordinance, flood damage prevention ordinance, (Article 15.52) environmental review ordinance (Chapter 18 Placer County Code) and applicable chapters of the California Building Code.

Flood Damage Prevention Regulations (Chapter 15, Article 15528)

It is the purpose of this article to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- Insure that potential buyers are notified that property is in an area of special flood hazard; and
- Insure that those who occupy the areas of special flood hazard assume responsibility for their actions (Prior code § 4.1310.30).

In order to accomplish its purpose, this article includes methods and provisions for:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in increasing damage in erosion, flood heights, or flood velocities;
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controlling fill, grading, dredging, and other development which may increase flood damage; and
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or may increase flood hazards in other areas (Prior code § 4.1310.40).

Of specific interest are the construction requirements for elevation and flood-proofing. Specifically, these require new construction and substantial improvements to have the lowest floor, including basement, elevated a minimum of base flood elevation plus one foot. It is further recommended that the finish floor be a minimum of two feet above the base flood elevation.

Subdivisions: Design Standards and Improvements (Chapter 16, Article 16.08)

Placer County's subdivision ordinance regulates the design and improvement of land divisions and the dedication of public improvements needed in connection with land divisions. The ordinance includes provisions for the following hazard-related issues: erosion control, flooding and drainage, water supply, and fire suppression.

Zoning Ordinance (Chapter 17)

The purpose of the zoning ordinance is to classify and regulate the best use of buildings, structures, and land in the unincorporated area of Placer County in a manner consistent with the Placer County General

Plan. This ordinance is designed to ensure management of land use in a manner that will assure the orderly development and beneficial use of the unincorporated areas of Placer County for residential, commercial, industrial, agricultural, forestry, open space and other purposes. To further these objectives, this ordinance includes requirements for reducing hazards to the public resulting from the inappropriate location, use or design of buildings and land uses in relation to natural and built hazards. It addresses setbacks, buffers, natural resources protection and drainage. For example, the flood hazard combining district identifies areas subject to the 100-year floodplain and requires that new development in this combining zone abide by standards within the Placer County Flood Damage Prevention Ordinance (Article 15.52). Likewise, the geological hazard combining district was established to identify areas where geological and soil conditions may present hazards to life or property. All land use permit applications for projects located within this district require a report describing all geological and avalanche hazards in the region proposed for development.

Building and Construction Codes Adopted (Title 15, Chapter 15.04)

This article adopts the California Building Code, 2013 Edition Volumes 1 and 2, based on the 2012 International Building Code including, the administrative provisions in Chapter 1, Division II and among the Appendices, Appendix C Group U - Agricultural Buildings and Appendix J - Grading, as published by the International Code Council (ICC) as adopted and amended by the California Building Standards Commission in the California Building Standards Code, Title 24 of the California Code of Regulations, Part 2. (Ord. 5731-B § 4, 2013; Ord. 5629-B § 3, 2010).

This article adopts the California Fire Code, 2013 Edition Volumes 1 and 2, including, the administrative provisions in the California Building Code, Chapter 1, Division II based on the 2012 International Fire Code including the Appendices, as published by the International Code Council (ICC) as adopted and amended by the California Building Standards Commission in the California Building Standards Code, Title 24 of the California Code of Regulations, Part 9. (Ord. 5731-B § 18, 2013; Ord. 5629-B § 3, 2010)

Placer County Plans/Studies

Stormwater Management Plan, 2003-2008 (Revised March 1, 2004).

This comprehensive plan is designed to ultimately reduce pollution in stormwater runoff in compliance with the County's National Pollutant Discharge Elimination System (NPDES) stormwater permit within portions of western Placer County (excludes Foresthill and Colfax). The plan includes processes for accomplishing the goals of minimizing construction site runoff as well as post-construction stormwater management in newly developed and redeveloped areas.

Placer County Flood Control and Water Conservation District's Stormwater Management Manual, 1990.

The primary purpose of the District is to protect lives and property from the effects of flooding through comprehensive, coordinated flood prevention planning, using consistent standards to evaluate flood risk, and by implementing flood control measures such as requiring new development to construct detention basins and operation and management of a flood warning system. This manual presents policy, guidelines,

and specific criteria for the development and management of natural resources, facilities and infrastructure for stormwater management. Flooding is recognized as the primary problem associated with development occurring adjacent to streams and the consequent increase in stormwater runoff. The plan refers to the Basic Drainage Law Requirements which include four general principles that apply to development projects in general. The principles dictate what upstream and downstream property owners must do to minimize alteration to existing, functional drainage patterns in the region of their property.

Watershed Management Plans

A watershed management plan is a document that guides efforts to control pollution, manage stormwater, and protect and improve local streams and the uplands that surround them. These plans also provide collaborative agreement among government, other local stakeholders, and citizens during the planning process. Placer County has been involved in the development of a number of comprehensive watershed management plans. These watershed plans guide the County and other stakeholders in protecting, managing, and improving environmental resources and habitat. Watershed Management Plans in Placer County include:

- Dry Creek Coordinated Management Plan;
- Dry Creek Watershed Control Plan
- Auburn Ravine/Coon Creek Ecosystem Restoration Plan;
- Cross Canal Watershed Flood Control Plan
- Pleasant Grove/Curry Creek Ecosystem Restoration Plan;
- Auburn Ravine Restoration Plan;
- Auburn Bowman Community Plan Hydrology Study
- Rock Creek Restoration Plan; and
- Squaw Creek Restoration Plan.

Auburn/Bowman Community Plan, Hydrology Study, JMM 1992

This study covers the Auburn/Bowman area and includes flood mitigation recommendations.

Dry Creek Watershed Flood Control Plan, 2011 (Updated)

This plan covers the Dry Creek Watershed area and includes flood mitigation recommendations. The primary purposes of this Update to the Dry Creek Watershed Flood Control Plan, prepared for the Placer County Flood Control and Water Conservation District, are to update the hydrologic analysis of the watershed, provide recommendations for feasible means to reduce future flood damages, identify possible means to mitigate development impacts on flooding, and recommend an updated funding plan. The 1992 Dry Creek Watershed Flood Control Plan recommended structural and non-structural measures to correct existing deficiencies and mitigate for impacts of future development. Some of the recommendations have been implemented while many have not due to environmental and/or economic constraints. This Plan Update evaluates the hydrology of the watershed and provides recommendations to correct existing deficiencies and mitigate impacts of future development using an overall watershed approach with the objective of identifying measures that will be both feasible and effective.

Placer County Conservation Plan (PCCP)

As part of the Placer Legacy Program, County staff initiated the preparation of a Natural Community Conservation Plan and Habitat Conservation Plan to comply with the State and Federal Endangered Species Act, and to programmatically comply with the Federal Clean Water Act related to wetlands. This effort, now referred to as the Placer County Conservation Plan (PCCP), is proceeding for the first phase of the PCCP covering western Placer County.

The PCCP is intended to address the impacts associated primarily with unincorporated growth in west Placer and growth associated with the build out of Lincoln's updated General Plan. Development in western Placer County will require the preservation of approximately 54,300 acres of land between now and 2050.

Placer County Community Wildfire Protection Plan 2012

The Placer County CWPP provides recommendations to reduce the threat of wildfire-related damage to people, property, and ecological elements within the County. This document estimates the hazards and risks associated with wildland fire in proximity to WUI within each applicable Fire Safe Council areas. This information, in conjunction with identification of the values at risk, defines areas of special interest and allows for prioritization of mitigation efforts. From the analysis of the data presented, solutions and mitigation recommendations are offered that aid homeowners, land managers, and other interested parties in developing short-term and long-term planning efforts.

Lake Tahoe Basin Community Wildfire Protection Plan 2015

This Community Wildfire Protection Plan was developed by the Tahoe Fire and Fuels Team (TFFT), an action-oriented forum of organizations involved in implementing the Lake Tahoe Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy. It builds on previous planning efforts, and covers the wildland-urban interface for all Lake Tahoe Basin fire protection districts and departments. The CWPP examines common issues faced by Lake Tahoe communities and general strategies for mitigation. And provides an in-depth assessment of each TFFT geographic division and provide specific recommendations, actions, and projects for improving community resiliency to wildfire.

Placer County Emergency Operations Plan (2010)

The Emergency Operations Plan, including the Placer Operational Area, includes information on hazards facing the County and associated response and recovery information.

There are multiple annexes to the EOP. They include:

- Continuity of Government/Continuity of Ops
- Rescue/Search and Rescue Operations
- Mass Evacuation
- Recovery
- Hazardous Materials
- Public Health Emergencies
- Dam Failure and Flood

- Avalanche
- Terrorism

Placer County Warning and Evacuation Procedures

Placer County and its incorporated communities have a variety of systems and procedures established to protect its residents and visitors to plan for, avoid, and respond to a hazard event including those associated with floods and wildfires. This includes Pre-Disaster Public Awareness and Education information which is major component in successfully reducing loss of life and property in a community when faced with a potentially catastrophic incident. Much of this information is not specific to a given hazard event and is always accessible to the public on local County and City websites. An overview of specific warning and evacuation systems and procedures are summarized further below.

Warning Systems

Flooding and wildfires can occur quickly and with little warning. In the event of a severe flood, wildfire or other natural hazard event, the Placer County OES webpage will identify current emergencies and associated protocols at: http://www.placer.ca.gov/Departments/CEO/Emergency/CurrentEmergencyInfo.aspx. The County will also provide emergency information and broadcast warnings on local radio and television stations as well as on social media websites such as Facebook and Twitter. The new Everbridge system may be activated and helicopters may be used to broadcast warnings/alerts via a PA system. If time and condition/safety permits, vehicle patrol units may also broadcast warnings in affected areas. County OES also works closely with the National Weather Service for issuing an Emergency Alert System (EAS).

Everbridge

In 2015, Placer County and all participating cities to this plan established the Everbridge Alert System employed for issuing flood warnings, alerts and evacuation notices to the public. The Placer County Flood Control and Water Conservation District coordinated with County OES, Sheriff, County Planning, and Department of Public Works and Facilities for this system. Flood warning zones across the County were created and Sheriff's dispatch will take the lead in employing Everbridge and issuing specific flood event warnings as necessary. The District will continue to assist during an event by providing technical input to OES as to the need for a warning issuance as well as any resulting evacuations.

ALERT System

The County's network of ALERT Flood Warning gauges, including numerous precipitation gages and stream level gages located throughout western Placer County provide real time monitoring information on current flood conditions which assist in informing the activation of additional warning and evacuation of affected areas. Currently the County is proposing ALERT 2 type upgrades to be funded by the State DWR FERP program over the next several years. This stream level information is broadcast as necessary throughout the County during heavy rain events where a potential for flooding exists.

Dam Protocols

Placer County OES and Placer County Sheriff's Office (PCSO) Dispatch receive printed copies of Emergency Action Plans from FERC regulated dams as well as non-FERC dams such as those owned by PCWA and PG&E. The County receives annual updates for the EAPs and participates in their scheduled annual drills and exercises. The EAPs contain maps of affected downstream areas and include warning levels and protocols/procedures for making notifications and evacuations. Should an event trigger the activation of the EAP including notification protocols, county OES receives this information via direct phone calls from the originating source/agency or from PCSO Dispatch and/or Cal OES. County OES then follows the notification and evacuation procedures called for in the EAP.

Evacuation Procedures

The 2010 Placer County Emergency Operations Plan includes addresses the planned response to emergency situations associated with natural disasters and emergencies in or affecting Placer County. The EOP is intended to facilitate multi-agency and multi-jurisdictional coordination in emergency operations. It seeks to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system to return the County the local jurisdictions to their normal state of affairs.

The EOP includes multiple annexes, one of which is the Mass Evacuation Annex. This Annex addresses evacuation policies and procedures due to natural hazards and other events. Emergency evacuation planning involves multiple governmental agencies and private organizations performing such functions as threat identification, warning, evacuation decision making, communications, traffic control, and shelter and medical needs management.

In addition to the Mass Evacuation Annex to the EOP, the County has several evacuation plans covering various areas of the County:

- East Side Emergency Evacuation Plan
- Emergency Evacuation Plan for Rural Lincoln Communities
- Greater Colfax Area Emergency Action Plan
- Foresthill Divide Iowa Hill Divide Emergency Plan

The purpose of these area-specific Evacuation Plans is to help increase preparedness and to facilitate the efficient and rapid evacuation of threatened communities. These plans include maps and prescribe specific responsibilities for first responders, County staff and other state, federal and non-profit contributing agencies for conducting an emergency evacuation of one or more communities as part of a larger natural disaster or human-caused incident. An overview of a sample evacuation plan, the East Side Evacuation Plan is provided below.

East Side Evacuation Plan

This is a plan for a physical evacuation of one or more communities in the unincorporated Placer County area on the eastern side of the County that is necessitated by a larger incident, most probably a forest fire or flood. For the purposes of this plan, the "eastern side" comprises all of Placer County from just west of

Cisco Grove to the Nevada State line not including the areas within the Tahoe National Forest and the Lake Tahoe Basin Management Unit. The dense forests, rugged terrain, and the scarcity of roads in the area – problems that present difficulties for first responders and residents/transients alike - complicate any evacuation. Many agencies helped to develop this plan to help increase preparedness, and facilitate the efficient and rapid evacuation of threatened communities in the far eastern end of the County. While focusing on fire-induced evacuations, the plan remains applicable to all evacuations in general.

Placer County Post Disaster Mitigation Policies and Procedures

The Placer County EOP is intended to facilitate multi-agency and multi-jurisdictional coordination during emergencies including hazard events. Through it policies and procedures it seeks to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system in order to return the community to their normal state of affairs. The County is in the process of updating the EOP and annexes by July 2016.

Post disaster recovery procedures for all hazards, including flood, are primarily addressed the Recovery Annex to the EOP. As detailed in the EOP, the goal of the recovery phase of an emergency incident or natural disaster is to return the residents, public services and private sector in an impacted area to their pre-disaster state, and through implementation of hazard mitigation measures, seek to prevent, as much as possible, similar damage, destruction or chaos after incidents and disasters in the future. The Recovery Annex includes detailed objectives, responsibilities and procedures for restoration of services and returning of the affected area to its pre-emergency condition. Mitigation is emphasized as a major component of recovery efforts. As part of the recovery planning, a Cal OES approved Debris Management Plan is also being developed for incorporation into the emergency management program for the County.

The Recovery Annex includes and is divided into two parts:

- Part One identifies the organization for and responsibilities of County agencies and Departments specifically for recovery. Since most large incidents are multi-jurisdictional, in all probability, recovery will be coordinated by the County working in its Operational Area (OA) role which allows it to coordinate emergency activities with all political entities in the County, i.e., the cities and special districts. Whereas overall recovery will be coordinated by the OA, in single jurisdiction incidents or disasters as well as multijurisdictional incidents, individual jurisdiction's always work directly with state and federal organizations for much of the recovery effort.
- Part Two is a compendium of information on recovery and provides definitions of the various types, levels and providers of recovery aid and assistance. Numerous types and levels of disaster assistance from federal, state and county sources are available to individuals, businesses and government agencies. The type and extent of the emergency or declared disaster determines which sort and how much of each type assistance is ultimately provided.

The post-disaster recovery annex details roles, responsibilities, and protocols for both short and long term recovery and includes information for:

- Initial Damage Assessment (windshield survey and safety assessment)
- Detailed Damage Assessment, with an initial priority on public and critical infrastructure and services

- Establishing Recovery Assistance Facilities and Information Centers
- Procedures for Individual Assistance, Public Assistance, and Post-disaster Mitigation

Sheltering in Place

All stakeholders (i.e. county, fire districts/departments, special districts, utility districts, ARC, and the community at large) agreed on the need for emergency shelters. Stakeholders participated in regular meetings (monthly, quarterly, or semi-annually) and drills/exercises (annually or bi-annually) where emergency shelter is discussed as one of the topics. Stakeholders conduct planning meetings or phone/televideo conferences for forecasted/anticipated event such as severe weathers as well as unscheduled events wild land fires, floods, and earthquake. These forums foster education and collaborative efforts amongst the stakeholders and better prepare them to respond to emergency events. Good progress has been made in the initiative over the past several years. Some of the significant completed work includes:

Western Placer: Development of the Foresthill Divide & Iowa Hill Divide Emergency Plan first published and disseminated by PCOES in August 2006, updated in January 2009, and is currently being updated. The primary purpose of the plan is to pre-establish evacuation protocols and pre-identified evacuation routes and sites for the emergency responders, local residents, and general public in case of large wildland fires occurring in the areas. Due to the remote location of the two areas and limited road access, the plan provides a contingency plan for the community. Although the plan does not address shelter in place for the individual residents in their home, it does address a contingency plan for the communities to shelter in place in pre-identified sites; thereby minimizing risk and danger due to limited road accesses. Furthermore, the plan addresses facilities and supporting resources for each of the pre-identified sites (e.g. food, water, medical, etc.).

Placer County Water Agency (a special district and not a county department/agency) built a facility in Foresthill. The agency worked with the County to identify the facility as a potential site for use as an emergency shelter.

Eastern Placer: The County worked closely with the American Red Cross (ARC) to identify facilities in the North Tahoe area (including Truckee) for use as emergency shelters. Schools in Tahoe City, Kings Beach, and Truckee have been identified and the ARC continues to conduct on-site assessments of the facilities for suitability as emergency shelters. Additionally, the ARC has fielded three trailers in the areas with each trailer containing 50 cots, blankets, pillows, and a generator to support each shelter.

The County is planning to build a government facility in the North Tahoe area in the future. Discussion are underway to designate the facility as an emergency shelter, equipped with generators and supporting resources.

Crude Oil/Hazmat by Rail Operational Guide, 2015

The production of crude oil in North America has increased by over 500% in the last 5 years - the majority of this product is being transported by rail. First Responders and Emergency Managers are scrambling to address the increased volume over rail. Placer and portions of Nevada County are situated in a rail corridor that connects the Sierra Nevada Mountains to the San Francisco Bay area. While crude oil is not currently

traveling via this route, many believe that when the refineries in the Bay Area are retrofitted to accept Bakken crude, the Sierra Nevada route will be used to bring crude to Bay Area refineries.

Cooperation from the Railroad officials including Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) is essential for any coordinated response plan. Through a Unified Command, the railroad will bring a wealth of specialized equipment and personnel through on-call staff and regional contractors. These resources take time to assemble and respond. First Responders will be on scene for a period of time and charged with scene stabilization and the protection of the public. This operational guide will cover the first two operational periods while more definitive resources are being mobilized.

Community Plans

Placer County has developed numerous community plans. The following are available online:

- Alpine Meadows General Plan
- Auburn/Bowman Community Plan
- Carnelian Bay Community Plan
- Colfax General Plan
- Dry Creek/West Placer Community Plan
- Foresthill Divide Community Plan
- Granite Bay Community Plan
- Horseshoe Bar/Penryn Community Plan
- Kings Beach Community Plan and Industrial Plan
- Martis Valley Community Plan
- Meadow Vista Community Plan
- Newcastle/Ophir Area General Plan
- North Stateline Community Plan
- North Tahoe Area General Plan
- Ophir General Plan
- Sheridan Community Plan
- Squaw Valley Area General Plan
- Sunset Industrial Area Plan Update (in process)
- Tahoe Basin Community Plan Update (in process)
- Tahoe City Area General Plan
- Tahoe City Community Plan
- Tahoe Vista Community Plan
- Weimar/Applegate/Clipper Gap General Plan
- West Shore Area General Plan
- Sunset Industrial Plan.

Watershed Restoration Plans and Projects

Watershed planning and restoration includes all of the activities related to preserving, protecting and restoring the streams, wetlands, forests and other natural resources within a watershed.

The Natural Resources Division is managing a number of grants that are affiliated with the implementation of the Placer Legacy Program and watershed restoration projects. The majority of the funding applies to watershed-based planning efforts associated with CALFED Bay-Delta Program (to restore the ecological health and improve water management for beneficial uses in the Bay-Delta System) or Proposition 204 (The Safe, Clean, Water Supply Act of 1996). Specific restoration projects include:

- Auburn Ravine Restoration Plan
- Miners Ravine Restoration Project
- Miners Ravine Fish Passage Project
- Rock Creek Restoration Plan
- Squaw Creek Restoration Plan
- Sundance Properties Wetlands Restoration Project

Greenway Plans

Placer County has two Greenway plans under development – one in the Dry Creek watershed in south Placer County, the second along the Truckee River in the Sierra. Greenways are corridors of linear open space established for wildlife habitat and open space conservation and/or recreation. Greenways may be held on public land, voluntarily retained on private land, or conserved through public-private partnerships.

The plans signal the start of a multi-year effort to create new public recreational opportunities, increase the mobility of cyclists, walkers, and joggers, and enrich the lives of Placer's residents and visitors. The plans are:

- Dry Creek Greenway Regional Vision
- Truckee River Corridor Access Plan

County Departments/Agencies

Office of Emergency Services

The Placer County Operational Area Office of Emergency Services (OES) is the emergency management agency for Placer County. Placer County OES is headquartered in Auburn, the County seat. The office provides service countywide, in cooperation with cities and special districts, such as the fire department and law agencies.

OES' responsibilities include:

- Directing the County's overall response to natural and human-caused disasters;
- Assigning emergency responsibilities to the various departments of the County;
- Coordinating the response and recovery efforts of governmental and non-governmental agencies during disasters;
- In the case of a possible terrorist attack, working with the Placer County Health Officer and the Placer County Sheriff's Office to respond and protect public health and safety;
- Managing the County's Emergency Operations Center; and
- Conducting emergency drills and simulations.

OES also provides updated emergency-related information to the public on the County's website. This site provides weather and flooding information, which includes guidance on protecting your home from winter storms, where to get sandbags, preparation for what to do before, during and after floods, etc. Also provided are links to national, state, and local information on fires, earthquakes, highway and road information, and general federal and state emergency information.

NIMS Compliance

The Board of Supervisors officially adopted NIMS Compliance requirement for the County in Oct 2006, which makes Placer County in compliance with federal guidance. PCOES also participated in annual NIMSCAST to update progress. The county has adopted and has used ICS since the late 1990s. As ICS is a core component of the NIMS compliance this contributed significantly to meeting the requirement.

Engineering & Surveying Department

The Engineering & Surveying Department (ESD) provides engineering and surveying review/oversight for private development projects within the unincorporated areas of Placer County. This includes engineering review of development applications in concert with planning entitlements, review of civil site improvement plans for infrastructure design, inspection of constructed infrastructure, and mapping services associated with land divisions and records of survey. ESD also provides project facilitation, and floodplain management, issues grading permits, investigates grading complaints, and assigns road names and addresses.

Building Department

To help assure building safety, the Building Department works with local residents, builders, and developers to be sure residential and commercial building in the unincorporated area of the County meets County building codes. The department:

- Issues building permits for commercial and residential building;
- Conducts building plan checks and inspections, including a third-party plan review option; and
- Assists the public with building concerns, and code enforcement issues.

Community Development Resource Agency

The Community Development Resource Agency (CDRA) is the umbrella agency which includes the Planning, Building, and Engineering & Surveying Departments, as well as Environmental Coordination Services. CDRA also coordinates work with Environmental Health, Public Works and Facilities, the Air Pollution Control District, and Redevelopment. There is also a CDRA office in the Tahoe City area.

CDRA is the first stop for land development projects of all sizes, from a single-family home to a large development. The Agency's charter is to improve the review process for development projects proposed in unincorporated areas.

Placer County Community Development Resource Agency, Planning Division

The Placer County Planning Department provides information on land development, zoning, reviews and makes recommendations on land development applications, helps the Board of Supervisors and Planning Commission plan for growth by providing professional and technical expertise, leads the preparation of Community Plans as well as Countywide plans which set the guidelines for future growth, and enforces Chapter 17 (Zoning Ordinance) of the County Code.

Placer County Department of Public Works and Facilities

The Department of Public Works and Facilities provides a wide range of public services with offices located in Auburn and North Lake Tahoe. Maintenance crew corporation yards are located in the North Lake Tahoe, Colfax, Foresthill, Lincoln, Auburn, and Loomis areas. The Department of Public Works and Facilities is comprised of four separate divisions: Transportation, Fleet Services, Road Maintenance, and Administration.

Placer County Facility Services Department, Environmental Engineering Division

The Environmental Engineering Division maintains and oversees wastewater and solid waste issues for the County. The Division maintains sewer lines, cleans sewers, and operates and maintains wastewater treatment plants (WWTPs) operated by the County. The WWTPs fall under the regulatory oversight of the State and Regional Water boards. Facility permits limit the amount of wastewater processed and quality of treated discharged water.

The department is also responsible for floodplain administration and administers the National Flood Insurance Program (NFIP) for unincorporated areas of the County. The NFIP is a FEMA program that makes flood insurance available to communities that have enacted local ordinances restricting development within the 100-year floodplain.

The Division also administers the countywide solid waste management program. The facilities fall under the regulatory oversight of the California Department of Resource Recycling and Recovery (CalRecycle) and the State and Regional Water Boards. In a disaster, the CIWMB permitting regulations allow for an Emergency Waivers of Standards as allowed under Title 14, California Code of Regulations (14 CCR), Division 7, Chapter 3, Article 3, Section 17210 et seq. Specifically, the waiver enables an operator of an existing permitted solid waste facility to accept disaster debris and other non-hazardous wastes, in a manner not consistent with the terms and conditions of the relevant solid waste facility permit, during the recovery phase of a state of emergency or local emergency. Under emergency conditions, the normal processing and disposal options may not be feasible or sufficient to handle the overwhelming amount of debris left after a disaster.

Other County Associations/Groups

American River Watershed Group

This organization focuses on natural resource management issues in the North and Middle Forks of the American River, including issues associated with safety of life and property, water quality, wildland fire management, and education.

North Fork American River Watershed Coordination Group

The California Department of Conservation granted funds to the Placer County Resource Conservation District to be used for Watershed Coordination for three years until 2007. The North Fork American River Watershed actually includes both the North and Middle Forks of the American River. The objectives of the group are to coordinate collaboration between all stakeholders; implement education and outreach with landowners, businesses, and agencies; facilitate implementation of water quality improvements and ecosystem restoration; inform and educate stakeholders on water quality issues; and implement a water quality data collection program.

Lake Tahoe Regional Fire Chiefs' Association

Similar to the Western Placer County Fire Chiefs' Association, this association is comprised of fire chiefs primarily located in the Lake Tahoe area.

Western Placer County Fire Chief's Association

The Western Placer County Fire Chiefs' Association is comprised of fire chiefs primarily located in the Western portion of the County. A primary purpose of the group is to develop the administrative abilities of fire chiefs of Placer County, and to act as an advisory association to all governmental agencies as it pertains to fire protection and emergency services in Placer County. As part of their efforts, they provide aid in the training, preparation, and coordination of Placer County's Emergency Response Departments prior to, during, and after a catastrophic emergency.

Fire Safe Councils

Local Fire Safe Councils assist in educating Californians to protect their homes, communities, and environments from wildfire. These councils serve as forums for stakeholders to share and validate fire safety and fire planning information. There are five active Fire Safe Councils in Placer County:

- Alpine Meadows Fire Safe Council;
- Foresthill/Iowa Hill Fire Safe Council
- Greater Auburn Area Fire Safe Council;
- Greater Lincoln Fire Safe Council; and
- Placer Sierra Fire Safe Council.

Placer County Fire Safe Alliance

The Placer County Fire Safe Alliance began 17 years ago and includes members from federal, state, and local fire and non-fire agencies, the several fire safe councils in the County, and the Resource Conservation District. In 2001, the Alliance became a countywide organization and switched from an information-sharing group to an action-oriented organization with regard to wildfire safety. Various programs and valuable information are offered to the public to help residents learn how to protect their property from fires. The Alliance and its partners have implemented many fire safe projects in the County, including the Placer County Chipper Program, defensible space inspections, and vegetation reduction projects.

Placer County Flood Control and Water Conservation District

Flood control services in Placer County are provided by the Placer County Flood Control and Water Conservation District, which was established in 1984 as a special district to address regional flood control issues arising with growth. The District has developed a County flood warning system, a Flood Response Handbook (updated annually), and also sets standards for development and assists the County's OES during flood events. The District pursues planning and implementation of regional detention and retention flood control facilities in partnership with local member agencies. The District also administers an annual storm channel maintenance program in unincorporated portions of the County.

Placer County Resource Conservation District (RCD)

The Placer County Resource Conservation District (RCD) was founded in 1947. It is dedicated to:

- Identifying natural resource management and conservation issues;
- Providing education and technical assistance or direction to private landowners and local agencies/organizations; and
- Inspiring and mobilizing public conservation awareness and involvement for implementing programs and plans (including wildfire risk reduction) to conserve and enhance the natural resources within the County.

The RCD works with farmers and ranchers on agricultural issues. In addition, CAL FIRE partners with the RCD for definition of agency Vegetation Management Plans.

Tahoe Regional Planning Agency

Lake Tahoe is a magnificent blue body of water that is threatened by environmental degradation. Its famed clarity has steadily been declining due to human impact. The Tahoe Regional Planning Agency (TRPA) is charged with protecting this national treasure for the benefit of current and future generations. Its vision is to have a lake and environment that is clean, healthy, and sustainable for the community and future generations. TRPA core values include environmental protection, public service and professionalism, teamwork and collaboration, communication, and management. TRPA worked with the Nevada Fire Safe Council, University of Nevada Cooperative Extension, and local fire districts to produce a guide to creating defensible space in Lake Tahoe's fragile environment.

Placer County Planning Commission

The Planning Commission is the principal advisory body to the Board of Supervisors on planning and land use matters, and regulations related to planning, land use, and long range plans for development. There are seven planning commissioners appointed by the Board of Supervisors. Five commissioners represent the five supervising districts and two at-large commissioners, one representing the County east of the Sierra crest, and one representing the County west of the crest, also serve on the commission.

Agricultural Commissioner

Agriculture has always played an important part in Placer County's economic success and colorful history. The Board of Supervisors continues to support and encourage agriculture in the County with the Right to Farm ordinance and the Placer Legacy Open Space and Agricultural Conservation Project. The Agriculture Department responsibilities include:

- Performing agricultural and pesticide inspections;
- Certifying weighing and measuring devices for consumer protection;
- Assisting in predatory animal control; and
- Helping farmers maintain healthy crops and livestock.

In an effort to protect Placer County's $82 million agriculture industry from invasive species, the Agricultural Commissioner, working in conjunction with the United States Department of Agriculture (USDA) and the California Department of Food and Agriculture (CDFA) has implemented defensive programs targeting invasive species.

The first line of defense is an extensive program to prevent the introduction of plant, animal, insect and disease pests that may be introduced through the movement of legal and illegal trade. This program includes State/Federal inspections at shipping ports, airports and highway border stations. Agricultural Inspectors examine incoming plant material to verify compliance with state and federal quarantines at major shipping terminals in the county, including UPS, FedEx and retail and wholesale nurseries.

The second line of defense includes early detection of invasive insect species through surveillance programs conducted by the Agricultural Commissioner. Early detection and the ability to respond rapidly are critical for preventing wide-scale invasion of many organisms. As a new invasive species spreads, the cost of control rises, the feasibility of eradication falls, and the potential for economic and environmental impacts increases. Pest Detection is a proactive program that seeks to identify exotic, invasive insects like Mediterranean fruit fly, Gypsy Moth, Japanese Beetle, Asian Citrus Psyllid and Glassy-Winged Sharpshooter. These pests have a wide host ranges and are difficult and costly to manage once established. Early detection is essential for quick and efficient eradication. Public participation is critical to the success of this program, since staff relies on the goodwill of property owners who allow traps to be placed on their properties. The Placer County Agriculture Department deploys over 1,300 traps annually between spring and fall.

In cooperation with the California Department of Food and Agriculture, Agricultural Inspectors actively conduct surveys for invasive pest species. Pest eradication efforts in Placer County are currently focused on noxious weeks such as spotted knapweed, Scotch thistle and yellow starthistle. In addition Placer

County Agricultural staff inspects seed products for proper identification of seeds and sample for quality (noxious weed seed contamination). Seed may be ordered "off-sale" if found to be in violation of State laws or regulations.

Special Districts

There are numerous special districts that provide a variety of public services in Placer County. Special districts can provide one or more types of public services, facilities, or infrastructure within a prescribed boundary, and they play an important role in growth management because the availability of their services can encourage or discourage new development. Special districts can tax the properties within their boundaries to pay for the services they provide. Monthly fees may also be assessed. Some of the special districts that provide mitigation-related services in Placer County are presented below.

Placer County Fire Protection Districts

Fire protection districts provide a variety of services, which may include fire protection, rescue, emergency medical, hazardous material emergency response, and ambulance services.

Placer County Irrigation Districts

Irrigation districts provide water for irrigation to users within their boundaries. They may also use water under their control for other beneficial purposes and provide flood protection measures.

Placer County Drainage Districts

Drainage districts control storm and other waste waters within a district's boundaries, protect property and infrastructure within a district from damage by storm or waste waters, and conserve storm and waste waters for beneficial purposes.

Reclamation Districts

Reclamation districts reclaim and protect any body of lands subject to overflow, and irrigate lands inside or outside these districts. Services include drainage, levee maintenance, and irrigation.

Placer County Resource Conservation Districts

Resource conservation districts address a wide variety of conservation issues such as forest fuel management, water and air quality, wildlife habitat restoration, soil erosion control, conservation education, and much more.

Placer County Water Districts

Water districts' powers may include the acquisition and operation of works for the production, storage, transmission, and distribution of water for irrigation, domestic, industrial, and municipal purposes as well as any related drainage or reclamation works.

State and Federal Programs

A number of state and federal programs exist to provide technical and financial assistance to local communities for hazard mitigation. Some of the primary agencies/departments that are closely involved with local governments in the administration of these programs include:

- California Office of Emergency Services
- State of California Multi-Hazard Mitigation Plan;
- California Department of Water Resources;
- California Department of Forestry and Fire Protection (CAL FIRE);*
- California Environmental Protection Agency;
- California Department of Fish and Game;*
- California State Parks and Recreation Department*
- California State Lands Commission;*
- Federal Emergency Management Agency (Region IX);
- U.S. Army Corps of Engineers;*
- Bureau of Reclamation;*
- USDA Forest Service;*
- National Parks Service;*
- USDA Natural Resources Conservation Service;*
- U.S. Environmental Protection Agency (Region IX); and
- American Red Cross.

*Owns and/or manages land and/or facilities (or has some sort of administrative role, e.g., fire protection) in the County; potential partner for mitigation activities

4.4.2. Placer County's Administrative/Technical Mitigation Capabilities

Table 4-69 identifies the County personnel responsible for activities related to mitigation and loss prevention in the County.

Table 4-69 Placer County Administrative/Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission		
Mitigation Planning Committee	Y	Developed for this planning process.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements	Y	There are cooperative fire agreements among departments inside and bordering the County.
Other		

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	Y/FT	Staff is adequately trained to enforce regulations regarding hazards. Staff coordinates with other departments on an as needed basis.
Floodplain Administrator	Y/FT	The floodplain administrator is a CFM
Emergency Manager	Y/FT	Staff is adequately trained to enforce regulations regarding hazards. Staff coordinates with other departments on an as needed basis.
Community Planner	T/FT	Staff is adequately trained to enforce regulations regarding hazards. Staff coordinates with other departments on an as needed basis.
Civil Engineer	Y/FT	Staff is adequately trained to enforce regulations regarding hazards. Staff coordinates with other departments on an as needed basis.
GIS Coordinator	Y/FT	Staff is adequately trained to enforce regulations regarding hazards. Staff coordinates with other departments on an as needed basis.
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Everbridge (Reverse 911)
Hazard data and information		
Grant writing		
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

4.4.3. Placer County's Fiscal Mitigation Capabilities

Table 4-70 identifies financial tools or resources that the County could potentially use to help fund mitigation activities.

Table 4-70 Placer County Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Storm water utility fee	N	Prop 218 limits the ability to create a stormwater utility.
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	Y	
Community Development Block Grant	N	
Other federal funding programs	Y	
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

4.4.4. Mitigation Education, Outreach, and Partnerships

Table 4-71 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table 4-71 Placer County Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	See the action in Chapter 5 for more information.
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	Y	
Public-private partnership initiatives addressing disaster-related issues	Y	In the fall of 2015, the County commenced a joint effort with Valley Vision on a Business Resiliency Initiative in the County for outreach, education, and general preparedness.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Other	Y	Building inspectors attend a minimum of two-four technical trainings each year. Many inspectors are certified by CALEMA for damage assessment efforts. Handouts are available for Wildland-Urban Interface standards as well as defensible space and safe residential driveway access standards.
How can these capabilities be expanded and improved to reduce risk?		

4.4.5. Other Mitigation Efforts

Section 2.0 What's New details mitigation projects implemented since the 2010 plan. The County also has many planned and ongoing projects focused on minimizing future losses associated with identified hazards. Many of these projects are sponsored and implemented by one or more County departments and/or other state and local agencies and organizations. Current projects include those listed below in this section.

Flood Control Projects

The County, cities (Auburn, Colfax, Lincoln, Loomis, Rocklin, and Roseville) and the Flood Control District have entered into an Agreement to jointly coordinate the development, support, and operation of the Placer County Flood Control and Water Conservation District. The District was created to provide countywide water conservation; development of water resources; and control and management of drainage, storm, flood, and other waters; and exercise other powers as provided by law. The District was formed as the flood-related problems cannot be economically or efficiently solved through individual actions of existing public entities within Placer County. Placer County and the Placer County Flood Control and Water Conservation District have identified the projects detailed below that have either been completed, are ongoing, or in the planning stage. Also see the Placer County Flood Control and Water Conservation District Annex and Section 2.0 What's New of this Plan for additional projects implemented since the 2005 plan.

Implementation Projects

- Local detention/retention structures to mitigate runoff impacts, associated with new development was completed in 2007.
- Miners Ravine Off-Channel Detention Basin Project – a multi-objective flood control, creek restoration and public recreation project
- Flood Warning System Upgrades – Purchase and installation of additional precipitation and stream level gages; addition of gage adjusted radar capabilities; design, installation and calibration of flood forecasting software.

- 38 residential elevation projects along Dry Creek and Miners Ravine funded by mitigation grants after the 1995 floods.
- Squaw Creek Embankment Reinforcement Project – completed after the 1997 flood to protect future stream erosion and critical sewer infrastructure

Dam Safety Work

The City of Roseville, in partnership with the Placer County Flood Control District and County OES is currently re-mapping dam failure inundation mapping in a catastrophic type event with failures of Dikes 4 and 6.

Planning Projects

- Detailed re-study, Cross Canal Watershed Flood Control Plan (Update hydrology models, identify regional retention needs, identify critical bridge and culvert replacements, identify potential structure elevation needs, identify potential multi-objective flood control projects)
- Dry Creek Watershed Flood Control Plan. The purpose of the Dry Creek Watershed Flood Control Plan is to provide the District and other governmental agencies in both Placer and Sacramento Counties with the information and policies necessary to manage flood waters within the Dry Creek Watershed. The Plan evaluates existing flooding problems and identifies flood management options as well as a funding mechanism to achieve Plan recommendations.

Placer County Low Impact Development Program

The Placer County Low Impact Development Program is designed to minimize impervious surfaces and promote infiltration and evaporation of runoff before it leaves the site of origin, thereby reducing the amount of surface runoff. Low Impact Development also keeps pollutants from contacting runoff which also improves the water quality of surface runoff. Low Impact Development uses decentralized, site- based planning and design strategies to manage the quantity and quality of stormwater runoff. Low Impact Development attempts to reduce the amount of runoff by mimicking the natural (predeveloped) hydrologic function of the site. Landscape features are typically used to work a system to filter, slow, evaporate, and infiltrate surface runoff.

The West Placer Post Construction Stormwater Design Manual is a joint effort between Placer County and the Cities of Roseville, Lincoln, Loomis, and Auburn. The goal of the Design Manual is to provide standards that both conform to the mandates of the 2013 NPDES Municipal Permit (MS4-General Permit No. CAS0000004) and achieve the objectives of the Placer County Conservation Plan (PCCP).

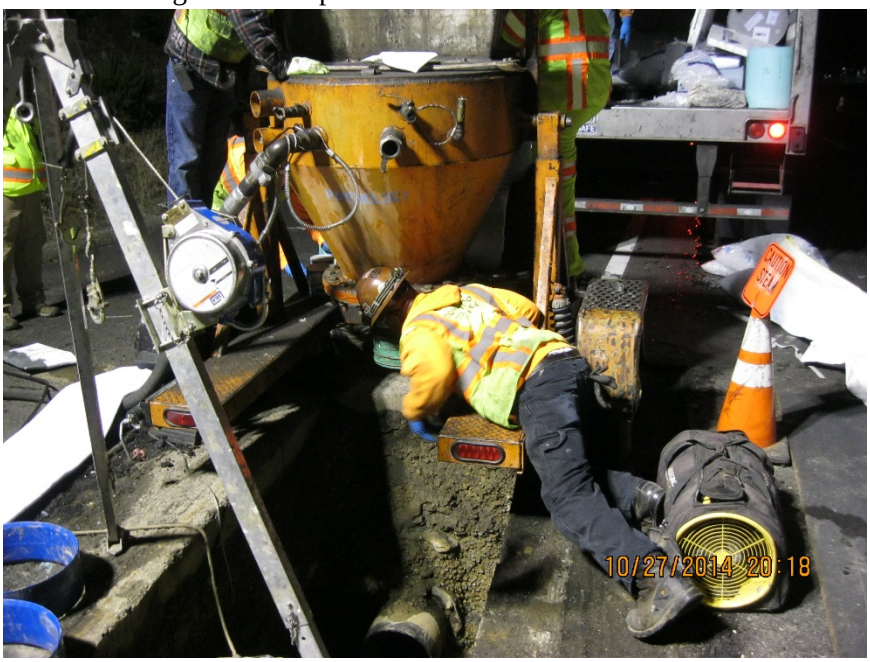
The County is also developing an Aquatic Resource Program (CARP) that will streamline permitting processes within a stream system. Low impact development is critical for PCCP/CARP implementation to ensure Clean Water Act permit requirements are satisfied.

The Design Manual will provide hydromodification management to satisfy requirements for stormwater discharges as part of the Small Municipal Separate Storm Sewer Systems (MS4), Phase II of the National Pollution Discharge Elimination System (NPDES) small municipal stormwater program.

Examples of Low Impact Development planning techniques included in the design manual are: minimizing paved areas, minimizing soil compaction, preserving natural open space areas including trees and natural drainage channels, clustering of development on compacted soils, and locating open space areas to absorb overflows. The primary audiences for the Guidelines are private and public developers who develop commercial and single-and multi-family residential units. The Guidelines will focus on new, redeveloped, and infill developments.

Structural Projects

- Hwy 49 Syphon Repair 2014 – To reduce sewer overflows / flooding / damage resulting from peak storms, restored a segment of sewer pipeline along the Highway 49 sewer trunk pipeline. Also addressed, before failure, severe pipeline deterioration that was identified by Environmental Utilities staff during routine inspections.



Source: Placer County

- Saddleback Lift Station 2015 – To reduce sewer overflows / flooding / damage from peak storms, renovated lift station to increase flow and storage capacity.

Source: Placer County

- Dry Creek Isolation Valves Installation - Increased the number of isolation valves (allows a section of the system to be closed off) to minimize the potential for sewage spills from clogged, backed up (e.g. during severe rain), or otherwise damaged system.

Property Protection, Prevention

- Inflow and Infiltration Priority Repairs and Schedule (Flooding / Severe Storms) for Placer County sewer collection systems (County assets) to minimize sewer backups as a result of the inflow and infiltration of water into sewer pipes during heavy rain.

Natural Resource Protection

- SMD 1 Regional Sewer Project. This project, funded by the County and managed by the City of Lincoln, is constructing a sewer pipeline and pump station to convey wastewater from Sewer Maintenance District 1 to the City of Lincoln, ultimately, decommissioning the Wastewater Treatment Plant by the end of 2015. This project will bring the sewer district into compliance with State standards and eliminate treated wastewater discharge into Auburn Ravine.
- SMD 3 Regional Sewer Project 2015. Placer County has constructed a sewer pipeline and pump station to convey wastewater from Sewer Maintenance District 3 (SMD 3), located in the Horseshoe Bar area of Loomis, to the existing Sewer Maintenance District 2 (SMD 2) sewer collection system, located in Granite Bay, for treatment at the Dry Creek Wastewater Treatment Plant in Roseville and, ultimately, decommissioning the SMD 3 Wastewater Treatment Plant (WWTP). This project will bring the sewer district into compliance with State standards, eliminate treated wastewater discharge into Miners Ravine, and will be accomplished with no increase to sewer rates.

- Foresthill Transfer Station Improvements - Recently completed structural improvements included new paving, retaining wall, fencing, drainage facilities, and relocation of the attendant booth. Among other things, the improvements improved the quality of storm water discharged from the FHTS into natural drainage swales.

Source: Placer County

Emergency Plans/Other Plans

- SSMPs: Sewer System Management Plans required by the State Water Resources Control Board (SWRCB) waste discharge requirements and implemented by the Environmental Engineering Div. The SSMP identifies system-wide operations, management and maintenance plans to reduce the risk of sewer overflows. Requirements also include (see Volume 1, requirements applicable to all districts):
  - ✓ Protection / Preventative Maintenance Plan (page 12)
  - ✓ Rehabilitation and Replacement Plan (page 16)
  - ✓ Condition Assessments (included above, page 17) identify long-term plans for sewer system rehabilitation and maintenance as well as capital improvement programs to meet immediate and future needs.
  - ✓ Overflow Emergency Response Plan (page 31) - Placer County Sanitary Sewer Overflow Response Procedures used in event of sewer overflow (often due to heavy storms)
  - ✓ System Evaluation and Capacity Assurance Plan (page 39) – develops a Master Plan showing future capacity needed.

Stormwater Pollution Prevention Plans

- Industrial – For facilities subject to the State Industrial General Permit (e.g. solid waste transfer stations, material recovery facilities), Environmental Engineering division develops and maintains Storm Water Pollution Prevention Plans and stormwater monitoring programs. SWPPPS required by the SWRCB specify best management practices (BMPs) to reduce pollutants entering the stormwater system. BMPs

include containment and settling of stormwater prior to discharge; discharging to sewer any stormwater that comes in contact with waste or compost.

- Construction – same as above, for any applicable construction projects at our facilities, maintain SWPPPS under the State Construction General Permit.

Fire Projects

Fire Mitigation Projects

The following list identifies completed and in-process projects led by the Placer County Fire Safe Alliance Partners. This list does not include other agency led projects conducted under separate budgets.

- Monte Verde SFB Extension Shaded Fuel Break
- Middle Fork American River Canyon Shaded Fuel Break Shaded Fuel Break
- Bath Road Area Shaded Fuel Break Shaded Fuel Break
- Michigan Bluff Shaded Fuel Break
- Todd Valley II Shaded Fuel Break
- Todd Valley Pond SFB Shaded Fuel Break
- South Rim North Fork American River Canyon Shaded Fuel Break Shaded Fuel Break
- Shirttail Canyon Shaded Fuel Break Shaded Fuel Break
- Mosquito Ridge Rd Shaded Fuel Break
- Pipeline II Maintenance
- Baltimore Mine I Maintenance
- Baltimore Mine II Maintenance
- Portofino Maintenance
- Portofino Extension Shaded Fuel Break Shaded Fuel Break
- Pollard Shaded Fuel Break Shaded Fuel Break
- Todd Valley I Maintenance
- Pipeline I Maintenance
- North Shirttail SFB Maintenance
- Rooster Ridge SFB Maintenance
- Indian Creek SFB Maintenance
- Melody Lane Roadside Clearing Roadside Clearing
- Polaris Road Roadside Clearing
- Johnson Valley / Pecky Cedar Roadside Clearing
- Red Ridge Road Roadside Clearing
- Ebbert Ranch Rd Roadside Clearing
- Firewise Community Assessment
- Fire Prevention Program K-12 Education
- Senior Assistance Defensible Space
- Community Education
- Invasive Species Removal Education
- Chipper Program Fuel Reduction
- American River Canyon Shaded Fuel Break Fuel Break
- City of Auburn Defensible Space Program Defensible Space
- City of Auburn Open Space Areas Fuel Break

- Traylor Ranch Fuel Break
- Bickford Ranch Fuel Reduction
- Griffith Quarry Fuel Break
- Hidden Falls Regional Park Fuel Break
- Squaw Valley Community park Fuel Break
- Dry Creek Road at Northpark Subdivision Fuel Reduction
- Deer Ridge Open Space and ARD Meadow Fuel Reduction
- Timberline Senior Housing Development Area Fuel Reduction
- Timberline Senior Housing De Bickford Ranch Fuel Reduction
- Clark Tunnel Road Fuel Reduction
- Roadside Disking Fuel Break
- Invasive Species Removal Education
- Firewise Education
- Chipper Program Fuel Reduction
- Recreation Area Fuel Reduction Fuel Reduction
- Preparedness Planning Pre-Fire Planning
- Homeowner Education
- Senior Assistance Defensible Space Assistance
- Hidden Falls Regional Park Fuel Reduction
- Hidden Ridge/Sore Finger Point Shaded Fuel Break Fuel Break
- Clipper Creek Extension Shade Fuel Break Fuel Break
- Heather Glen Shaded Fuel Break Fuel Break
- Sugar Pine Mountain Shaded Fuel Break Fuel Break
- Gillis Hill Fuel break Fuel Break
- Cape Horn West Shaded Fuel Break Fuel Break
- Cape Horn East Shaded Fuel Break Fuel Break
- Burnt Flat Ridge Extension Fuel Break
- Trinity Pines Shaded Fuel Break Fuel Break
- Moody Ridge Fuel Break Fuel Break
- Canyon Rim Fuel Break Fuel Break
- Secret Town Fuel Break Fuel Break
- East Weimar/Big John Ridge Fuel Break Fuel Break
- Ponderosa Way Fuel Break Fuel Break
- Battalion 13 Communication Towers Fire Safe Clearance
- Moody Ridge Roadside Roadside Clearing
- Alpine Meadows Subdivision Roadside Clearing
- Ponderosa Way Roadside
- Boole Roadside Clearing
- Cerro Vista Roadside Clearing
- Dutch Flat / Alta Roadside Clearing
- Firewise Education
- Senior Assistance Education
- Invasive Species Removal Education
- Signal Hill Fuel Break Fuel Break
- Chipper Program Education
- Dutch Flat / Alta Fuels Treatment - Phase 3 PCT, Pruning, Chipping

- Placer County Chipper Program Chipping
- Foresthill WUI Fuels treatment Incentive Chipping
- Thomas Street Community Fuel Break PCT, Pruning, Chipping
- Gills Hill Fuel Break PCT, Pruning, Chipping
- Northstar CDC Thinning and Fuels Reduction PCT, Pruning, Chipping
- Canyon View Parcel Fuel Break Hand Pile & Burn
- 7,000 acres Lincoln Area Grazing

The Placer County Fire Safe Alliance team continues to expand its membership and outreach into Placer County and surrounding communities. Neighboring County Fire Safe groups and the National Firewise Communities team regularly attend the Alliance meeting so share "Best Practices." The Alliance partners also independently work closely together to assist each other with program planning and frequently share resources to achieve regional success.

Although not directly related to Placer County, the value of defensible space and vegetative management is illustrated through the photos below taken of the 2002 Cone Fire occurring in the Blacks Mountain Experimental Forest, where various fuel reduction treatments had been conducted and in the Lassen National Forest, where no fuel treatments had been done.

Figure 4-95 Cone Fire in Treated vs Untreated Area

Source: Placer County

Other fire mitigation projects include those implemented by a variety of agencies such as BLM, USFS, CAL FIRE, and others and include the following projects:

- Fuels Treatment and Reduction (prescribed burns, mechanical thinning/removal, fuel breaks);
- Vegetation Management;
- Defensible Space;
- Healthy Forest Restoration;
- Response and Evacuation Planning;
- FireWise Construction;
- Firesafe landscapes;
- Fire Education/Community Outreach;

- Fire Safe Freeway; and
- Water Supply.

Placer County Chipper Program

The Placer County Chipper Program is available for a nominal fee to all residents of the County, except for Truckee, which is served by the Nevada County Fire Safe Council Chipper Program since it straddles the County line. The program provides a very cost-effective way for residents to convert large piles of flammable material into small piles of useable biodegradable material. Initially started with funds from a PG&E Settlement after a major wildfire caused by PG&E power lines, subsequent funding was provided as part of a Proposition 204 Grant from the State of California. Funding for the past several years, and for the next few, is coming from a WUI Grant. As with most fire safe projects in the County, the Chipper Program is accomplished through an inter-agency partnership. Funding is administered by the RCD, project management and equipment maintenance are provided by CAL FIRE, and the Placer County Sheriff's Office provides jail inmates for the crews. Over the first seven years of the program that began in 1998, over 17,000 tons of material was chipped.

California-Nevada Tahoe Basin Fire Commission Report

The California-Nevada Tahoe Basin Fire Commission was formed in the aftermath of the 2007 Angora Fire which burned 3,000 acres and destroyed 242 homes in the Tahoe area. The report said "the condition of the Basin's forests represent disasters waiting to happen, with resulting great loss of the forest, a massive destruction of property, the increasingly high potential for loss of life, and severe and inestimable pollution of the lake." It also said the current regulatory environment within the Tahoe Basin for removing dead trees, brush, and similar fire hazards are confusing and unnecessarily restrictive. Following the completion of the report, Governor Schwarzenegger declared a state of emergency in Placer and El Dorado Counties to speed up wildfire prevention efforts. The proclamation suspends state contracting rules, to the extent they would prevent, hinder, or impede the removal and disposal of hazardous vegetation. It also authorizes $100,000 to CAL FIRE to expedite contracts necessary to prepare and respond to emergencies during the fire season. The proclamation also:

- Directs CAL FIRE to inspect property for fire breaks or defensible space, provide public education about defensible space, and impose fines or liens if appropriate;
- Directs CAL FIRE staff to add additional fire engines and other firefighting resources in the area as conditions dictate; and
- Directs state agencies involved with fire fuels management activities in the Lake Tahoe Basin to develop plans for biomass utilization.

Lake Tahoe Basin Wildfire Prevention Activities

Work underway in the Lake Tahoe Basin area to reduce the threat of catastrophic wildfire includes:

- Approximately $4.4 million derived through the Southern Nevada Public Land Management Act is being used to jump start the efforts of the newly formed Tahoe Fire & Fuels Team. Currently, six projects are in progress to treat nearly 500 acres for fuels reduction purposes.

- Approximately $1 million of the $4.4 million in federal funds is being invested in a new defensible space rebate program for private property owners who voluntarily comply with defensible space requirements. Remaining funds will go towards strategic fuel breaks and residential chipping programs.
- A new publication "Living with Fire" has been developed, through the collaboration between Tahoe fire agencies and others, to help homeowners better understand the integration of defensible space and erosion control measures.
- Tahoe Regional Planning Agency regulations have been changed to increase the diameter size of trees property owners may remove without a permit for defensible space purposes from 6-14 inches. Another code change cleared the way for fire agencies to dramatically increase the amount of trained personnel conducting defensible space inspections.
- Placer County has started a hazardous vegetation abatement pilot program in four fire protection districts on the eastern slope aimed at reducing the risk of a major wildfire destroying homes by helping property owners create sufficient defensible space around their buildings. The ordinance will allow the county to intervene where more clearance is needed to obtain the 100 feet of defensible space around a structure as required by state law. The ordinance will require the owner of an adjacent unimproved property to clear sufficient space to provide for the 100 feet clearance or the county can hire a contractor to do it and add the cost's to the owner's property tax bill.

Strategic Plan for the Wildfire Protection and Biomass Utilization

Placer County has developed a Strategic Plan for Wildfire Protection and Biomass Utilization. The goal of the program is to promote projects that will diminish the threat of catastrophic wildfires, improve public health and safety, reduce pollution, and enhance the environment. Many of the forests in Placer County have an unnatural excess accumulation of woody biomass due to decades of fire suppression activities. In addition to contributing to poor forest health, excess biomass greatly increases the risk of catastrophic wildfire. The main goals of the Program are to:

- Reduce the risk of catastrophic wildfires in Placer County.
- Protect Placer County citizens and visitors from the consequences of catastrophic wildfires.
- Find one or more beneficial uses for excess biomass in Placer County.
- Improve air quality in Placer County.

FireWise Community Work Day

On August 12, 2015, 31 volunteers from the Community spent 116 hours clearing brush and debris from a vacant lot adjacent to and below homes in the Olive Orchard neighborhood of the County. A vacant lot (identified as lot # 14 on Assessor's Map, Bk.3, Pg. 10, County of Placer, Calif.) at the end of Thirza Court, which is off of Olive Orchard Drive, had not been maintained for several years and was heavily over-grown with brush, low branches and dead trees. The property is adjacent to public land on the edge of the American River Canyon and posed an extreme risk of fire damage to the entire Olive Orchard neighborhood in the event of a wildfire in the canyon. Volunteers from the neighborhood removed the brush, low branches, and dead trees. The entire Olive Orchard Community was notified of the project and invited to participate using word-of-mouth, e-mail messages and flyers delivered to each residence.

Figure 4-96 Work Day Brush Removal – Before and After

Source: Placer County FireWise

Vegetation Management Plans

The Placer County Parks and Recreation Division has developed Vegetation Management Plans for Hidden Falls Regional Park and the Squaw Valley Park. These plans are considered working documents and will be updated as necessary based on coordination with local fire officials with responsibilities for these areas. Initial establishment of fuel breaks at Hidden Falls and Squaw Valley Park were completed between 2008 and 2012. Ongoing maintenance will be provided through a combination of mechanical, grazing, and herbicide treatments.

The intent of treating existing vegetation and fuels now is so that if a fire should occur in any of the County's parks, it would not have enough initial fuel to immediately start burning rapidly outside the park and impact the surrounding properties described above. Firefighting personnel and equipment would be able to immediately jump on a fire quickly after ignition and contain it before it becomes a major problem. Without pre-treatment of fuels, defensible space practices and shaded fuel breaks, it is debatable if this goal could be achieved. To support the proactive management of fuels in these park areas, the following risk assessments were conducted by the County.

Hidden Falls Park:

1. If a fire got started in the eastern portion of the Park and burned northeasterly 3 miles before being stopped about one-half mile west of Highway 49. Assume that Sections 13, 14, 23, and 24 of T13N R7E and Sections 18 and 19 of T13N R8E, MDM would burn:
   - ✓ Number of potential parcels of land involved = 273.
   - ✓ Acreage potentially involved = 3,301.45 acres.
   - ✓ Land value of the 273 parcels = $29,897,948.
   - ✓ Value of Property Improvements on the 273 parcels = $48,129,069.

2. If a fire got started along Coon Creek, inside the Park, and ran north for about a mile, before being stopped. Assume that the land outside the Park in Sections 14, 15, and 16 in T13N R7E, MDM is at risk to burn in such a fire.

- ✓ Number of potential parcels of land involved = 36.
- ✓ Acreage potentially involved = 1579.29 acres.
- ✓ Land value of the 36 parcels = $4,376,088.
- ✓ Value of property improvements on the 36 parcels = $934,919.

3. If a fire started within the park and burned westerly to Garden Bar Road.
   - ✓ Number of potential parcels of land involved = 22.
   - ✓ Acreage potentially involved = 313.82 acres.
   - ✓ Land value of the 22 parcels = $2,363,603.
   - ✓ Value of property improvements on the 22 parcels = $2,209,052.

4. If a fire burned south out of the Park, for approximately one-half mile.
   - ✓ Number of potential parcels of land involved = 33.
   - ✓ Acreage potentially involved = 1272.24 acres.
   - ✓ Land value of the 33 parcels = $8,806,307.
   - ✓ Value of property improvements on the 33 parcels = $3,783.405.

Squaw Valley Park:

1. If a fire burned north from the Park to Squaw Valley Road. [does not include the land/improvement values of the Squaw Valley Public Service District building]
   - ✓ Number of potential parcels of land involved = 62.
   - ✓ Acreage potentially involved = Approximately 6 acres.
   - ✓ Land value of the 62 parcels = $6,767,546.
   - ✓ Value of property improvements on the 62 parcels = $16,509,913.

2. If a fire burned out of the Park easterly to Highway 89
   - ✓ Number of potential parcels of land involved = 8. [Includes 3 Forest Service parcels].
   - ✓ Acreage potentially involved = approximately 18 acres.
   - ✓ Land value of the 8 parcels = approximately $340,934. [value of $2,000/ac. given to F.S. land].
   - ✓ Value of property improvements on the 8 parcels = $227,370.

3. If a fire burned out of the park westerly to Squaw Ridge Road.
   - ✓ Number of potential parcels of land involved = 13.
   - ✓ Acreage potentially involved = 6 acres.
   - ✓ Land value of the 13 parcels = $1,461,693.
   - ✓ Value of property improvements on the 13 parcels = $3,127,540.

4. If a fire burned southerly out of the Park.
   - ✓ Number of potential parcels of land involved = 2. [one parcel owned by Washoe Tribe, the other by U.S. Forest Service]
   - ✓ Acreage potentially involved = 59 acres.
   - ✓ Land value of the 2 parcels = approximately $206,500. [used $3,500/ac. value]
   - ✓ Value of property improvements on the 2 parcels = $0.

Each of these potential fire scenarios could occur, given past history and current fuel and weather conditions. Not all of them would occur at once, as generally a fire does not burn out in all directions after ignition. Figure 4-97 and Figure 4-98 illustrate these areas and treatment locations.

Figure 4-97 Squaw Valley Fuels Treatment, 2008

Source: Photo Courtesy of Placer County Parks

Figure 4-98 Hidden Falls: Conservation Corps working on Shaded Fuel Break, 2008

Source: Photo Courtesy of Placer County Parks & Recreation Division

Wildfire and Air Quality

District staff works together with County Emergency Services, the County Health Officer, and fire agencies to provide real time air monitoring data to numerous organizations, the public and interested parties, to support planning efforts and decision making for outdoor activities such as high school football games and athletic tournaments. During the 2015 wildfire season, staff worked directly with the organizers of the high profile Tahoe Ironman event, over multiple days leading up to and after the early morning event start. Real time air quality data was provided which delineated and forecasted air quality trends from impacts due to the King Fire, in order to support a "go/no-go" decision that affected thousands of people directly and indirectly involved in the event. District staff were relied upon to provide media related information and statements that supported the decision to cancel the event.

Daily, during these wildfire incidents, District staff posted detailed graphical air quality information on the District's website and on the www.californiasmokeinfo.blogspot website. This easy to read information was vital in providing the public information to help them make informed decisions on their health. The blogspot website was created during the American Fire in 2013, with the District as one of the administrators, to provide information regarding smoke. The site has had more than 350,000 webpage hits to date.

Weed Management Project for Placer and Nevada Counties.

The Nevada/Placer Weed Management Group, led by the Placer County Agriculture Department, began working of various noxious weed abatement activities in 2000. Under AM1168 and SB1740 the group has undertaken the following projects:

- Printed a brochure of the top twelve weeds of the counties;
- Mapped all known infestations of A, B, and Q rated weeds in Nevada and Placer Counties;
- Worked to eradicate known A, B, and Q rated weed infestations in Nevada and Placer Counties;
- Worked to establish a defined leading edge containment zone for Yellow Starthistle on the western slope of the Sierras;
- Conducted a cost-share program with private landowners for Yellow Starthistle;
- Held a yearly weed-pull day to eliminate Musk Thistle from USFS lands; and
- Developed an educational display board that is periodically loaned out to local schools and other groups.

Other cooperative projects completed by the Nevada/Placer Weed Management Area:

- Each County Agricultural Commision carries out a comprehensive weed detection and eradication program on behalf of the whole county;
- The Nevada/Placer WMA in cooperation with USFS-Tahoe National Forest has actively worked to eradicate populations of Musk Thistle in the Truckee area;
- Presentations have been made to the County Board of Supervisors;
- Cooperated with CDFA to distribute Yellow Starthistle Rust bio control trials;
- Cooperated with CDFA staff to detect and eradicate populations of A rated weeds; and
- Participated in Truckee River Cleanup day including hand removal of Musk Thistle.

Other group projects being pursued by group for 2008 under a weed grant program:

- Eradication of isolated populations of A and B rated weeds from Placer County;
- Dry Creek Watershed Red Sesbania Control;
- Eradication of A and B rated weeds in the Truckee River Basin in Nevada County; and
- Eradication of exotic weed species in California State Park units.

Public Outreach

- Citizen Groups – e.g. MAC meetings, public events booths, presentations to community groups, schools
- Ongoing public education – print media (ads, flyers, mailers, bill inserts), electronic (web, radio, social media), etc.
- Messages:
  - ✓ Proper hazardous waste disposal, recycling
  - ✓ Responsible water use / conservation, who to call in a water emergency
  - ✓ How to avoid sewer system clogs / spills, who to call in a sewer emergency

Public Utilities Mitigation Measures

Key public (and critical) facilities maintained by the Placer County Facility Services Department include Wastewater Treatment and Sold Waste Disposal facilities. Flooding, severe weather, and earthquakes are the most significant hazards that can adversely impact these facilities. A variety of mitigation measures are currently in place to prevent or minimize the effects of these hazards. Existing mitigation measures include:

- Mutual aid agreements: Placer County is working with neighboring jurisdictions to develop a formal mutual aid agreement to provide or receive assistance in and emergency.
- Alarm Systems and Backup Power: Placer County Wastewater Treatment Plants (WWTPs) and lift stations are equipped with alarm systems to alert appropriate staff of power failures. Additionally WWTPs and lift stations are designed to be operated using generators. Some facilities (including the three largest WWTPs) have dedicated generators on site. The remaining facilities can be operated by portable generators.
- Infrastructure Planning/Construction and Utility Location: Placer County evaluates flood protection levels at the WWTPs when designing and constructing improvements. . In addition, the County has constructed flood walls to protect WWTP facilities in areas within the 100-year floodplain, as required by WWTP NPDES permits. Whenever possible, utilities are located outside of known hazard areas (e.g., landslide areas) to decrease the risk of service disruption.

Chapter 5 Mitigation Strategy

Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section describes the mitigation strategy process and mitigation action plan for the Placer County Local Hazard Mitigation Plan Update. It describes how the County and participating jurisdictions met the following requirements from the 10-step planning process:

- Planning Step 6: Set Goals
- Planning Step 7: Review Possible Activities
- Planning Step 8: Draft an Action Plan

5.1 Mitigation Strategy: Overview

The results of the planning process, the risk assessment, the goal setting, the identification of mitigation actions, and the hard work of the HMPC led to the mitigation strategy and mitigation action plan for this LHMP Update. As part of the plan update process, a comprehensive review and update of the mitigation strategy portion of the plan was conducted by the HMPC. Some of the initial goals and objectives from the 2010 plan were refined and reaffirmed, some goals were deleted, and others were added. The end result was a new set of goals, reorganized to reflect the completion of 2010 actions, the updated risk assessment and the new priorities of this Plan Update. To support the new LHMP goals, the mitigation actions from 2010 were reviewed and assessed for their value in reducing risk and vulnerability to the planning area from identified hazards and evaluated for their inclusion in this Plan Update (See Chapter 2 What's New). Section 5.2 below identifies the new goals and objectives of this Plan Update and Section 5.4 details the new mitigation action plan.

Taking all of the above into consideration, the HMPC developed the following umbrella mitigation strategy for this LHMP Update:

- Communicate the hazard information collected and analyzed through this planning process as well as HMPC success stories so that the community better understands what can happen where and what they themselves can do to be better prepared.
- Implement the action plan recommendations of this plan.
- Use existing rules, regulations, policies, and procedures already in existence.
- Monitor multi-objective management opportunities so that funding opportunities may be shared and packaged and broader constituent support may be garnered.

5.1.1. Continued Compliance with NFIP

Given the flood hazard in the planning area, an emphasis will be placed on continued compliance with the National Flood Insurance Program (NFIP) by all communities and participation by Placer County and others, as appropriate, in the Community Rating System (CRS). Detailed below is a description of Placer

County's flood management program to ensure continued compliance with the NFIP. Also to be considered are the numerous flood mitigation actions contained in this LHMP that support the ongoing efforts by the county to minimize the risk and vulnerability of the community to the flood hazard and to enhance their overall floodplain management program. A summary of the flood management programs and continued compliance with the NFIP for the incorporated communities are detailed in their jurisdictional annexes.

Placer County's Flood Management Program

Placer County has participated in the Regular Phase of the NFIP since 1983. Since then, the County has administered floodplain management regulations that meet the minimum requirements of the NFIP. Under that arrangement, residents and businesses paid the same flood insurance premium rates as most other communities in the country.

The County will continue to manage their floodplains in continued compliance with the NFIP. An overview of the County's NFIP status and floodplain management program are discussed on Table 5-1.

Table 5-1 Placer County NFIP Status

NFIP Topic	Comments
Insurance Summary	
How many NFIP policies are in the community? What is the total premium and coverage?	568 policies with $163,034,100 of insurance in force. Premiums of $386,421.
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	167 closed paid losses totaling $4,154,874.85; 161 of these were for residential properties and 6 were nonresidential. Of these 167 paid losses, 86 were parcels in A zones and 79 parcels were in B, C, & X zones. Information was not provided on the other 2 claims. Of the 167 claims, 133 claims were associated with pre-FIRM structures and 32 with post-FIRM structures; 2 claims unknown. There have been 16 substantial damage claims since 1978.
How many structures are exposed to flood risk within the community?	1,118 parcels in the SFHA
Describe any areas of flood risk with limited NFIP policy coverage	Unincorporated Placer County has significant assets at risk to the 100-year and greater floods. Of the 1,118 improved parcels within the 100-year floodplain, only 201 (or 18 percent) of those parcels maintain flood insurance.
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Yes

NFIP Topic	Comments
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Placer County's Floodplain management group provides the full suite of administrative services necessary to achieve and maintain a CRS Class 5, including all of those identified in the example provided.
What are the barriers to running an effective NFIP program in the community, if any?	None
Compliance History	
Is the community in good standing with the NFIP?	Yes
Are there any outstanding compliance issues (i.e., current violations)?	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	October 22-23, 2014
Is a CAV or CAC scheduled or needed?	No
Regulation	
When did the community enter the NFIP?	4/18/1983
Are the FIRMs digital or paper?	Digital
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Meet and Exceed: See Appendix C for Details
Provide an explanation of the permitting process.	Clearly outlined in the floodplain ordinance. This process is strictly enforced.
Community Rating System	
Does the community participate in CRS?	Yes
What is the community's CRS Class Ranking?	5
What categories and activities provide CRS points and how can the class be improved?	See discussion in below table.
Does the plan include CRS planning requirements?	Yes, in accordance with the CRS Activity 510 requirements of the 2013 CRS Coordinator's Manual

Source: FEMA/Placer County

The Community Rating System (CRS) was created in 1990. Placer County has been in the CRS program since 1991. The program is designed to recognize floodplain management activities that are above and beyond the NFIP's minimum requirements. CRS is designed to reward a community for implementing public information, mapping, regulatory, loss reduction and/or flood preparedness activities. On a scale of 10 to 1, Placer County is currently ranked Class 5 community, which gives a 25% premium discount to individuals in the Placer County Special Flood Hazard Area (SFHA), and a 10% discount to policyholders outside the SFHA.

The activities credited by the CRS provide direct benefits to Placer County and its residents, including:

- Enhanced public safety;
- A reduction in damage to property and public infrastructure;

- Avoidance of economic disruption and losses;
- Reduction of human suffering; and
- Protection of the environment.

The activities that Placer County implements and receives CRS credits include:

- **Activity 310 – Elevation Certificates**: The Public Works and Facilities Department, Floodplain Management Division maintains elevation certificates for new and substantially improved buildings. Copies of elevation certificates are made available upon request. Certificates are also kept for post-FIRM buildings in computer format. Elevation Certificates, plans, regulations and other records are maintained in a secure location away from the permit office.
- **Activity 320 – Map Information Service**: Credit is provided for furnishing inquirers with flood zone information from the community's latest Flood Insurance Rate Map (FIRM), publicizing the service annually and maintaining records.
- **Activity 330 – Outreach Projects**: An outreach brochure and floodplain management updated is mailed annually to all properties in the community's Special Flood Hazard Area (SFHA). The community also provides flood information through displays at public buildings and community events, as well as on their website.
- **Activity 340 – Hazard Disclosure**: Credit is provided for the local real estate agents disclosure of flood hazards to prospective buyers. An outreach brochure is mailed by the County annually to real estate agents and lenders in the community. Credit is also provided for state and community regulations requiring disclosure of flood hazards.
- **Activity 350 – Flood Protection Information**: Documents relating to floodplain management are available in the reference section of the Placer County Library. Credit is also provided for floodplain information displayed on the community's website.
- **Activity 360 – Flood Protection Assistance**: The community provides technical advice and assistance to interested property owners and annually publicizes the service.
- **Activity 410 – Floodplain Mapping**: Credit is provided for conducting and adopting flood studies for areas not included on the flood insurance rate maps and that exceed minimum mapping standards. Credit is also provided for a cooperating technical partnership agreement with FEMA.
- **Activity 420 – Open Space Preservation**: Park land and other such uses located in the floodplain are credited as open space preservation.
- **Activity 430 – Higher Regulatory Standards**: Credit is provided for enforcing regulations that require freeboard for new and substantial improvement construction, protection of floodplain storage capacity, natural and beneficial functions, enclosure limits, other higher regulatory standards, land development criteria and state mandated regulatory standards. Credit is also provided for a Building Code Effectiveness Grading Schedule (BCEGS) Classification of 2/2 for certification as a floodplain manager and the adoption of the International Building Codes.
- **Activity 440 – Flood Data Maintenance**: Credit is provided for maintaining and using digitized maps in the day-to-day management of the floodplain. Credit is also provided for establishing and maintaining a system of elevation reference marks and maintaining copies of all previous FIRMs and Flood Insurance Study Reports.
- **Activity 450 – Stormwater Management**: The community enforces regulations for stormwater management, freeboard in non-SFHA zones, soil and erosion control, and water quality. Credit is also provided for stormwater management master planning.
- **Section 501 – Repetitive Loss Category**: Based on the updates made to the NFIP Report of Repetitive Losses as of December 31, 2014, Placer County has nine repetitive loss properties and is a Category B community for CRS purposes. All requirements for a Category B community have been met. Credit is provided for the adoption and implementation of the Floodplain Management Plan. The community also sends letters to owners of repetitive loss structures.

- **Activity 510 – Floodplain Management Planning**: Credit is provided for the adoption and implementation of the County's current Floodplain Management Plan. In addition, as detailed in the Section 3.0, Planning Process, this LHMP Update is being developed to maximize CRS credits for Activity 510.
- **Activity 530 – Flood Protection**: Credit is provided for buildings that have been elevated to protect them from flood damage.
- **Activity 540 – Drainage System Maintenanc**e: Portions of the community's drainage system are inspected throughout the year and maintenance is performed as needed. Additionally, the Placer County Flood Control District has an annual stream clearing program in the high flood risk areas. Records are being maintained for both inspections and required maintenance. Credit is also provided for an ongoing Capital Improvements Program. Credit is also provided for enforcing regulations prohibiting dumping in the community's drainage system.
- **Activity 610 – Flood Warning Program**: Credit is provided for a program that provides timely identification of impending flood threats, disseminates warnings to appropriate floodplain residents, and coordinates flood response activities.
- **Activity 630 – Dam Safety**: All California communities currently receive CRS credit for the State's dam safety program

5.2 Goals and Objectives

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Up to this point in the planning process, the HMPC has organized resources, assessed hazards and risks, and documented mitigation capabilities. The resulting goals, objectives, and mitigation actions were developed based on these tasks. The HMPC held a series of meetings and exercises designed to achieve a collaborative mitigation strategy as described further throughout this section. Appendix C documents the information covered in these mitigation strategy meetings, including information on the goals development and the identification and prioritization of mitigation alternatives by the LHMP Update Steering Committee and HMPC working group.

During the initial goal-setting meeting, the HMPC reviewed the results of the hazard identification, vulnerability assessment, and capability assessment. This analysis of the risk assessment identified areas where improvements could be made and provided the framework for the HMPC to formulate planning goals and objectives and to develop the mitigation strategy for the Placer County Planning Area.

Goals were defined for the purpose of this mitigation plan as broad-based public policy statements that:

- Represent basic desires of the community;
- Encompass all aspects of community, public and private;
- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
- Are future-oriented, in that they are achievable in the future; and
- A time-independent, in that they are not scheduled events.

Goals are stated without regard to implementation. Implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. Goal statements form the basis for objectives and actions that will be used

as means to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable.

HMPC members were provided with the list of goals from the 2010 plan as well as a list of other sample goals to consider. They were told that they could use, combine, or revise the statements provided or develop new ones, keeping the risk assessment in mind. Each member was given three index cards and asked to write a goal statement on each. Goal statements were collected and grouped into similar themes and displayed on the wall of the meeting room. The goal statements were then grouped into similar topics. New goals from the HMPC were discussed until the team came to consensus. Some of the statements were determined to be better suited as objectives or actual mitigation actions and were set aside for later use. Next, the HMPC developed objectives that summarized strategies to achieve each goal.

Based on the risk assessment review and goal setting process, the HMPC identified the following goals and objectives, which provide the direction for reducing future hazard-related losses within the Placer County Planning Area.

Goal 1: Minimize risk and vulnerability of Placer County to the impacts of natural hazards and protect lives and reduce damages and losses to property, economy, public health and safety, and the environment.

- Minimize economic and resource impacts and promote long-term viability and sustainability of County resources
- Minimize impacts to both existing and future development from all hazards (through well-planned communities)
- Minimize impacts to natural and cultural resources
- Minimize impacts from climate change
- Minimize impacts to watersheds/Promote watershed health
- Prevent and reduce wildland fire risk and related losses
- Prevent and reduce flood risk and related damages, with a focus on repetitive loss structures and infrastructure

Goal 2: Provide protection for critical facilities, infrastructure, utilities and services from hazard impacts.

- Provide protection for critical infrastructure from the wildland fires, floods, and severe storms/weather (e.g., repeaters, cell towers, waters tanks, utilities)
- Improve infrastructure/system reliability for critical lifeline utilities, including stormwater systems, roadways (evacuation routes, emergency services and supplies); rail lines, and pipelines.
- Minimize risk of loss of life and injury to At-risk Populations

Goal 3: Improve public awareness, education, and preparedness for all hazards.

- Enhance public outreach, education, and preparedness program to include all hazards of concern (e.g. fire restrictions, water conservation measures, hazardous vegetation, air and water quality issues)
- Increase public knowledge of the risk and vulnerability to identified hazards and their recommended responses to disaster events to reduce losses
- Educate general public on evacuation planning and sheltering options for all hazard types and to encompass all groups (e.g., residents, visitors, second homeowners, vulnerable populations, animals)

- Increase community awareness and participation in hazard mitigation activities to include defensible space, hazardous vegetation abatement projects, and forest management projects and practices to reduce flood risk on private property
- Utilize multiple public outreach avenues such as schools, new technologies, and social media
- Coordination with other regional jurisdictions to facilitate (consistent/coordinated) public information function prior to, during and after an event (e.g., facebook, twitter, everbridge, web, tv, radio)

Goal 4: Increase communities' capabilities to mitigate losses and to be prepared for, respond to, and recover from a disaster event.

- Continued enhancements to Emergency Services capabilities integrating new technologies to reduce losses and save lives
- Improve interagency (local, state, federal) emergency coordination, planning, training, exercising, and communication to ensure effective community preparedness, response and recovery
- Improve interagency coordination with respect to implementation of mitigation activities such as fuels reduction and other multi-jurisdictional wildland fire projects
- Enhance the use of shared resources/Develop a strong mutual aid support system
- Maintain current service levels/provide for enhanced service levels
- Increase first responders awareness of vulnerable populations and other priority needs during a hazard event;(use of technology to pre-identify and communicate)
- Utilize lessons learned (debriefing) to improve response capabilities
- Promote efficient recovery from incidents to minimize impacts to lives, environment, and economy

Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding.

- Continued compliance with the NFIP/enhancement of floodplain management program through participation in the NFIP's Community Rating System (CRS) where feasible.

5.3 Identification and Analysis of Mitigation Actions

Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In order to identify and select mitigation actions to support the mitigation goals, each hazard identified in Section 4.1 was evaluated. Only those hazards that were determined to be a priority hazard were considered further in the development of hazard-specific mitigation actions.

These priority hazards (in alphabetical order) are:

- Agricultural Hazards
- Dam Failure
- Drought and Water Shortage
- Earthquake
- Flood: 100/500 year
- Flood: Localized Stormwater Flooding
- Seiche (Lake Tsunami)
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

- Wildfire
- Hazardous Materials Transport

The HMPC eliminated the hazards identified below from further consideration in the development of mitigation actions because the risk of a hazard event in the County is unlikely or nonexistent, the vulnerability of the County is low, or capabilities are already in place to mitigate negative impacts. The eliminated hazards are:

- Avalanche
- Landslides and Debris Flows
- Levee Failure
- Severe Weather: Extreme Heat
- Severe Weather: Fog and Freezing Fog
- Soil Bank Erosion
- Subsidence

It is important to note, however, that all the hazards addressed in this plan are included in the countywide multi-hazard public awareness mitigation action as well as in other multi-hazard, emergency management actions.

Once it was determined which hazards warranted the development of specific mitigation actions, the HMPC analyzed viable mitigation options that supported the identified goals and objectives. The HMPC was provided with the following list of categories of mitigation actions, which originate from the Community Rating System:

- Prevention (required to be evaluated)
- Property protection
- Structural projects
- Natural resource protection
- Emergency services
- Public information

The HMPC was provided with examples of potential mitigation actions for each of the above categories. The HMPC was also instructed to consider both future and existing buildings in considering possible mitigation actions. A facilitated discussion then took place to examine and analyze the options. Appendix C provides a detailed review and discussion of the six mitigation categories to assist in the review and identification of possible mitigation activities or projects. Also utilized in the review of possible mitigation measures is FEMA's publication on Mitigation Ideas, by hazard type. Prevention type mitigation alternatives were discussed for each of the priority hazards. This was followed by a brainstorming session that generated a list of preferred mitigation actions by hazard.

5.3.1. Prioritization Process

Once the mitigation actions were identified, the HMPC was provided with several decision-making tools, including FEMA's recommended prioritization criteria, STAPLEE sustainable disaster recovery criteria; Smart Growth principles; and others, to assist in deciding why one recommended action might be more

important, more effective, or more likely to be implemented than another. STAPLEE stands for the following:

- Social: Does the measure treat people fairly? (e.g., different groups, different generations)
- Technical: Is the action technically feasible? Does it solve the problem?
- Administrative: Are there adequate staffing, funding, and other capabilities to implement the project?
- Political: Who are the stakeholders? Will there be adequate political and public support for the project?
- Legal: Does the jurisdiction have the legal authority to implement the action? Is it legal?
- Economic: Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- Environmental: Does the action comply with environmental regulations? Will there be negative environmental consequences from the action?

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority. Other criteria used to assist in evaluating the benefit-cost of a mitigation action includes:

- Contribution of the action to save life or property
- Availability of funding and perceived cost-effectiveness
- Available resources for implementation
- Ability of the action to address the problem

In addition to reviewing and incorporating the actions from the 2010 plan, the committee also considered and defined several new actions. A comprehensive review of mitigation measures was performed using the criteria (alternatives and selection criteria) in Appendix C.

With these criteria in mind, HMPC members were each given a set of nine colored dots, three each of red, blue, and green. The dots were assigned red for high priority (worth five points), blue for medium priority (worth three points), and green for low priority (worth one point). The team was asked to use the dots to prioritize actions with the above criteria in mind. The point score for each action was totaled. Appendix C contains the total score given to each identified mitigation action.

The process of identification and analysis of mitigation alternatives allowed the HMPC to come to consensus and to prioritize recommended mitigation actions. During the voting process, emphasis was placed on the importance of a benefit-cost review in determining project priority; however, this was not a quantitative analysis. The team agreed that prioritizing the actions collectively enabled the actions to be ranked in order of relative importance and helped steer the development of additional actions that meet the more important objectives while eliminating some of the actions which did not garner much support.

Benefit-cost was also considered in greater detail in the development of the Mitigation Action Plan detailed below in Section 5.4. The cost-effectiveness of any mitigation alternative will be considered in greater detail through performing benefit-cost project analyses when seeking FEMA mitigation grant funding for eligible actions associated with this plan.

Recognizing the limitations in prioritizing actions from multiple jurisdictions and departments and the regulatory requirement to prioritize by benefit-cost to ensure cost-effectiveness, the HMPC decided to pursue actions that contributed to saving lives and property as first and foremost, with additional

consideration given to the benefit-cost aspect of a project. This process drove the development of a determination of a high, medium, or low priority for each mitigation action, and a comprehensive prioritized action plan for the Placer County Planning Area.

5.4 Mitigation Action Plan

Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This action plan was developed to present the recommendations developed by the HMPC for how the Placer County Planning Area can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Emphasis was placed on both future and existing development. The action plan summarizes who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented. Each action summary also includes a discussion of the benefit-cost review conducted to meet the regulatory requirements of the Disaster Mitigation Act.

Table 5-2 identifies the mitigation actions and lead jurisdiction for each action. Only those actions where the County is the lead jurisdiction are detailed further in this section. Actions specific to other participating jurisdictions, or where other jurisdictions are taking the lead, are detailed in each respective jurisdictional annex to this plan.

The action plan detailed below contains both new action items developed for this Plan Update as well as old actions that were yet to be completed from the 2010 plan. Table 5-2 indicates whether the action is new or from the 2010 plan and Chapter 2 contains the details for each 2010 mitigation action item indicating whether a given action item has been completed, deleted, or deferred.

It is important to note that Placer County and the participating jurisdictions have numerous existing, detailed action descriptions, which include benefit-cost estimates, in other planning documents, such as community wildfire protection plans/fire plans, stormwater plans and capital improvement budgets and reports. These actions are considered to be part of this plan, and the details, to avoid duplication, should be referenced in their original source document. The HMPC also realizes that new needs and priorities may arise as a result of a disaster or other circumstances and reserves the right to support new actions, as necessary, as long as they conform to the overall goals of this plan.

Further, it should be clarified that the actions included in this mitigation strategy are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. The participating communities are not obligated by this document to implement any or all of these projects. Rather this mitigation strategy represents the desires of the community to mitigate the risks and vulnerabilities from identified hazards. The actual selection, prioritization, and implementation of these actions will also be further evaluated in accordance with the CRS mitigation categories and criteria contained in Appendix C.

It should be noted that the projects submitted by each jurisdiction in Table 5-2 benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority.

Table 5-2 Placer County Planning Area's Mitigation Actions

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Placer County						
Multi-Hazard Actions						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Placer County	New action	X	X		Prevention Public Information
Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness	Placer County and all jurisdictions	New Action	X	X	X	Public Information
Trail System Way Finding and Directional Signage	Placer County	New action	X	X		Emergency Services
Disaster Debris Management Plan	Placer County	New action	X	X	X	Prevention Emergency Services,
Agricultural Actions						
Pest Detection Programs	Placer County	New Action	X	X		Prevention Natural Resource Protection
Noxious Weed Eradication Programs	Placer County	2010 Action	X	X		Prevention Natural Resource Protection
Dam Failure Actions						
Cottonwood Dam Restoration	Placer County	New action	X	X	X	Prevention Natural Resource Protection Structural
Drought Actions						
Retrofit of High Water Use Landscape & Irrigation	Placer County	New action	X	X		Property Protection Natural Resource Protection
Drought Public Education and Outreach	Placer County	New action	X	X		Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Erosion Actions						
Bear Creek Bank Restoration	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Lake Tahoe Basin Environmental Improvement Program (EIP)	Placer County	New action	X	X	X	Prevention Natural Resource Protection
Earthquake Actions						
Fire Station Seismic Upgrade	Placer County	New action	X	X		Emergency Services Property Protection
Dewitt Demolition	Placer County	New action	X	X		Prevention Property Protection
Health Care Facility Seismic Resiliency	Placer County	New action	X	X		Emergency Services Property Protection
Flood Actions						
Community Rating System (CRS) Maintain and Enhance	Placer County	New action	X	X	X	Prevention Public Information
Stream Channel Clearing – Western Placer County	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Van Norden Dam Lowering and Meadow Restoration	Placer County	New action	X	X	X	Structural Natural Resource Protection
Miners Ravine Sewer Pipeline Repair	Placer County	New action	X	X		Prevention Property Protection, Natural Resource Protection Structural
Sewer System Management Plan Updates	Placer County	New action	X	X	X	Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Stormwater Drainage Improvements	Placer County	New action	X	X	X	Prevention Property Protection, Natural Resource Protection Structural
Bridge and Culvert replacement and drainage improvements	Placer County	New action	X	X	X	Property Protection Structural
Urban Level of Flood Protection Mapping	Placer County	New action	X	X	X	Prevention Public Information
Elevate Remaining 95 Homes in the Dry Creek Watershed	Placer County	2010 action	X	X	X	Property Protection
Elevate Repetitive Loss Structures in 100-year Floodplain	Placer County	2010 action	X	X	X	Property Protection
Hazardous Material Actions						
Natural Hazard Minimization Evaluation focusing on top 5 facilities in Placer County producing large quantities of hazardous waste/storage of such hazardous materials	Placer County	New action	X	X		Prevention
Wildfire Actions						
Large Strategic Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Fuel Breaks in the Wildland Urban Interface (WUI)	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Wildfire Public Education	Placer County	New action	X	X		Public Information
Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
North Fork American River Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Defensible Space Programs	Placer County	2010 action	X	X		Prevention Property Protection
Project that focus on Open Space/Defensible Space	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
Annual Multi-Agency Wildland Fire Drill	Placer County	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Vegetation Management – Ongoing Maintenance of Fuel Breaks	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
City of Auburn						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Auburn	New action	X	X		Prevention Public Information
Lincoln Basin (Downtown) Drainage Infrastructure	City of Auburn	2010 Action	X	X	X	Property Protection Structural
Creek and Stream Cleaning and Maintenance Program	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
Implementation of Storm Water Treatment Plan	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Electric Street Diversion Project	City of Auburn	2010 Action	X	X	X	Property Protection Structural
Old Town Auburn Storm Drain System	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
American River Canyon Shaded Fuel Break	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Community Education on Wildfire	City of Auburn	2010 Action	X	X		Public Information
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.	City of Auburn	2010 Action	X	X		Prevention Property Protection Public Information
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection Public Information
City of Colfax						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Colfax	New action	X	X		Prevention Public Information
Continue Annual Weed Abatement Ordinance	City of Colfax	New Action	X	X		Prevention Property Protection Natural Resource Protection
Colfax Schools Evacuation Site Shaded Fuel Break	City of Colfax	New Action	X	X		Prevention Property Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Evaluate the Need and Feasibility of Improving Fire Prevention for the Historic Business District	City of Colfax	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
City of Lincoln						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Lincoln	New action	X	X		Prevention Public Information
Lincoln Boulevard: Auburn Ravine Bridge – Reconstruct Bridge	City of Lincoln	2010 Action	X	X		Structural
McBean Park Drive: Auburn Ravine Bridge – Additional 110' Span	City of Lincoln	2010 Action	X	X		Structural
Lakeview Farms Regional Volumetric Mitigation Facility	City of Lincoln	2010 Action	X	X		Property Protection Structural
Gladding Parkway, Lincoln Boulevard, McCourtney Road – Stream Restoration And Culvert Improvement	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
"O" Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
7th Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
Auburn Ravine at State Route 193 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Auburn Ravine at State Route 65 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Ingram Slough – Orchard Creek Return Channel	City of Lincoln	2010 Action	X	X	X	Property Protection Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Markham Ravine – Updated FEMA Analysis And Mapping	City of Lincoln	2010 Action	X	X	X	Prevention Public Information
Markham Ravine Drainage Improvements – Union Pacific Railroad & State Route 65 Crossings	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
Auburn Ravine Stream Restoration Projects (Analysis and Repairs)	City of Lincoln	2010 Action	X	X	X	Natural Resource Protection
Markham Ravine Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Coon Creek Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Fire Prevention and Fuels Management Plan	City of Lincoln	2010 Action	X	X		Prevention
City of Rocklin						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	City of Rocklin	New action	X	X		Prevention Public Information
Federal Emergency Management Agency (FEMA) Floodplain/Community Rating System (CRS)	City of Rocklin	New action	X	X	X	Prevention Public Information
Creek Channel and Drainage Way Clearing and Maintenance	City of Rocklin	New action	X	X	X	Prevention Natural Resource Protection
High Water Use Landscape and Irrigation Retrofit	City of Rocklin	New action	X	X		Natural Resource Protection
Open Space Fire Prevention & Vegetation Management Prescribed Grazing	City of Rocklin	2010 Action	X	X		Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
GIS Based Mapping of Pertinent Information that can be used by All Agencies in the Development of Plans and During Emergency Incidents	City of Rocklin	2010 Action	X	X	X	Prevention Emergency Services Public Information
Town of Loomis						
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Town of Loomis	New action	X	X		Prevention Public Information
Local Bridges Evaluation Program	Town of Loomis	New Action	X	X		Prevention Emergency Services
Address signage for property addresses	Town of Loomis	2010 Action	X	X		Emergency Services
Delmar Avenue Headwall Reconstruction Project	Town of Loomis	2010 Action	X	X	X	Property Protection Structural
Creek Maintenance Secret Ravine & Antelope Creek	Town of Loomis	2010 Action	X	X	X	Property Protection Natural Resource Protection
Reconstruction of Brace Bridge at Secret Ravine	Town of Loomis	2010 Action	X	X	X	Structural
Raise Flood-Prone Houses Along Loomis Creeks	Town of Loomis	2010 Action	X	X	X	Property Protection
Alta Fire Protection District						
Apparatus Water Fill & Drafting Location Improvements	AFPD	New Action	X	X		Emergency Services Property Protection
Evacuation / Reunification Center Improvements	AFPD	New Action	X	X		Emergency Services Structural
Natural Systems Protection / Education and Awareness Programs and Community Fuel Breaks	AFPD	New Action	X	X		Emergency Services Property Protection Natural Resource Protection Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Natural Systems Protection / Education and Awareness Programs	AFPD	New Action	X	X		Emergency Services Natural Resource Protection Public Information
Emergency Communications and Information System Improvements.	AFPD	New Action	X	X		Emergency Services
Alta Fire Protection District CERT Team	AFPD	New Action	X	X		Emergency Services
Reflective Addressing	AFPD	New Action	X	X		Emergency Services Property Protection
Alpine Springs County Water District						
Emergency Electrical Generator Replacement Project	ASCWD	New Action	X	X		Emergency Services
Water Storage Tank Replacement Project	ASCWD	New Action	X	X		Structural
Mineral Springs Soil Bank Stabilization Project	ASCWD	2010 Action	X	X	X	Property Protection Natural Resource Protection
Alpine Meadows Consolidated Defensible Space Continuation Project	ASCWD	2010 Action	X	X		Property Protection Natural Resource Protection
Foresthills Fire Protection District						
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Foresthill Biomass Project	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Assess and Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing and Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's and Maintenance Contracts.	FFPD	2010 Action	X	X		Prevention Public Information
Todd Valley Shaded Fuel Break	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Loomis Fire Protection District						
Identify and inspect ALL bridges in LFPD	Loomis FPD	New Action	X	X		Emergency Services
Vegetation Management for Open Areas	Loomis FPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	Loomis FPD	New Action	X	X		Emergency Services
Adopt 2016 CFC, CBC, and local standards	Loomis FPD	New Action	X	X		Prevention
Nevada Irrigation District						
Combie Phase 1 Replacement	NID	New Action	X	X		Emergency Services Structural
Centennial Water Storage and Power Supply Project	NID	New Action	X	X		Emergency Services Structural
Water Service Auburn Valley CSD	NID	New Action	X	X		Prevention Emergency Services
NID Headquarters Office Generator	NID	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Orr Creek Diversion	NID	New Action	X	X		Property Protection Structural
Reservoir Cleaning	NID	2010 Action	X	X		Property Protection Natural Resource Protection
Canal Culvert Replacement Program	NID	2010 Action	X	X		Property Protection Structural
Northstar Community Services District						
Martis Landing Drainage Swales and Catch Basins	North Star CSD	New Action	X	X	X	Property Protection Natural Resource Protection
Continue Easement Access Road Water Bar Maintenance and Replacement Program	North Star CSD	New Action	X	X		Emergency Services Structural
Fuels Reduction @ Sawmill Reservoir	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Fuels Reduction Program	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Storm Water Drainage Inlet Maintenance	North Star CSD	New Action	X	X	X	Prevention Property Protection Natural Resource Protection
Siphon Line	North Star CSD	New Action	X	X		Natural Resource Protection Structural
Provide Power from Mobile Generator	North Star CSD	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Green Waste Recycling Program	North Star CSD	New Action	X	X		Prevention Public Information
Enhance our current Defensible Space Program by seeking funding to hire a part-time employee to assist the Fire Prevention department in running this program	North Star CSD	New Action	X	X		Property Protection Public Information
District Water Conservation Program	North Star CSD	New Action	X	X		Prevention Property Protection Public Information
North Tahoe Fire Protection District						
FCC P-25 Interoperability Radio Systems	NTFPD	2010 Action	X	X		Emergency Services
District GIS Technology, Equipment, Database and Mapping Improvements	NTFPD	2010 Action	X	X	X	Emergency Service
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements	NTFPD	2010 Action	X	X	X	Emergency Services Structural
Seiche Wave Warning Systems, Signs and Public Education	NTFPD	2010 Action	X	X	X	Emergency Services Public Information
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education	NTFPD	2010 Action	X	X		Property Protection Public Information
Hazardous Wood Roof Replacement Program	NTFPD	2010 Action	X	X		Property Protection Public Information
Regional Water System Fire Protection Upgrades and Interoperability	NTFPD	2010 Action	X	X		Emergency Services Property Protection
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment	NTFPD	2010 Action	X	X		Prevention Emergency Services Property Protection
Hydrant Risers, Replacements and Markers	NTFPD	2010 Action	X	X		Emergency Services Property Protection
North Tahoe Public Utility District						
Update SCADA Equipment and Telecommunications Infrastructure	NTPUD	New Action	X	X	X	Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
IT and Telecommunications Improvements for Disaster Preparedness	NTPUD	New Action	X	X	X	Emergency Services
Update Emergency Response Plan	NTPUD	New Action	X	X	X	Prevention Emergency Services
Backup Generator Installation at Critical Facilities	NTPUD	New Action	X	X	X	Emergency Services
Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park	NTPUD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Kingswood West Subdivision Emergency Evacuation Access	NTPUD	New Action	X	X		Emergency Services
North Tahoe Regional Park Road Improvements for Emergency Access	NTPUD	New Action	X	X		Emergency Services
Seismic Study and Retrofit of Critical Infrastructure	NTPUD	New Action	X	X		Emergency Services Structural
Sewer Main Replacements in Shorezone of Lake Tahoe	NTPUD	New Action	X	X		Property Protection Structural
Water Booster Pump Station Rehabilitation/Replacement	NTPUD	New Action	X	X		Emergency Services Structural
Increased Storage Capacity for Dollar Cove Water System	NTPUD	New Action	X	X		Emergency Services Structural
Water System Interties	NTPUD	New Action	X	X		Emergency Services Structural
Placer County Flood Control District						
FEMA CTP DFIRM Mapping Study	PCFCWCD	New Action	X	X	X	Prevention Public Information
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds	PCFCWCD	2010 Action	X	X	X	Structural
Update Hydrology and Hydraulic Models within the Cross Canal Watershed	PCFCWCD	2010 Action	X	X	X	Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities	PCFCWCD	2010 Action	X	X	X	Emergency Services
Placer County Water Agency						
Hillside Slope Stabilization	PCWA	New Action	X	X		Natural Resource Protection Structural
LL Anderson Dam Spill Way Modification	PCWA	New Action	X	X	X	Structural
Water System Interties	PCWA	New Action	X	X		Emergency Services Structural
Vegetation Management and Brushing	PCWA	New Action	X	X		Natural Resource Protection
Enhance Canals by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas	PCWA	2010 Action	X	X		Emergency Services Structural
Replace Wooden Flume Structures	PCWA	2010 Action	X	X		Emergency Services Structural
De-Silt Reservoirs.	PCWA	2010 Action	X	X		Property Protection Structural
Placer Hills Fire Protection District						
Assess And Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements For Minor Lot Splits	Placer Hills Fire Protection District	2010 Action	X	X		Prevention
South Placer Fire Protection District						
Vegetation Management for Open Areas	SPFPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	SPFPD	New Action	X	X		Emergency Services
Adopt 2016 CFC, CBC, and local standards	SPFPD	New Action	X	X		Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Squaw Valley Public Service District						
Emergency Water Supply Interconnection to Martis Valley	SVPSD	New Action	X	X		Emergency Services Structural
Truckee River Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural
Squaw Creek Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural
Easement Abatement/Maintenance of Emergency Access	SVPSD	2010 Action	X	X		Prevention Property Protection
Develop a Community-Wide Emergency Notification System Capable of Providing Information to Both Residents and Visitors by Utilizing Permanent, Roadside Changeable Message Boards and a Low-Power Radio Transmitter	SVPSD	2010 Action	X	X	X	Emergency Services Public Information
SVPSD/Mutual Water Company Inter-tie	SVPSD	2010 Action	X	X		Emergency Services Structural
Water Tank Earthquake Retrofit Project	SVPSD	2010 Action	X	X		Emergency Services Structural
Tahoe City Public Utility District						
Bunker Water Tank Replacement	TCPUD	New Action	X	X		Emergency Services Structural
West Lake Tahoe Regional Water Treatment Plant	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Main Emergency Water Supply	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Truckee Unified School District						
North Tahoe High School and Middle School, Tahoe Lake Elementary School Emergency Generators.	TTUSD	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.	TTUSD	2010 Action	X	X	X	Emergency Services Public Information
HVAC Control Upgrades	TTUSD	2010 Action	X	X		Prevention Structural
Truckee Fire Protection District						
Community Wildfire Protection Plan	TFPD	New Action	X	X		Prevention Public Information
Severe Winter Weather and Propane Issues Mainly in Serene Lakes	TFPD	New Action	X	X		Property Protection

Multi-Hazard Actions

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: Placer County Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness

Hazards Addressed: All (priority and non-priority) hazards

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Placer County, its incorporated jurisdictions, and special districts are participating jurisdictions to the Placer County Local Hazard Mitigation Plan Update. Each jurisdiction plays a key role in public outreach/education efforts to communicate the potential risk and vulnerability of their community to the effects of natural hazards. A comprehensive multi-hazard public education program will better inform the community of natural hazards of concern and actions the public can take to be better prepared for the next natural disaster event.

Project Description: A comprehensive multi-hazard outreach program will ascertain both broad and targeted educational needs throughout the community. The County, cities, and special districts will work with other agencies as appropriate to develop timely and consistent annual outreach messages in order to communicate the risk and vulnerability of natural hazards of concern to the community. This includes measures the public can take to be better prepared and to reduce the damages and other impacts from a hazard event. The public outreach effort will leverage and build upon existing mechanisms, will include elements to meet the objectives of Goal 3 of this LHMP Update, and will consider:

- Using a variety of information outlets, including websites, local radio stations, news media, schools, and local, public sponsored events;
- Creating and distributing (where applicable) brochures, leaflets, water bill inserts, websites, and public service announcements;
- Displaying public outreach information in County and City office buildings, libraries, and other public places and events;
- Developing public-private partnerships and incentives to support public education activities.

Other Alternatives: Continue public information activities currently in place.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Existing County, City, and other special district outreach programs will be reviewed for effectiveness and leveraged and expanded upon to reach the broader region.

Responsible Office: Placer County, Cities, and all other participating jurisdictions

Priority (H, M, L): High

Cost Estimate: Annual costs to be determined, and will depend on the scope and frequency of activities and events as well as volunteer participation

Benefits (Losses Avoided): Increase residents' knowledge of potential hazards and activities required to mitigate hazards and be better prepared. Protect lives and reduce damages, relatively low cost to implement.

Potential Funding: Local budgets, grant funds

Schedule: Ongoing/Annual public awareness campaign

Action 3. Trail System Way Finding and Directional Signage

Hazards Addressed: Multi Hazard (Search and Rescue)

Goals Addressed: 1, 2, 4

Issue/Background: Placer County has one of the nation's most extensive recreational trail networks with over 500 miles of public trails located on County, State, and Federally owned property. A need has arisen to improve way finding and directional signage. Many trails are currently non-descript of landmarks for miles on end, and this creates delay in emergency response along trails. Signage will include mile markers along remote trails to aid reporting parties in describing the location of incidents along trails to first

responders. Directional and interpretive signage will also alert trail users of hazards and preparedness planning.

Other Alternatives: Close trails to the public if delay in emergency response increases hazards to unacceptable levels.

Existing Planning Mechanism(s) through which Action Will Be Implemented: A pilot program of mile marking signage has been implemented in the Dry Creek West Placer Area of Placer County. A Park and Trail Master Plan will be undertaken by Placer County beginning in 2015. The Master Plan will identify trail safety signage standards.

Responsible Office/Partners: Placer County Department of Public Works and Facilities, State Parks, U.S. Forest Service/Bureau of Land Management/Bureau of Reclamation, local Land Trusts.

Project Priority: High

Cost Estimate: $125,000

Benefits (Losses Avoided): Decrease emergency response time in public open space areas. Educate trail users in hazard avoidance and readiness planning.

Potential Funding: Grants, Development Fees, other

Timeline: 2015 through 2020

Action 4. Disaster Debris Management Plan (Prevention, Emergency Services, Property Protection)

Hazard Addressed: Multi-Hazard

Goals Addressed: 1, 2, 3, 4

Issue/Background: The project would involve developing a Disaster Debris Management Plan to aid in the advance planning for debris management and diversion during and after a disaster. The plan may identify topics such as tasks to be undertaken, team and management roles, government agency coordination, pre-disaster assessment, temporary storage sites, waste diversion opportunities, permanent disposal sites, waste hauling considerations, hazardous wastes, funding and mutual aid, and public outreach.

Other Alternatives: No plan in place; relying on in-the-moment decision making which could delay response and result in improper handling of debris.

Responsible Office: Placer County – Environmental Engineering and Utilities Division / Office of Emergency Services

Priority (High, Medium, Low): Medium

Cost Estimate: $25,000 - $35,000

Benefits (avoided Losses): Reduces risks associated with slow response and/or improper management of potentially hazardous debris waste.

Potential funding: Currently unidentified; potential solid waste enterprise funds.

Schedule: Within 5 years

Agricultural Actions

Action 5. Pest Detection Programs

Hazard Addressed: Agricultural

Goals Addressed: 1, 2, 4

Issue/Background: The Pest Detection Programs looks for exotic insect pests like Mediterranean Fruit Fly, Oriental Fruit Fly, Melon Fly, Gypsy Moth, Japanese Beetle, Glassy-winged Sharpshooter, Light Brown Apple Moth, and Asian Citrus Psyllid. Over 1,300 insect traps are placed throughout the county to detect infestations of these economically significant pests. These traps are relocated to new sites approximately every six weeks to increase the monitoring area. These detection traps are typically deployed through the summer season and are inspected/serviced at two week intervals.

Other Alternatives: Establishment of these pests would lead to costly agricultural quarantines.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Contracts with the California Department of Food and Agriculture (CDFA) specify scope of work.

Responsible Office: Placer County Agriculture Department, CA Department Food and Agriculture

Priority (High, Medium, Low): High

Cost Estimate: $174,738

Benefits (avoided Losses): Early detection of pests allow eradication efforts to begin before pests multiply and spread, becoming economically and technically impossible to control. Thus, costly agricultural quarantines are avoided and/or reduced.

Potential funding: Contracts with CA Department of Food and Agriculture

Schedule: Continuous/Seasonal (every year, primarily May-October)

Action 6. Noxious Weed Eradication Programs

Hazard Addressed: Agricultural

Goals Addressed: 1, 2, 4

Issue/Background: The Noxious Weed Eradication Programs concentrate on the removal of incipient populations of noxious weeds. These noxious weeds have the potential to replace native habitat and lead to increased fire potential/occurrence/severity.

Other Alternatives: Establishment of these weeds may lead to loss of native habitat and increase wildfire risk.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Contracts with US Forest Service (USFS), California Department of Food and Agriculture (CDFA), and Weed Management Areas (WMA's) specify scope of work.

Responsible Office: Placer County Agriculture Department, USFS, CDFA, WMA's

Priority (High, Medium, Low): High

Cost Estimate: $90,991

Benefits (avoided Losses): Retention of native habitat, reduced fire potential/occurrence/severity.

Potential funding: Contracts with USFS, CDFA, Grants through WMA's

Schedule: Continuous/Seasonal (every year, primarily April-October)

Dam Actions

Action 7. Cottonwood Dam Restoration

Hazards Addressed: Dam failure

Goals Addressed: 1, 2, 4

Issue/Background: This project includes the removal of an existing dam and fish barrier across Miners Ravine in Granite Bay and subsequent restoration of the creek corridor. Designs will address flood control concerns through improved floodplain storage upstream of the current dam. Water quality concerns will be addressed through removal of accumulated sediments upstream of the dam. Fisheries habitat improvements will also be included.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: Placer County Planning Department; Placer County Flood Control and Water Conservation District

Project Priority: High

Cost Estimate: $1,500,000.00

Benefits (Losses Avoided):

Potential Funding: To be determined.

Timeline: As soon as possible.

Drought Actions

Action 8. Retrofit of High Water Use Landscape & Irrigation

Hazards Addressed: Drought, Fire risk

Goals Addressed: 1, 2, 4

Issue/Background: Placer County maintains over 160 acres of landscaped grounds in addition to playable turf areas. Approximately 1/3 of that acreage consists of ornamental lawn and other high water use plantings or outdated inefficient irrigation. Retrofit of these areas will be prioritized and completed on a site by site basis as funding becomes available. Other local agencies and districts within Placer County face a similar water usage situation.

Other Alternatives: Continue unsightly 'brown-out' conditions of existing landscape (leading to increased fire risk) during drought conditions. Currently implementing low water landscape standards for all new development.

Existing Planning Mechanism(s) through which Action Will Be Implemented: A selection process for an irrigation and landscape retrofit development team has been completed. A pilot program of irrigation and landscape retrofit at the Placer County Government Center in Auburn will begin in 2016 using County general funds.

Responsible Office/Partners: Placer County Department of Public Works and Facilities, Incorporated Cities, Special Districts who maintain landscape areas

Project Priority: High

Cost Estimate: $15,000,000

Benefits (Losses Avoided): Decreased water usage. Fire risk reduction during drought.

Potential Funding: Grants, General Funds, Assessments, other

Timeline: 2015 through 2020

Action 9. Drought Public Education and Outreach (Public Information)

Hazard Addressed: Drought

Goals Addressed: 1, 3, 4

Issue/Background: The project involves public outreach and education to customers of the County's Sheridan Public Water System that serves the small community of Sheridan, CA which is served by three groundwater wells. The ongoing drought has had numerous impacts on the County. In addition, the state is in a State of Emergency due to the drought. One key method to conserve groundwater is to reduce water uses in homes and landscaping.

Other Alternatives: No outreach and education to water customers on how to conserve.

Responsible Office: Placer County – Environmental Engineering and Utilities Division

Priority (High, Medium, Low): High

Cost Estimate: $5,000 – 10,000 annually during drought years

Benefits (avoided Losses): Reduces the environmental and economic impacts of drought.

Potential funding: Currently unidentified.

Schedule: Annually during drought years.

Erosion Actions

Action 10. Bear Creek Bank Restoration

Hazards Addressed: Creek erosion that is exposing underground utilities and destabilizing public road.

Goals Addressed: 1, 2, 4

Issue/Background: Bear Creek located in the unincorporated area of Alpine Meadows has a section in a bend with extensive bank erosion that has exposed a water utility and if continued unabated could impact the stability of a nearby public road.

Other Alternatives: Continue to respond to events in a piecemeal fashion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: As funding allows, finalize bank restoration plans and bid out plans for implementation.

Responsible Office/Partners: Alpine Springs Water District and Placer County Public Works & Facilities Department

Project Priority: Low to medium

Cost Estimate: $1,000,000 for improvements

Benefits (Losses Avoided): Protect underground utilities and public road.

Potential Funding: County Road Fund or competitive grant funding for flood control measures

Timeline: Implement project by 2020

Action 11. Lake Tahoe Basin Environmental Improvement Program (EIP)

Hazards Addressed: Erosion areas that cause flooding and significant sediment discharge during high precipitation events in the unincorporated Placer County portion of the Lake Tahoe Basin (from Tahoma along west shore to Kings Beach along north shore).

Goals Addressed: 1, 2, 4

Issue/Background: In 1997, the Tahoe Regional Planning Agency initiated the EIP with federal funding to address the water clarity and quality of Lake Tahoe. Multiple federal, state and local jurisdictions have implemented numerous erosion control projects since then. Even though many of the high erosive and flooding prone areas have been addressed, future erosion control efforts are still needed.

Other Alternatives: Continue to respond to events in a piecemeal fashion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: As funding allows, identify and plan future erosion control projects.

Responsible Office/Partners: Placer County Public Works & Facilities Department

Project Priority: Medium

Cost Estimate: $10,000,000 for future improvements

Benefits (Losses Avoided): Minimize flooding and erosion, and maintain water clarity and quality of Lake Tahoe and its drainage ways.

Potential Funding: Competitive federal and grant funding

Timeline: Implement all projects between now and 2025

Earthquake Actions

Action 12. Fire Station Seismic Upgrades

Hazards Addressed: Earthquake/Wildfire

Goals Addressed: 1, 2, 4,

Issue/Background: Many existing Place County Fire Stations and critical structures necessary in an emergency were constructed under older seismic and wind standards and are in need of upgrading of their lateral reinforcing structures.

Other Alternatives: Construct new buildings at a much higher cost.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Existing condition assessments.

Responsible Office/Partners: Placer County, Cal FIRE

Project Priority: Medium

Cost Estimate: $8,000,000 to $15,000,000

Benefits (Losses Avoided): Critical infrastructure is able to be used in an emergency.

Potential Funding: Unidentified.

Timeline: 1-10 years

Action 13. Dewitt Demolition

Hazards Addressed: Earthquake

Goals Addressed: 1, 2, 4

Issue/Background: Removal/demolition of existing unreinforced masonry building at the Placer County Government Center (Dewitt) to prevent loss of life and property as a result of a moderate to major earthquake. The original 1942 buildings at Dewitt were built as temporary structures and not built to modern seismic codes.

Other Alternatives: Reinforce/upgrade to code.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Placer County Facility Master Plan.

Responsible Office/Partners: Placer County Facility Services.

Project Priority: High.

Cost Estimate: $6,000,000

Benefits (Losses Avoided): Reduce loss of life, building loss, and loss of services in an emergency.

Potential Funding: Placer County General Fund.

Timeline: 1-5 years.

Action 14. Health Care Facility Seismic Resiliency

Hazards Addressed: Earthquake

Goals Addressed: 1, 2, 4

Issue/Background: Healthcare facilities were evaluated for seismic stability under the 1973 Alfred E. Alquist Facility Seismic Safety Act. Currently, Placer County has several health care facilities that would benefit from upgrades. There are two categories: structural and internal stability (i.e. shelving, oxygen tank lines, etc.): http://www.oshpd.ca.gov/fdd/seismic_compliance/SB1953/SPCNPCList.pdf.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners:

Project Priority: Medium

Cost Estimate: To be determined.

Benefits (Losses Avoided): Benefits: increase stability of health care facilities from two perspectives: (county and individuals). The county benefits by having hospitals viable, in the event of an earthquake, that are able to continue to treat patients/residents, become a potential staging area due to limited damage(s), a command center to help triage affected citizens quickly so that they may return to their families/homes/communities to begin the rebuilding process. The individuals benefit by having immediate access to hospital services due to the building (internal and external) being "safe" post-earthquake to continue treatment rather than having to transport injured citizens outside of the county to access competent medical care.

Potential Funding: To be determined.

Timeline: Within 5 years.

Flood Actions

Action 15. Community Rating System (CRS) Maintain and Enhance

Hazards Addressed: Flood

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS:

- Reduce flood losses;
- Facilitate accurate insurance rating; and
- Promote the awareness of flood insurance

Other Alternatives: Stop participation in the CRS and leave home owners uninformed about flood risks.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Community Outreach through implementation of the CRS program. Currently a Class 5 community. Enhancement of program would require establishment of freeboard.

Responsible Office/Partners: Placer County Department of Public Works and Facilities

Project Priority: Medium

Cost Estimate: $60,000 per year to maintain rating

Benefits (Losses Avoided): Reduce flood losses and create a safer community

Potential Funding: County General Funds

Timeline: Ongoing

Action 16. Stream Channel Clearing – Western Placer County

Hazards Addressed: Flooding

Goals Addressed: 1, 2, 4, 5

Issue/Background: The Dry Creek watershed and its tributaries run through populated areas throughout Western Placer County including the communities of Granite Bay, Loomis, Roseville, and Dry Creek. The Dry Creek watershed has been responsible for major property damage due to flooding. The soil conditions and topography make Dry Creek and its tributaries prone to vegetation overgrowth including invasive species establishment. Ongoing regular vegetation control is necessary to protect the property within the flood plain of the Dry Creek Watershed. Placer County owns numerous parcels along Dry Creek in Granite Bay and Dry Creek / West Placer.

Other Alternatives: Continue vegetation management in phases as funding becomes available.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Placer County Flood Control and Water Conservation District obtains permitting and funding on a limited basis to perform strategic stream clearing on an annual basis. Placer County Department of Public Works and Facilities clears vegetation on stream channels within County owned property as resources permit.

Responsible Office/Partners: Placer County Department of Public Works and Facilities, Placer County Flood Control and Water Conservation District

Project Priority: High

Cost Estimate: $250,000 annually

Benefits (Losses Avoided): Flood protection within the Dry Creek watershed

Potential Funding: Grants, general funds, assessments, other

Timeline: Ongoing

Action 17. Van Norden Dam Lowering and Meadow Restoration

Hazards Addressed: Flood protection, erosion, and degradation of high value habitat

Goals Addressed: 1, 2, 4, 5

Issue/Background: Lake Van Norden sits at the headwaters of the South Fork Yuba River Drainage. The property of Lake Van Norden has been purchased for conservation through a partnership of the Truckee Donner Land Trust, US Forest Service, Placer County and others. A retrofit plan to lower the dam at the outlet of Lake Van Norden will provide flood protection for property owners along the Yuba River and allow for restoration of the historic Van Norden Meadows that will support unique alpine biodiversity and water quality for the Yuba River watershed. While the physical location of the dam is in Nevada County, much of the resources and property to be protected is in Placer County. The US Forest Service will take ownership of Van Norden Meadows in 2015/16. The acquisition and protection of Van Norden Meadows and watershed has been ranked as the #2 acquisition priority for the US Forest Service nationally.

Other Alternatives: Continue erosion and head cutting into Lake Van Norden and associated non-native vegetation growth patterns. Status quo flood risk along the South Yuba River drainage. The project would be undertaken in phases as funding becomes available.

Existing Planning Mechanism(s) through which Action Will Be Implemented: A portion of the dam retrofit project will be funded through private donations raised by the Truckee Donner Land Trust. Placer County has contributed $300,000 toward the permanent conservation of the Van Norden Lake and Meadows.

Responsible Office/Partners: Placer County Department of Public Works and Facilities, Truckee Donner Land Trust, US Forest Service, Nevada County

Project Priority: Medium for Placer County involvement, High for US Forest Service and Truckee Donner Land Trust

Cost Estimate: $2,500,000 for dam retrofit and meadow restoration

Benefits (Losses Avoided): Flood protection along the South Yuba River. .

Potential Funding: Grants, private donations, other

Timeline: 2015 through 2018

Action 18. Miners Ravine Sewer Pipeline Repair (Prevention, Property Protection, Natural Resource Protection, Structural)

Hazards Addressed: Flood/Erosion

Goals Addressed: 1, 2, 4, 5

Issue/Background: The project would involve replacement of one sewage pipeline abutment in Miners Ravine that has become severely structurally compromised due to erosion around the abutment. The current abutment is expected to move in the event of high flows or storm surge through the channel, resulting in a rupture of the suspended pipeline and a sewage spill into Miners Ravine.

Other Alternatives: A temporary cable to hold the pipe in suspension until a permanent repair can be made.

Responsible Office: Placer County – Environmental Engineering and Utilities Division

Priority (High, Medium, Low): High

Cost Estimate: $100,000 estimate

Benefits (avoided Losses): Avoidance of potential fines for sewage overflows are estimated at $10 per gallon. Project would protect natural resources by reducing the potential for a spill of untreated wastewater into the Ravine.

Potential funding: Local sewer district funds.

Schedule: 2015 / 2016

Action 19. Sewer System Management Plan Updates (Prevention, Structural, Natural Resources Protection, Property Protection)

Hazards Addressed: Flooding/Localized Flooding

Goals Addressed: 1, 2, 4, 5

Issue/Background: This project involves the routine updating and implementation of Sewer System Management Plans (SSMPs) required by the State Water Resources Control Board waste discharge requirements to ensure proper maintenance of the County's 283+ miles of sewer pipeline in nine sewer collection systems. The SSMPs identifies system-wide operations, management and maintenance plans to reduce the risk of sewer overflows that could impact natural resources and damage sewer facilities. Components of the SSMPS include, but are not limited to Preventative Maintenance Plans, condition assessments, Overflow Emergency Response Plans, Rehabilitation and Replacement Plans, and System Evaluation and Capacity Assurance Plans.

Other Alternatives: No procedures in place.

Responsible Office: Placer County – Environmental Engineering and Utilities Division

Priority (High, Medium, Low): Medium

Cost Estimate: Ongoing labor costs.

Benefits (avoided Losses): Potential fines for sewage overflows are estimated at $10 per gallon. Additional fines for violating discharge permits. Depending on the magnitude, this could result in fines in excess of $100,000 during a significant event. In addition to the fines, additional resources would be needed for spill response and clean up, and potential infrastructure repair. Project would protect natural resources by reducing the potential for spills of untreated wastewater into waterways.

Potential funding: Sewer district funds for County labor.

Schedule: Ongoing

Action 20. Stormwater Drainage Improvements

Hazards Addressed: Flooding and erosion in developed areas of unincorporated area of Olympic Valley

Goals Addressed: 1, 2, 4, 5

Issue/Background: County roads developed on the north side of Olympic Valley for residential development have antiquated drainage infrastructure and the area is at the base of historic and ongoing hazards including mudslides, erosive drainage flows, and avalanches.

Other Alternatives: Continue to respond to events in a piecemeal fashion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: As funding allows, map existing drainage infrastructure to identify where improvements are needed.

Responsible Office/Partners: Placer County Public Works & Facilities Department

Project Priority: Low to medium

Cost Estimate: $100,000 for plan; $1,000,000 for improvements

Benefits (Losses Avoided): Minimize flood damage to public roads and private property.

Potential Funding: County Road Fund or competitive grant funding for flood control measures

Timeline: Complete plan by 2020

Action 21. Bridge and Culvert replacement and drainage improvements

Hazards Addressed: Flood

Goals Addressed: 1, 2, 4

Issue/Background: Continue to review and identify bridge, culverts and drainage improvements

Other Alternatives: Continue to respond to events in a piecemeal fashion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Funding thru Federal or State grants and road funds.

Responsible Office/Partners: Placer County Department of Public Works and Facilities

Project Priority: Medium

Cost Estimate: Cost dependent on project. $50,000 - $10,000,000

Benefits (Losses Avoided): Reduce flood losses and maintain safe public roads

Potential Funding: Grant Programs

Timeline: 2-10 years

Action 22. Urban Level of Flood Protection Mapping

Hazards Addressed: Flood

Goals Addressed: 1, 2, 4, 5

Issue/Background: The project is proposed in accordance with the Flood General Plan Amendment, adopted in November 2015, and consistent with the requirements of SB 5 and its subsequent amendments, which requires cities and counties to amend their general plans to strengthen the linkage between local land use planning and flood protection.

Other Alternatives:

E**xisting Planning Mechanism(s) through which Action Will Be Implemented**: Flood General Plan Amendment, update to Safety Element (Implementation Program 8.23)

Responsible Office/Partners: Department of Public Works, CDRA Engineering and Surveying Division, Flood Control and Water Conservation District

Project Priority: High

Cost Estimate: $15,000-20,000

Benefits (Losses Avoided): Avoidance of property damage and loss

Potential Funding: Grant sources TBD, General Fund

Timeline: Commenced August 2012

Action 23. Elevate Remaining 95 Homes in the Dry Creek Watershed

Hazards Addressed: Flood

Goals Addressed: 1, 2, 4, 5

Issue/Background: Homes in the Dry Creek Watershed have a history of flooding. These 95 homes could benefit from being elevated above flood levels.

Other Alternatives: Other than elevating the structure, alternatives include; acquisitions/relocations, dry flood proofing of non-residential structures, minor localized flood control projects, and demolition of NFIP-insured structures on acquired or restricted real property.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Available funding and homeowner cost sharing where possible. Funding thru Federal or State grant sources if available.

Responsible Office/Partners: Placer County Department of Public Works and Facilities

Project Priority: Medium

Cost Estimate: Elevation is estimated at $100,000 to $150,000 per structure.

Benefits (Losses Avoided): Reduce flood losses and create a safer community

Potential Funding: Potential Grant Programs

Timeline: 2-10 years

Action 24. Elevate Repetitive Loss Structures in 100-year Floodplain

Hazards Addressed: Flood

Goals Addressed: 1, 2, 4, 5

Issue/Background: Placer County is a participant in the National Flood Insurance Program Community Rating System. As a participant in the CRS program, Placer County reviews the Repetitive Loss (RL) properties within its jurisdiction and annually notifies surrounding property owners of the RL property. In order to mitigate for RL properties, the structures can be elevated such that the finish floor is elevated above the 100-year flood elevation. RL properties include but are not limited to the following:

- 2 RL properties in Granite Bay
- 1 RL property in Loomis
- 1 RL property in Newcastle
- 1 RL property in Lincoln
- 1 RL property in Soda Springs
- 1 RL property in Olympic Valley
- 1 RL property in Tahoe City
- 1 RL property in Homewood

Other Alternatives: Other than elevating the structure, alternatives include; acquisitions/relocations, dry flood proofing of non-residential structures, minor localized flood control projects, and demolition of NFIP-insured structures on acquired or restricted real property.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Elevate RL structures using grants when available.

Responsible Office/Partners: Placer County Department of Public Works and Facilities

Cost Estimate: Elevation is estimated at $100,000 to $150,000 per structure.

Benefits (Losses Avoided): Reduce flood losses and create a safer community

Potential Funding: Potential Grant Programs

Timeline: 2-10 years

Project Priority: Medium

Hazardous Materials Actions

Action 25. Natural Hazard Minimization Evaluation focusing on top 5 facilities in Placer County producing large quantities of hazardous waste/storage of such hazardous materials

Hazards Addressed: Hazardous Materials/Flood/Earthquake

Goals Addressed: 1, 2, 4

Issue/Background: Evaluate/identify/repair/strengthened barriers to minimize release/exposure of hazardous materials into county that may occur due to a natural disasters

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: LEPC

Project Priority: Medium

Cost Estimate: To be determined.

Benefits (Losses Avoided): Benefits: increase stability of the five facilities identified in the EPA's Toxic Release Inventory (EPA's TRI Factsheet for Placer County, CA): http://isapub.epa.gov/triexplorer/tri_factsheet. These industrial facilities should be evaluated from a natural disaster mitigation perspective (if not already done so in the past) for modifications/enhancements/barriers that could be available in the event of either an earthquake or flood. For example, in the event of an earthquake is there secondary barriers in place to minimize spreading? In the event of a flood, are back-up generators available in the event the electrical systems is rendered useless? Back-up floodlights available in case natural disaster occurs at nighttime and visibility is key to determining extent of damage, if any, to the facility in question.

Potential Funding: To be determined

Timeline: Within 5 years.

Wildfire Actions

Action 26. Large Strategic Fuel Break

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 4

Issue/Background: Large Strategic Fuel Break projects will provide landscape scale community protection in our area. When complete, these projects will help protect the communities identified as "Communities at Risk from Wildfire" listed in the National Fire Plan.

This practice applies to all communities where protection from wildfire is needed. These Strategic Fuel breaks are planned and located on the landscape as part of a conservation management system for a land unit where there is a need to control the risk of the spread of fire into our communities as well as to protect watersheds, critical infrastructure, and commerce traveling on our freeways and railways. Typically, they break up large, continuous tracts of dense natural fuels, thus limiting uncontrolled spread of fire, and are commonly associated with firebreaks (permanent or temporary strips of bare or vegetated land planned to retard fire). For our purposes, a strategic fuel break is typically placed to protect the communities identified in the Western Slope CWPP for that specific Fire Safe Council area.

The Placer County Fire Safe Alliance and Fire Safe Councils have worked with County, State, and Federal agencies to identify areas within their jurisdictions to develop large strategic fuel breaks to protect specific communities and watersheds within the County.

Other Alternatives: Rely on the individual property owner or land managers to develop strategic fuel breaks to protect resources and assets that may be outside of their ownership or responsibility.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Work with the current property owner or land manager to implement strategic fuel breaks identified in the Western Slope CWPP. Apply for local, State, or Federal funding to implement these plans.

Priority (High, Medium, Low): High

Responsible Office: Placer County OES

Cost Estimate: The cost for the individual projects is identified in the Western Slope CWPP Project Planning Worksheets.

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire in developed communities, towns, and city's within the County.

Potential Funding: County, State, and Federal funding

Schedule: These projects are ongoing. Each project within the Western Slope CWPP is reviewed annually and updated as needed or removed if completed.

Action 27. Fuel Breaks in the Wildland Urban Interface (WUI)

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 4,

Issue/Background: The purpose of a Shaded Fuel Break within the WUI is to minimize destruction to communities from wildfire and to protect and enhance natural resources, watershed and habitat of western Placer County. When complete, these projects will help protect the community's identified as "Communities at Risk from Wildfire" and identified as communities with the WUI, listed in the CWPP.

This practice applies to all communities within the WUI where protection from wildfire is needed. These Shaded Fuel breaks are planned thinning of dense vegetation in an area approximately 300 feet wide where fire does not easily move from the ground into the overhead tree canopy and to allow fire resources to utilize such a location to increase probability of success during fire suppression activities. Fuel break width will be dependent upon the fuels and topography in any given area.

For our purposes, a strategic fuel break is typically placed to protect the communities identified in the Western Slope CWPP WUI, for that specific Fire Safe Council.

The Placer County Fire Safe Alliance and Fire Safe Councils have worked with County, State, and Federal agencies to identify areas within their jurisdictions to develop shaded fuel breaks to protect specific communities and watersheds within the WUI.

Other Alternatives: Rely on the individual property owner or land managers within the WUI to develop fuel breaks to protect resources and assets from fire that may spread from the wildland into urban areas.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Work with the current property owner or land manager to implement shaded fuel breaks identified in the Western Slope CWPP WUI area. Apply for local, State, or Federal funding to implement these plans.

Priority (High, Medium, Low): High

Responsible Office: Placer County OES

Cost Estimate: The costs for the individual projects are identified in the Western Slope CWPP Project Planning Worksheets.

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire in developed communities, towns, and city's within the County.

Potential Funding: County, State, and Federal funding

Schedule: These projects are ongoing. Each project within the Western Slope CWPP is reviewed annually and updated as needed or removed if completed.

Action 28. Public Education

Hazards Addressed: Wildfire

Goals Addressed: 3

Issue/Background: Public education through community outreach is a must in Placer County. We have 23 individual high risk communities in the County ranging from 200 to 2500 residents each. Each Fire Safe Council, Firewise Community, and the Fire Safe Alliance attempts to meet with as many of these residents as possible to provide information on defensible space and Firewise requirements. Most is done through attending Municipal Advisory Council, HOA, community events, and local community group meetings. Each FSC would develop an annual calendar defining the meetings and events to attend. These events range from 15 minute presentation to local and government groups as well as multiple day events (i.e. local fair and seasonal home shows).

There are approximately 36,000 habitable structures in the Western Placer County SRA (four FSC's) boundaries. This is the fourth largest density of parcels with habitable structure in the state SRA areas. The goal of each Fire Safe Council and the Fire Alliance is consistent with the CAL FIRE communications goal of "To provide information and education to people of all ages, in public forums, through the media and worldwide web, and the distribution and display of printed material". Having consistent, quality education material will help us educate the public on "THEIR" roll to manage their defensible space and prevent the spread of wildfire into and out of their communities. While the majority of habitable structures are within the 23 communities at risk, education sessions will take place inside and outside of the communities. Outside meaning local fairs, seasonal home shows, Municipal Advisory Council meetings and other public events.

Other Alternatives: Each property owner or land manager needs to manage properties and infrastructure within their responsibility. While public service messages and media helps tell the public of their responsibility for defensible space and fire mitigation, specific and direct communications and training information increases the chance of reaching the public.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Work with the current property owner or land manager to implement fuels management and fire prevention projects identified in the Western Slope CWPP WUI area. Apply for local, State, or Federal funding to implement these plans.

Priority (High, Medium, Low): High

Responsible Office: Placer County OES

Cost Estimate: Previous assessment shows a first year cost of $31,000 and an annual cost of $4,000 per year, after year one.

Benefits (Losses Avoided): This program would provide the tools and resources to develop, purchase, and maintain needed public education material to educate Placer County residents on wildfire prevention and Firewise Community techniques.

Potential Funding: County, State, and Federal funding.

Schedule: These projects are ongoing. Each project within the Western Slope CWPP is reviewed annually and updated as needed or removed if completed.

Action 29. Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4

Issue/Background: Pre-incident assessments of the fire environment and resources at risk allow first responders to focus on responding versus reacting. Residential development in fire dependent ecosystem has created hazardous firefighting and life safety considerations for first responders. Many of these WUI communities within Placer County are bound by steep, deep inaccessible topography with poor access, steep slopes, heavy fuels, and recurring fire occurrence.

This project will result in multiple cooperators sharing knowledge and involving the community in a fire safety planning project that will establish a strategic knowledge base for incident management and fuel management applications. Inventoried elements include structure locations, defensible space, road systems, emergency vehicle access, community closure points, water sources, at-risk assets and potential incident related locations.

These elements are all input into Geographic Information System (GIS) for development of planning area maps with a written pre-attack plan and made available to all emergency responders within Placer County.

This project includes residential education that stresses the importance of fire awareness, defensible space and evacuation procedures and preparation as part of the planning process.

The long term measurable outcomes of this project are reduction of risk of death and injuries, reduced property loss and devastation from wildfire, flood or other hazard.

Placer County Fire, CAL FIRE, Placer OES and multiple local fire districts have worked together to identify strategies and resources that will reduce risk from wildfire and improve the management of emergency incidents within the developed wildland urban interface (WUI) throughout Placer County.

Other Alternatives: Do nothing. Rely on local knowledge being available at the time of emergency.

Existing Planning Mechanism(s) through which Action Will Be Implemented: This project is a permanent component of the local CAL FIRE Fire Plan. It originated as a grass roots effort of various public safety and resource conservation cooperators. The pre-planning component will be a product that will be carried by local engines, Placer County OES, Placer County Sheriffs and input into the Emergency Command Center CAD dispatch program.

Responsible Office/Partners: Placer County Fire / CAL FIRE Nevada Yuba Placer Unit

Project Priority: High

Cost Estimate: Moderate costs, (<$100,000), return on investment estimated in millions of dollars in lessened impacts from wildfire.

Benefits (Losses Avoided): Reduced risk of loss of life and property, injury to first responders throughout the wildland urban interface communities within Placer County.

Potential Funding: County, State and Federal funding.

Timeline: Long term, 5 year intensive for data development, continuous for updates.

Action 30. North Fork American River Fuel Break

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 4

Issue/Background: The North Fork American River Fuel Break project area is a critical point of intersection between the wild land of the rugged North Fork American River canyon and the densely populated WUI areas throughout the Interstate 80 corridor.

Extension of the existing Auburn shaded fuel break north, protecting the at risk communities that line the North Fork of the American River. The North Fork is federally listed as a Wild and Scenic River and has numerous management and suppression restrictions on it in case of a fire. The North Fork American River is a primary source of domestic water from Auburn, downstream to the San Francisco Bay Area. Wildfire threat is constant and continual thereby justifying the investment in protection of these vital resources.

Extension will involve crossing the communities of Auburn, Applegate, Meadow Vista, Weimar and Colfax that line Interstate 80. A conservative estimate of structures that would derive benefit from this fuel break is +/- 5,500, worth an approximate value of $1.925 Billion.

The area has an active large fire history, encompassing the communities impacted by the 2014 Applegate fire, 2012 Robbers fire, 2009 49 fire, 2004 Stephens fire and the Ponderosa fire in 2001.

Potential economic impact from closure of the economic corridor of Highway 80 has been estimated at 1 million dollars per closure hour of lost revenue to the economy of the state. The transcontinental railroad also weaves throughout these communities and project area. Closure of that system can equal 1 million dollars per minute of lost revenue to the economy.

Other Alternatives: Rely on the individual property owner or land manager to develop strategic fuel breaks to protect resources and assets that may be outside of their ownership or responsibility. This is the current practice which has led to a disjointed arrangement of small fuel treatments that make strategic utilization difficult.

Existing Planning Mechanism(s) through which Action Will Be Implemented: This project is a permanent component of the local CAL FIRE Fire Plan. CEQA compliance for the fuel break is currently

being funded through CAL FIRE SRA Fee grant to be completed by 2017. Continued development of funding opportunities and on the ground implementation will be completed through an interagency partnership fostered by the Placer County Fire Alliance that will cross multiple fire districts.

Responsible Office/Partners: Placer County Fire / CAL FIRE Nevada Yuba Placer Unit / Placer County RCD / Placer OES

Project Priority: High

Cost Estimate: High

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire in developed communities along the North Fork American River.

Potential Funding: County, State and Federal funding.

Timeline: This project is active. CEQA compliance will be completed by early 2017. On the ground work could begin immediately after CEQA completion.

Action 31. Defensible Space Programs

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4

Issue/Background: These projects address the ongoing need to manage fuels in and around privately owned homes, businesses and communities, freeways and roadways, and "Assets at Risk" in Placer County. Small communities, individual property owners and infrastructure assets can be impacted by roadside fire starts and fire starts moving into or out of private property.

When complete, these projects will protect Assets at Risk and projects the communities have identified in the CWPP.

The Placer County Fire Safe Alliance and Fire Safe Councils have worked with County, State, and individual property owners to identify areas within their jurisdictions to provide fuels management projects to reduce the risk of wildfire starts and spread along roadways and into or out of individual properties.

Other Alternatives: Each property owner or land manager needs to manage properties and infrastructure within their responsibility. Spread from fire starts within their property can only be prevented or contained by the fire prevention and fuel management work done by the owner.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Work with the current property owner or land manager to implement fuels management and fire prevention projects identified in the Western Slope CWPP WUI area. Apply for local, State, or Federal funding to implement these plans.

Priority (High, Medium, Low): High

Responsible Office: Placer County OES

Cost Estimate: The cost for the individual projects is identified in the Western Slope CWPP Project Planning Worksheets.

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire in developed communities, towns, and city's within the County. Loss of assets at risk can have significant impact on those outside of the County. Communication links and interstate transportation can be significantly impact by wildfire along the Interstate 80 corridor.

Potential Funding: County, State, and Federal funding

Schedule: These projects are ongoing. Each project within the Western Slope CWPP is reviewed annually and updated as needed or removed if completed.

Action 32. Project that focus on Open Space/Defensible Space

Hazards Addressed: These projects address the ongoing need to manage fuels in and around small communities, individual properties, freeways and roadways, and Assets at Risk in Placer County. Small communities, individual property owners and infrastructure assets can be impacted by roadside fire starts and fire starts moving into or out of private property.

When complete, these projects will help protect Assets at Risk and projects the community's identified in the Western Slope CWPP.

Shaded Fuel Break prescription, individual defensible space rules, and roadside fuels management treatment processes can be used to prevent wildfire within the identified areas for that specific Fire Safe Council.

Goals Addressed: 1, 2, 3, 4

Issue/Background: The Placer County Fire Safe Alliance and Fire Safe Councils have worked with County, State, and individual property owners to identify areas within their jurisdictions to provide fuels management projects to reduce the risk of wildfire starts that spread along roadways and into or out of individual properties.

Other Alternatives: Each property owner or land manager needs to manage properties and infrastructure within their responsibility. Spread from fire starts within their property can only be contained through the fire prevention and fuels management work done by the owner.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Work with the current property owner or land manager to implement fuels management and fire prevention projects are identified in the Western Slope CWPP WUI area. Apply for local, State, or Federal funding to implement these plans.

Priority (High, Medium, Low): High

Responsible Office: Placer County OES

Cost Estimate: The cost for the individual projects is identified in the Western Slope CWPP Project Planning Worksheets.

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire in developed communities, towns, and city's within the County. Loss of assets at risk can have significant impact on those outside of the County. Communication links and interstate transportation can be significantly impacted by wildfire along the Interstate 80 corridor.

Potential Funding: County, State, and Federal funding

Schedule: These projects are ongoing. Each project within the Western Slope CWPP is reviewed annually and updated as needed or removed if completed.

Action 33. Annual Multi-Agency Wildland Fire Drill

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4

Issue/Background: The Placer County Fire Chiefs Association and Training Officers Association have developed an annual training exercise that provides training and education at all levels. This is a one-day event that simulates a large wildland incident requiring a sizeable number of resources. Average participation in such an exercise has been around 135 personnel from all different agencies. Some include: the planning and development stages of the exercise utilize the "team" concept of various Incident Command System (ICS) positions that individuals may complete required training for; engine company personnel conduct "hands on" performance based training to enhance wildland fire skills; overhead ICS positions interface with political dignitaries of jurisdictions as to what occurs and the needs during such an event.

Other Alternatives: Not having these annual drills means that when a large incident occurs, the response to and management of the incident may be less than ideal.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Placer County Fire Chiefs Association and Training Officers Association

Priority (H, M, L): High

Cost Estimate: The cost for such an exercise has been running about $5,000.00 annually.

Benefits (Losses Avoided): Excellent realistic training for all personnel at all levels, and the cooperative effort and training among various fire agencies and local government on a regional basis, leads to a more effective response to real incidents without a significant cost factor. The value of this drill was illustrated on the 2004 Stevens Fire near Colfax where over a thousand personnel and several hundred engines from multiple fire agencies worked together in partnership.

Potential Funding: To be determined

Schedule: Ongoing

Action 34. Vegetation Management – Ongoing Maintenance of Fuel Breaks

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4

Issue/Background: Placer County owns over 300 parcels of land with over 1,500 acres of open space that requires establishment and maintenance of shaded fuel breaks. Since 2010, Placer County has successfully established over 150 acres of shaded fuel breaks in cooperation with the Cal Fire. The inventory of shaded fuel breaks is expected to rise as additional open space is dedicated to Placer County and its partner agencies and land trusts. A maintenance program is needed to keep the shaded fuel breaks from reverting to overgrowth.

Other Alternatives: Continue vegetation maintenance in phases as funding becomes available.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Placer County and its partner agencies, districts, and land trusts perform vegetation maintenance in phases as funding becomes available. Methods include mechanical thinning and grazing.

Responsible Office/Partners: Placer County Department of Public Works and Facilities, adjacent cities, districts, and land trusts.

Project Priority: High

Cost Estimate: $150,000 annually for Placer County property. Additional funding needed as inventory increases through acquisition of open space. Does not include funding for outside agencies and land trusts.

Benefits (Losses Avoided): Catastrophic wildfire risk reduction

Potential Funding: Grants, general funds, assessments, other

Timeline: Ongoing

Chapter 6 Plan Adoption

Requirement §201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally approved by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, county commissioner, Tribal Council).

The purpose of formally adopting this plan is to secure buy-in from Placer County and participating jurisdictions, raise awareness of the plan, and formalize the plan's implementation. The adoption of this plan completes Planning Step 9 of the 10-step planning process: Adopt the Plan, in accordance with the requirements of DMA 2000. This adoption also establishes compliance with AB 2140 requiring adoption by reference or incorporation into the safety element of the general plan. The governing board for each participating jurisdiction has adopted this Local Hazard Mitigation Plan by passing a resolution. A copy of the generic resolution and the executed copies are included in Appendix D: Adoption Resolutions.

Chapter 7 Plan Implementation and Maintenance

Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This is Planning Step 10 of the 10-step planning process. This chapter provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

Chapter 3 Planning Process includes information on the implementation and maintenance process since the 2010 Plan was adopted. This section includes information on the implementation and maintenance process for this plan update.

7.1 Implementation

Once adopted, the plan faces the truest test of its worth: implementation. While this plan contains many worthwhile actions, the participating jurisdictions will need to decide which action(s) to undertake first. Two factors will help with making that decision: the priority assigned the actions in the planning process and funding availability. Low or no-cost actions most easily demonstrate progress toward successful plan implementation.

An important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other plans and mechanisms, such as the general plans, stormwater plans, and Community Wildfire Protection Plans (CWPPs) for Placer County and participating jurisdictions. The County and participating jurisdictions already implement policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms.

Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. Implementation will be accomplished by adhering to the schedules identified for each action and through constant, pervasive, and energetic efforts to network and highlight the multi-objective, win-win benefits to each program and the Placer County community and its stakeholders. This effort is achieved through the routine actions of monitoring agendas, attending meetings, and promoting a safe, sustainable community. Additional mitigation strategies could include consistent and ongoing enforcement of existing policies and vigilant review of programs for coordination and multi-objective opportunities.

Simultaneous to these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. This will include creating and maintaining a bank of ideas on how to meet local match or participation requirements. When

funding does become available, the participating jurisdictions will be in a position to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, state and federal earmarked funds, benefit assessments, and other grant programs, including those that can serve or support multi-objective applications.

Responsibility for Implementation of Goals and Activities

The elected officials and officials appointed to head each department within the County are charged with implementation of various activities in the plan. During the quarterly reviews as described later in this section, an assessment of progress on each of the goals and activities in the plan will be determined and noted. At that time, recommendations were made to modify timeframes for completion of activities, funding resources, and responsible entities. On a quarterly basis, the priority standing of various activities may also be changed. Some activities that are found not to be doable may be deleted from the plan entirely and activities addressing problems unforeseen during plan development may be added.

7.1.1. Role of Hazard Mitigation Planning Committee in Implementation and Maintenance

With adoption of this plan, the participating jurisdictions will be responsible for the plan implementation and maintenance. The HMPC Steering Committee identified in Appendix A (or a similar committee) will reconvene quarterly each year to ensure mitigation strategies are being implemented and the City continues to maintain compliance with the NFIP. As such, Placer County and participating jurisdictions agree to continue its relationship with the HMPC Steering Committee and:

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low/no-cost recommended actions;
- Ensure hazard mitigation remains a consideration for community decision makers;
- Maintain a vigilant monitoring of multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended changes to the various governing boards or councils of all participating jurisdictions; and
- Inform and solicit input from the public.

The primary duty of the participating jurisdictions is to see the plan successfully carried out and to report to their community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website (and others as appropriate).

7.2 Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized.

7.2.1. Maintenance Schedule

The Placer County OES is responsible for initiating plan reviews and consulting with the other participating jurisdictions. In order to monitor progress and update the mitigation strategies identified in the action plan, Placer County OES and the individual jurisdictions will revisit this plan annually and following a hazard event. The HMPC will meet quarterly to review progress on plan implementation and will provide annual evaluation reports for each participating CRS community. The HMPC will also submit a five-year written update to the State and FEMA Region IX, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan update anticipated to be fully approved and adopted in 2016, the next plan update for the Placer County Planning Area will occur in 2021.

7.2.2. Maintenance Evaluation Process

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to infrastructure inventories; and
- Incorporate new action recommendations or changes in action prioritization.

Changes will be made to the plan to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. All mitigation actions will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation. Updating of the plan will be by written changes and submissions, as the HMPC deems appropriate and necessary, and as approved by the appropriate governing boards or councils of the other participating jurisdictions. In keeping with the five-year update process, the HMPC will convene public meetings to solicit public input on the plan and its routine maintenance and the final product will be adopted by the governing boards or councils.

Quarterly Plan Review Process

For the 2016 hazard mitigation plan update review process, the Placer County OES will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the plan. The review of the Hazard Mitigation Plan will normally occur on a quarterly basis each year and will be conducted by the HMPC as follows:

- The Placer County OES will place an advertisement in the local newspaper advising the public of the date, time, and place for each quarterly review of the plan and will be responsible for leading the meeting to review the plan.
- Notices will be mailed to the members of the Steering Committee, HMPC, federal, state, and local agencies, non-profit groups, local planning agencies, representatives of business interests, neighboring communities, and others advising them of the date, time, and place for the review.
- County/City/District officials will be noticed by email and telephone or personal visit and urged to participate.
- Members of the Communities' Planning Commission and other appointed commissions and groups will also be noticed by email and either by telephone or personal visit.
- Prior to the review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- The local news media will be contacted and a copy of the current plan will be available for public comment at Placer County.
- After the review meeting, minutes of the meeting and a quarterly report will be prepared by the Steering Committee/HMPC and forwarded to the news media (public) and the ISO/CRS specialist for the CRS program. The report will also be presented to the County/City/participating jurisdictions' governing boards for review, and a request will be made that the Board take action to recognize and adopt any changes resulting from the review.

Criteria for Quarterly Reviews

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan. More specifically, the quarterly reviews will include the following information:

- Community growth or change in the past quarter.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether or not the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

7.2.3. Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other County and City plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. As previously stated in Section 7.1 of this plan, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. The point is re-emphasized here. As described in this plan's capability assessment, the County and participating jurisdictions already implement policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- County and City general and master plans
- County and City Emergency Operations Plans
- County and City ordinances
- Flood/stormwater management/master plans
- Community Wildfire Protection plans
- Capital improvement plans and budgets
- Other plans and policies outlined in the capability assessments in the jurisdictional annexes
- Other plans, regulations, and practices with a mitigation focus

HMPC members involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc, as appropriate. As described in Section 7.1 Implementation, incorporation into existing planning mechanisms will be done through the routine actions of:

- monitoring other planning/program agendas;
- attending other planning/program meetings;
- participating in other planning processes; and
- monitoring community budget meetings for other community program opportunities.

The successful implementation of this mitigation strategy will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community.

Examples of incorporation of the LHMP into existing planning mechanisms include:

1. As recommended by Assembly Bill 2140, each community should adopt (by reference or incorporation) this LHMP into the Safety Element of their General Plan(s). Evidence of such adoption (by formal, certified resolution) shall be provided to CAL OES and FEMA.
2. Integration of wildfire actions identified in this mitigation strategy with the actions and implementation priorities established in existing Community Wildfire Protection Plans (CWPPs). This is already in process. Key people responsible for development of planning area CWPPs participated on the HMPC in the development of this LHMP. They identified key projects in the CWPPs and integrated them into the Mitigation Strategy of this LHMP. Likewise, actual implementation of these wildfire projects will likely occur through the CWPP implementation process through the efforts of the Fire Safe Councils.

3. Using the risk assessment information to update the hazard analysis in the Placer County and Placer County Operational Area, Emergency Operations Plan.

Efforts should continuously be made to monitor the progress of mitigation actions implemented through these other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this hazard mitigation plan.

7.2.4. Continued Public Involvement

Continued public involvement is imperative to the overall success of the plan's implementation. The update process provides an opportunity to solicit participation from new and existing stakeholders and to publicize success stores from the plan implementation and seek additional public comment. The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and through public hearings.

Public Involvement Process for Quarterly Reviews

The public will be noticed by placing an advertisement in the newspaper specifying the date and time for the review and inviting public participation. The HMPC, Steering Committee, local, state, and regional agencies will be notified and invited to attend and participate.

Public Involvement for Five-year Update

When the HMPC reconvenes for the update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. In reconvening, the Steering Committee and HMPC plan to identify a public outreach subcommittee, which will be responsible for coordinating the activities necessary to involve the greater public. The subcommittee will develop a plan for public involvement and will be responsible for disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held and public comments will be solicited on the plan update draft. The subcommittee will also coordinate this public outreach process with the public information program established pursuant to the 2013 guidelines from the Community Rating System (CRS)

Prelude to Jurisdictional Annexes

For this 2016 Placer County LHMP Update, the **Jurisdictional Annexes**, working in conjunction with the Base Plan, detail the hazard mitigation planning elements specific to participating jurisdictions. Each Annex is not intended to be a standalone document, but appends to, supplements, and incorporates by reference the information contained in the Base Plan, as the umbrella document for this planning effort. As such, all Chapters 1- 7 of the Base Plan, including the planning process and other procedural requirements and planning elements apply to and were met by each participating jurisdiction. These Annexes provide additional information specific to the each participating jurisdiction, with a focus on providing additional details on the risk assessment and mitigation strategy beyond that provided in the Base Plan.

Annex A City of Auburn

A.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Auburn, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the City. This Annex provides additional information specific to the City of Auburn, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

A.2 Planning Process

As described above, the City of Auburn followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the City formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table A-1. Additional details on plan participation and City representatives are included in Appendix A.

Table A-1 City of Auburn Planning Team

Name	Position/Title	How Participated
John Ruffcorn	Public Safety Director	Attended meetings. Provided updates to the past hazard identification, vulnerability and capability sections. Provided demographic data.
Reg Murray	Senior Planner	Provided updates to the past hazard identification, vulnerability and capability sections. Provided other data.
Edgar Martinez	Assistant Engineer	Provided updates to the past hazard identification, vulnerability and capability sections. Provided other data
Victor Pecoraro	Lieutenant	Attended meetings

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the City integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table A-2.

Table A-2 2010 LHMP Incorporation

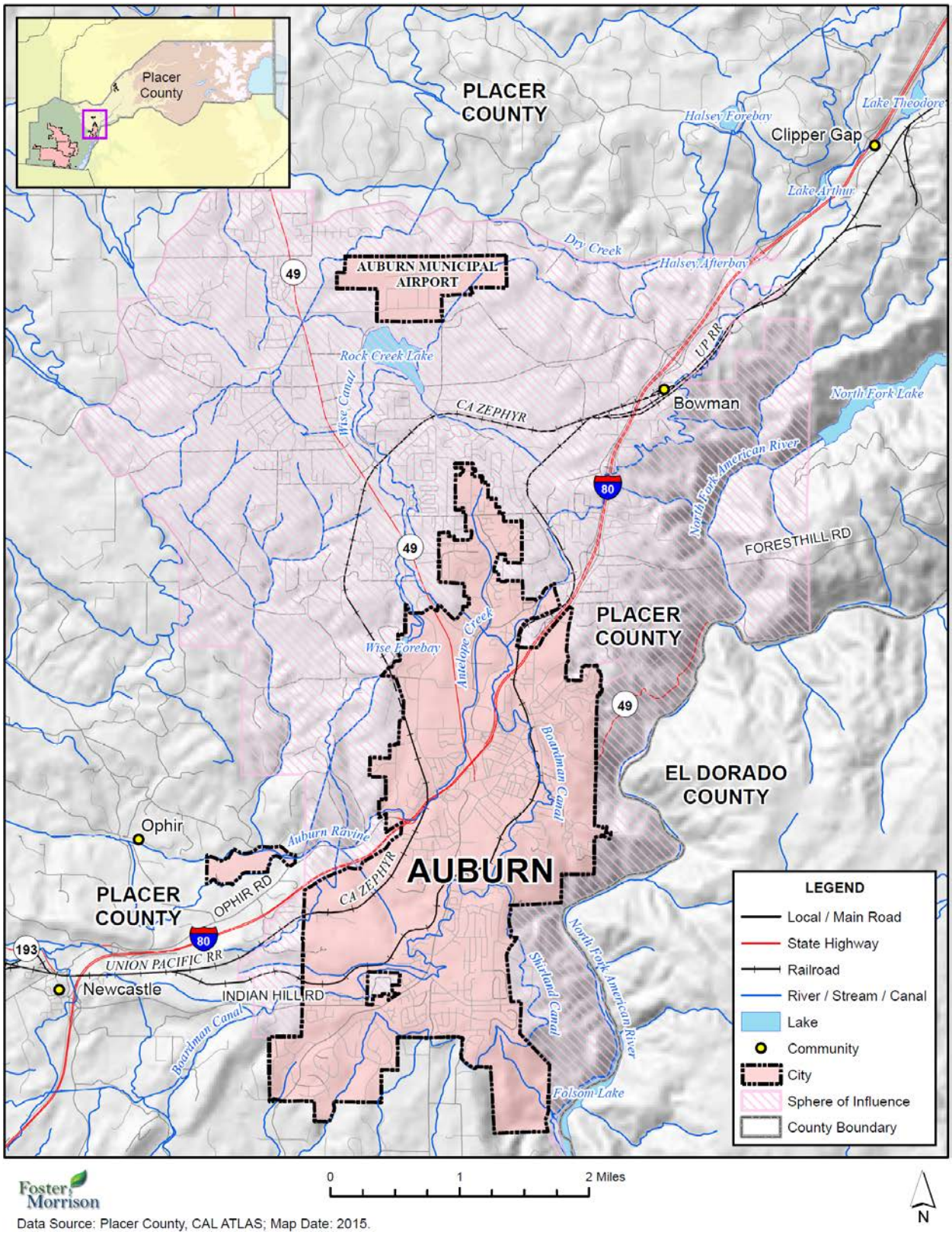
Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
City of Auburn	The plan was incorporated into the City's Emergency Operations Plan, and it is also in the Emergency Operations Handbook.

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
	Although not completed after the 2010 plan, when the Safety Element of the General Plan is next updated, this 2016 LHMP Update will be incorporated into the Safety Element.

A.3 Community Profile

Figure A-1 displays a map and the location of the City of Auburn within Placer County.

Figure A-1 City of Auburn Base Map



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

A.3.1. Geography and Climate

The City of Auburn is located on the western slope of the Sierra Nevada Range at elevations between 1,000 and 1,400 feet above mean sea level (msl). Auburn is the county seat of Placer County and is also located at the crossroads of I-80 and Highway 49. The City is about 7.5 square miles in area and rests near the confluence of the North and Middle Forks of the American River. Mountainous wilderness, canyons, and the western slope of the Sierra Nevada Range lie adjacent eastward; while gentle rolling foothills well-suited for agriculture lie to the west. The crest of the Sierra Nevada lies approximately 45 miles eastward and the Central Valley lies approximately 10 miles to the west.

Auburn consists of two distinct areas: the incorporated city and the greater Auburn area. Auburn's average temperatures ranges from the high 80°F to mid-90°F during the summer to the mid 30°F to high 40°F during the winter. Auburn receives an average of 34.47 inches of rain and 1.2 inches of snow annually.

A.3.2. History

Auburn is well known for its California gold rush history. In 1849, a mining camp became officially known as Auburn and by 1850, Auburn's population had reached 1,500 people. A Frenchman named Claude Chana first discovered gold in the Auburn Ravine in 1848. By 1849 the North Fork Dry Diggings had become a well-established mining camp. Later in the year, the camp was officially named Auburn. Because Auburn was a short distance from Sacramento, centrally located in the gold country, and located just below the snow line, it became known as the "jumping off" spot for the miners. By 1865, Auburn had developed into a permanent town, with the Central Pacific Railroad connecting people to the area. Auburn was first incorporated in 1860 and again in 1888. By 1900 the population of Auburn was just over 2,000.

A.3.3. Economy

The City's economic base consists of retail sales and services; recreational and healthcare services; and light manufacturing. Auburn owns and operates the Auburn Municipal Airport. The city encourages industrial growth through its Airport Industrial Park and light industry in other parts of the City.

US Census estimates show economic characteristics for the City of Auburn. These are shown in Table A-3.

Table A-3 City of Auburn Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	55	0.9%
Construction	241	4.0%
Manufacturing	392	6.5%
Wholesale trade	147	2.4%
Retail trade	739	12.2%
Transportation and warehousing, and utilities	429	7.1%
Information	117	1.9%

Industry	Estimated Employment	Percent
Finance and insurance, and real estate and rental and leasing	351	5.8%
Professional, scientific, and management, and administrative and waste management services	946	15.6%
Educational services, and health care and social assistance	1536	25.3%
Arts, entertainment, and recreation, and accommodation and food services	357	5.9%
Other services, except public administration	373	6.1%
Public administration	392	6.5%

Source: US Census Bureau American Community Survey 2009-2013 Estimates

The largest employers within the City of Auburn include the County of Placer, Placer Union High School District, Auburn Union Elementary School District, and Pride Industries.

From its origins as a mining camp, Auburn has emerged as a community of strong historic character, cultural enrichment, economic diversity, and a destination point for outstanding outdoor recreation. Auburn's historic culture is being sustained by way of its museums and antique stores and the preservation and renovation of its residences and commercial buildings. Four commercial districts provide a wide variety of shopping and dining experiences.

The nearby Auburn State Recreation Area (ASRA) and the American River Canyon support a diverse range of recreational activities from whitewater rafting and kayaking to fishing and hiking. Auburn is also home to many challenging sporting endurance events, including: Western States 100 mile Endurance Run/UltraMarathon; the Tevis Cup 100 mile equestrian ride; and the Rio Del Lago 100 mile endurance run.

A.3.4. Population

The California Department of Finance estimated the January 1, 2014 total population for the City of Auburn was 13,804.

A.4 Hazard Identification and Summary

Auburn's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Auburn (see Table A-4). In the context of the plan's planning area, there are no hazards that are unique to Auburn.

Table A-4 City of Auburn—Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Limited	Occasional	Limited	Medium
Earthquake	Extensive	Occasional	Catastrophic	Medium
Flood: 100/500 year	Limited	Unlikely	Negligible	Low
Flood: Localized Stormwater Flooding	Limited	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Low
Levee Failure	Significant	Unlikely	Limited	Medium
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	Low
Severe Weather: Extreme Heat	Extensive	Likely	Critical	Medium
Severe Weather: Freeze and Snow	Extensive	Likely	Critical	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Critical	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Likely	Critical	Medium/High
Soil Bank Erosion	Limited	Occasional	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Volcano	Extensive	Unlikely	Catastrophic	Low
Wildfire	Extensive	Likely	Catastrophic	High
Hazardous Materials Transport	Limited	Occasional	Negligible	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

A.5 Vulnerability Assessment

The intent of this section is to assess Auburn's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. In addition, although ranked as low significance by the community, the 100-year flood hazard is also included in the below analysis. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

A.5.1. Assets at Risk

This section identifies Auburn's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends.

Assets at Risk

The following data from the Placer County Assessor's Office is based on the 2015 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the base plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table A-5 shows the 2015 Assessor's values (e.g., the values at risk) broken down by property type for the City of Auburn.

Table A-5 City of Auburn – Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	4	$60,034	3	$40,109	$100,143
Commercial	1,132	$84,745,719	360	$150,926,737	$235,672,456
Industrial	74	$2,861,728	20	$6,125,207	$8,986,935
Institutional	65	$4,357,808	24	$38,520,513	$42,878,321
Natural/Open	21	$31,528	0	$0	$31,528
Residential	4,810	$427,520,394	4,650	$897,906,759	$1,325,427,153
Total	**6,106**	**$519,577,211**	**5057**	**$1,093,519,325**	**$1,613,096,536**

Source: Placer County 2015 Parcel/Assessor's Data

Critical Facilities and Infrastructure

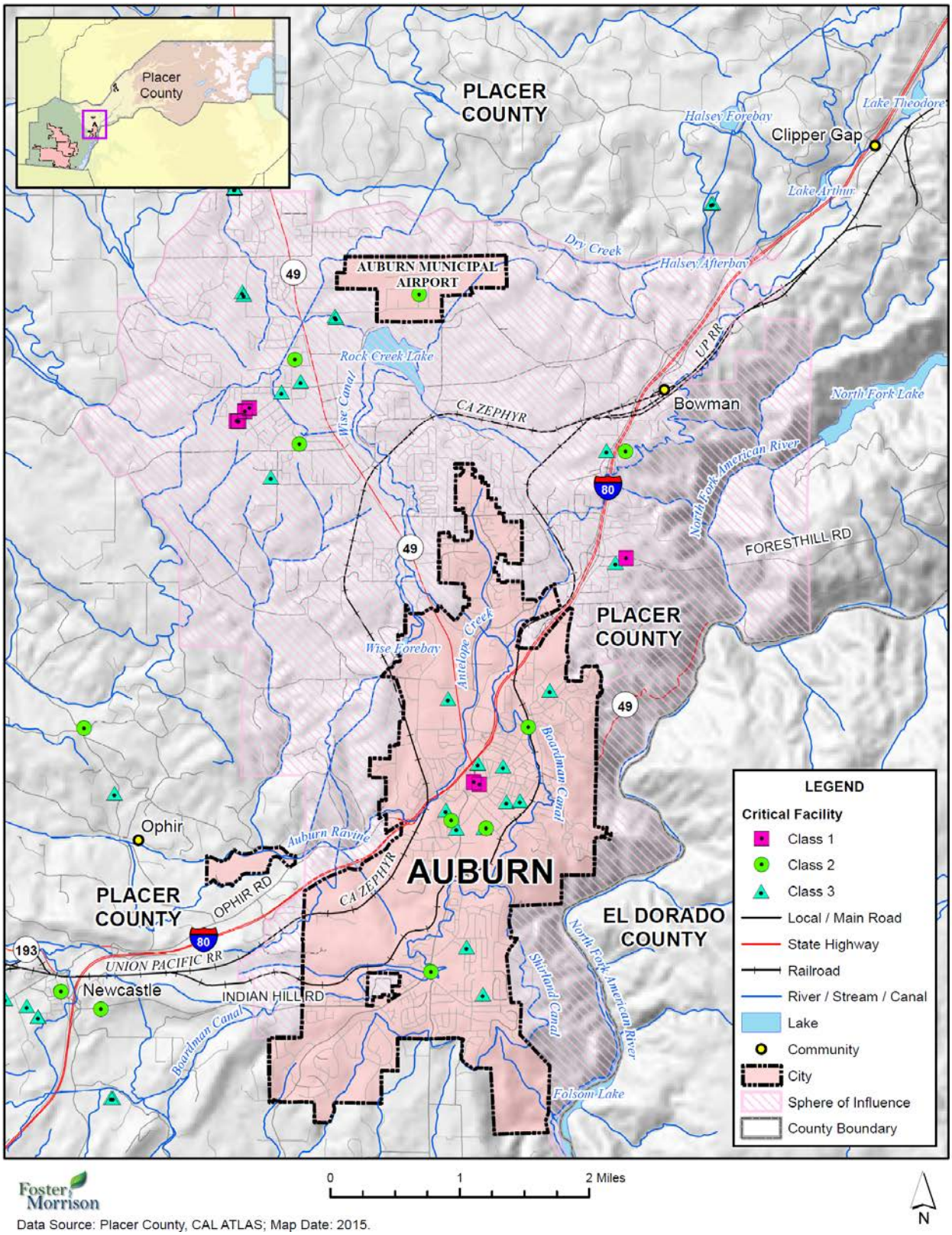
For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

This definition was refined by separating out three classes of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the City of Auburn from Placer County GIS is shown on Figure A-2 and detailed in Table A-6. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure A-2 City of Auburn – Critical Facilities



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

Table A-6 City of Auburn – Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
Class 1	Dispatch Center	1
	Emergency Operation Center	1
Class 2	Airport	1
	Fire Station	3
	National/Coast Guard	1
	Police Station	1
Class 3	Fairground	1
	Hall	5
	School	5
Total City of Auburn		**19**

Source: Placer County GIS

Natural Resources

The City of Auburn has a variety of natural resources of value to the community:

- Sensitive plant communities: Oak Woodland, Riparian, and Stream habitat.
- No vernal pools are known to exist within the City limits.
- Several sensitive status species with the potential to occur: California red-legged frog, Foothill yellow-legged frog, Cooper's Hawk, sharp-skinned hawk, golden eagle, bald eagle, northern harrier, Black-Shouldered Kite, prairie falcon, long-eared owl, Pacific fisher, and valley elderberry longhorn beetle.

Historic and Cultural Resources

The City of Auburn has registered federal historic sites:

- Old Auburn Historic District – Roughly bounded by Maple, Commercial, Court, Washington, Lincoln, and Sacramento Streets

In addition to the registered sites, there are several assets within Auburn that define the community and represent the City's history. Some of the historical sites of importance to Auburn are listed below.

- Auburn Joss House Museum
- Bernhard Museum Complex
- Downtown Auburn
- Historic Old Town Auburn
- Placer High School
- Placer County Museum

Growth and Development Trends

Between the 2000 and 2010 U.S. Census, the City of Auburn's population grew from 12,462 to 13,330. California Department of Finance estimates for July 1, 2014 were 13,804. Auburn has seen slow and steady

growth. Auburn's growth rate is significantly lower than Placer County's growth. In comparison to other cities in the county, Auburn has not experienced the same growth and thus has been able to retain a small town atmosphere.

Development since 2010 Plan

The City searched through building permits issued from July 2010 through July 2015. The following was found:

- New Single Family – 42
- New Multi Family – 2
- New Commercial Buildings – 7

The City does not track building permits by hazard risk areas. However, since the entire City is in the High Fire Severity Zone, it is assumed that all of the developments above occurred in high fire risk areas. The City enforces the floodplain ordinance as well. If any development were to have occurred in the floodplain, it would have conformed to the elevation standards of the floodplain ordinance.

Given the wildfire risk within the City of Auburn, any new development since the 2010 plan would have increased the vulnerability of the community to additional loss during future fires. However, effective building codes and construction standards within the City will assist mitigating potential losses from any new development. With continued population growth, the City's vulnerability to wildfire will likely continue to increase as well.

Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Auburn and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 14,099 and 16,560 respectively.

The 2013 to 2021 Housing Element identifies numerous areas within the City of Auburn that are in the planning stage or have been approved for development of new subdivisions. Table A-7 provides the number of lots, acreages, location, and status of residential subdivisions in the planning stages or approved by the city.

Table A-7 Auburn Residential Subdivision Status Listing

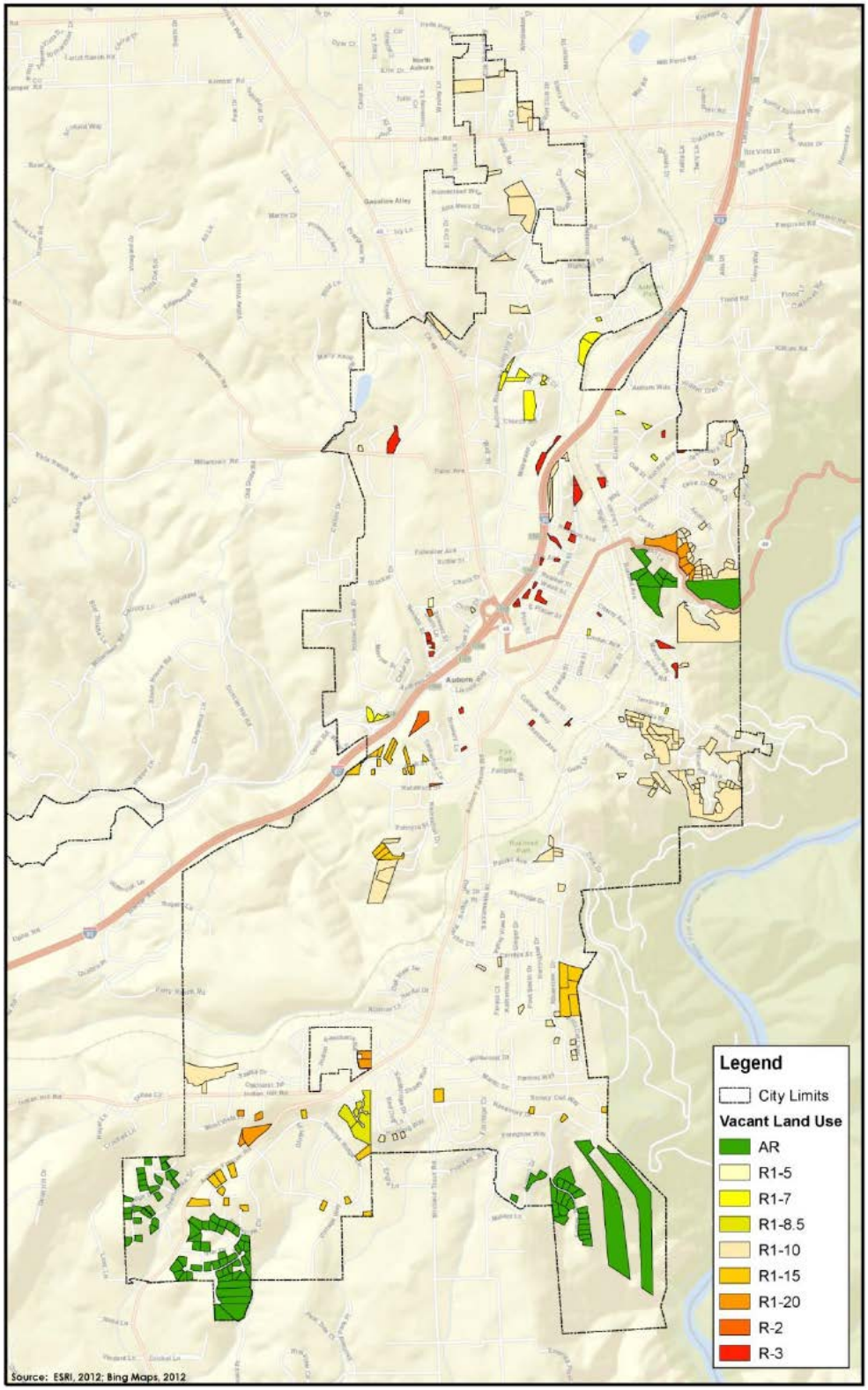
Subdivision	Lots/Units	Acres	Location	Status
Auburn Bluffs	29	9.6	East of Auburn Folsom Road at Indian Hill Road	Tentative map approved 1/15/2008
Auburn Bluffs Lot E (SUB 785)	20	15.5	East of Auburn Folsom Road, South of Sunrise Ridge CR	9 lots available

Subdivision	Lots/Units	Acres	Location	Status
Baltimore Ravine Specific Plan	±1200-1300	±264	East of Interstate 80; west of Auburn Folsom Road; north of UPRR	Specific Plan approved 2/20014, land use and zoning approved for Phase 1 (270 units)
Canyon Creek (SUB 03-2)	24	11	406 Maidu Drive	Tentative map approved
Canyon Ridge Lane (SUB 06-2)	6	7.2	143 Borland Ave	Tentative map approved
Canyon Rim Estates (SUB 02-3)	23	120	Southern Terminus of Eagles Nest	16 lots available
Diamond Ridge (SUB 760)	47	26.7	South of Indian Hill Rd, West of Santa Barbara Subdivision	1 lot available
Granite Bay Vista (SUB 758)	80	80	West of Auburn Folsom Rd, Immediately North of City Limits	27 lots available
Knollwood Lot Split (LS 04-1)	3	2.6	471 Knollwood Drive	3 lots available
Monticielo (SUB 751)	63	24	Riverview Dr, North of Maidu Dr	7 lots available
Southridge VI (SUB 781)	48	17.7	South End of Southridge Dr	3 lots available
Sunny Creek (SUB 06-1)	13	±4	1161 Oakridge Way	Tentative map approved
The Outlook @ Indian Hill (SUB 02-2)	70	70	East of Auburn Folsom, Immediately North of City Limits	38 lots available
Vienna Woods (SUB 04-4)	24	±6	585 Dairy Road	Tentative map approved
View Crest Estates (SUB 02-4)	7	5	South of Indian Hill, East of Diamond Ridge Subdivision	2 lots available
Whitehawk Meadows	18	10.2	West of Auburn Folsom Rd, directly opposite entry to Vintage Oaks	Tentative map approved
Woodland Estates (SUB 782)	34	16	West end of High St and Clark St	14 lots available
Multi-Family				
Tuscan Pals Condos	8	0.62	133 Electric Street	Tentative map approved
Wall Street Condos	30	2.03	580 Wall Street	Tentative map approved

Source: City of Auburn, 2012-2021 Housing Element

Most of the vacant parcels scattered throughout the City are surrounded by existing development and could be classified as infill. However, due to the topography of the City vacant land could possibly have constraints that might include limited access, wetlands, native trees, and geologic constraints. Figure A-3 illustrates the locations of available vacant land in the City.

Figure A-3 Vacant Land Inventory



Source: City of Auburn 2013-2021 Housing Element

The future housing needs for the City of Auburn will be provided through a combination of development in the City's numerous infill sites as well as the land provided in the Baltimore Ravine Specific Plan (BRSP). The City of Auburn estimates that there are an additional 338 acres of undeveloped residentially zoned infill land available within the city which can provide at least 900 units. In addition, the BRSP, a master planned community located in south Auburn, adopted in 2011 which meets all of the "by-right" requirements identified in program I of the 2008 Housing Element, provides a total of 725 units on 277 acres, including a minimum of 72 units affordable to very low-, low-, and moderate- income families consistent with the SACOG compact.

More general information on growth and development in Placer County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Placer County Vulnerability and Assets at Risk of the main plan.

A.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table A-4 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the base plan for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodprone areas, WUI areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the City to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

In 1988, 45 California counties experienced water shortages that adversely affected about 30 percent of the state's population, much of the dry farmed agriculture, and over 40 percent of the irrigated agriculture. Fish

and wildlife resources suffered, recreational use of lakes and rivers decreased, forestry losses and fires increased, and hydroelectric power production decreased. Since 1976, Auburn has experienced one federal declaration for drought and two local drought emergencies within Placer County. During this time, there was one U.S. Department of Agriculture declaration for crop losses associated with drought.

Governor Brown declared a drought state of emergency for California on January 17, 2014. On April 25, 2014 governor brown issued a proclamation on the continuation of the drought emergency.

This executive order strengthened the state`s ability to manage water and habitat effectively in drought conditions and called for all Californians to redouble their efforts to conserve water. According to the U.S. drought monitor, most of inland California is in d4-exceptional drought with d3-extreme drought over the extreme northern Sacramento Valley. The drought classifications are due in large part to the precipitation deficit, low reservoir levels and local impacts.

Governor Brown has ordered mandatory water reductions of 25 percent in cities and towns across the state. This is the first time in state history that a governor has implemented such reductions.

Future Development

As the population in the area continues to grow, so will the demand for water. Water shortages in the future may be worsened by drought, as the City relies on surface water for its water source. Increased planning will be needed to account for population growth and increased water demands.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Placer County is traversed by a series of northwest trending-faults that are related to the Sierra Nevada uplift. According to the Safety Element of Auburn's General Plan, the City of Auburn is located in a seismically active region, and there is a high potential that the area will be subject to at least moderate earthquake shaking one or more times over the next century. It states further that the closest identified 'potentially active' faults are the Bear Mountain and the Melones Faults, which are situated approximately three to four miles westerly and easterly from Auburn respectively. Earthquakes on these faults would have the greatest potential for damaging buildings in Auburn, especially the unreinforced masonry structures in the older part of the city and structures built before 1960 without adequate anchorage of framing and foundations. According to the City, there are 29 buildings that are known to be constructed of unreinforced masonry.

The closest identified active fault is the Cleveland Hills fault, situated approximately 36 miles northwesterly of Auburn. It was the source of the 1975 Oroville earthquake (Richter Magnitude: 5.7). Another potential earthquake source is the Midland Fault Zone to the west, where an 1892 earthquake centered between Vacaville and Winters caused minor damage in nearby Lincoln.

Additionally, Auburn may experience minor ground shaking from distant major to great earthquakes on faults to the west and east. For example, to the west, both the San Andreas Fault (source of the 8.0 estimated

Richter magnitude San Francisco earthquake that damaged Sacramento in 1906) and the closer Hayward fault have the potential for experiencing major to great events. To the east in Nevada, the several faults associated with a series of earthquakes in 1954, especially the major (7.1 Richter magnitude) December 16, 1954 Fairview Peak event (about 100 miles east of Carson City), could cause minor ground shaking in Auburn.

Future Development

The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

Flood

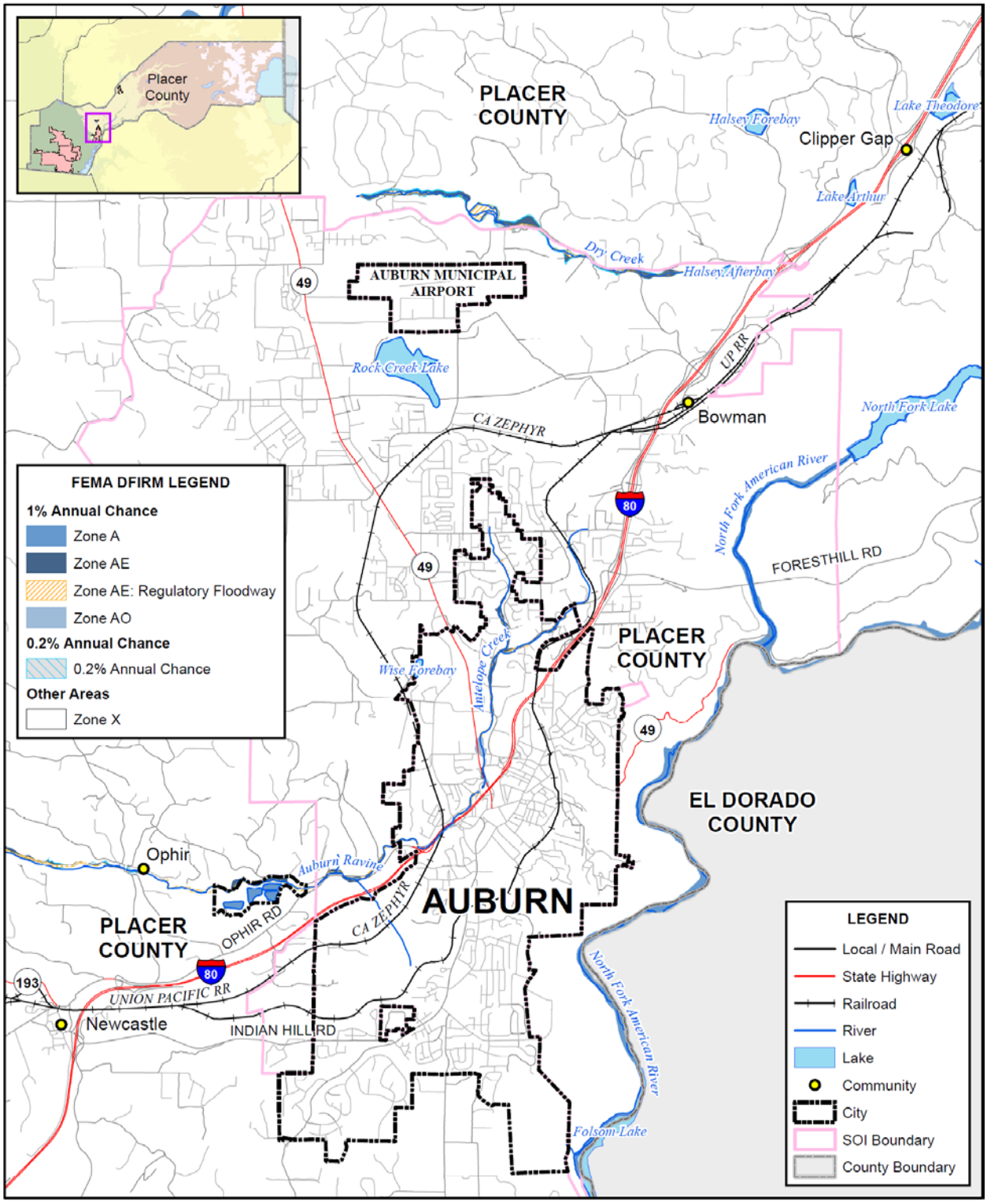
Likelihood of Future Occurrence–Unlikely
Vulnerability–Low

Although ranked as a low significance hazard by the City, due to its significance in the County and in the State of California, flood vulnerability for Auburn is included here. Auburn is traversed by several stream systems and is at risk to both the 100-year flood as well as to localized stormwater flooding. According to the Safety Element of Auburn's General Plan, the average annual rainfall totals 35 inches, and although no major flooding is expected in the planning area, intermittent flooding and sheet wash occur along major drainage channels and adjoining areas on scattered sites. Areas with flood hazards are the natural drainage channels of the Auburn Ravine, Dutch Ravine and Rock Creek, and the tunnel section of the Auburn Ravine under Old Town. Other flood hazard areas include the numerous under-sized bridges and culverts within the Auburn/Bowman Area.

As previously described in Section 4.2.11 of the main plan, the Placer County Planning Area and the City of Auburn have been subject to historical flooding. Within the City of Auburn, much of the flood damage occurs as a result of localized stormwater flooding, with limited flood damage occurring in the 100-year and greater floodplains. Most recently, flooding occurred in December 2005/January 2006 as a result of heavy stormwater runoff caused by severe winter storms. Although actual damages were minimal, the storms impacted transit on public roads and caused some business closures due to limited access. Stormwater infrastructure also sustained limited damage.

A very small portion of the City is located inside of the 100 year flood zone as defined by the Federal Emergency Management Agency (FEMA). This is seen in Figure A-4.

Figure A-4 City of Auburn – FEMA DFIRM Flood Zones



Data Source: Placer County, CAL ATLAS, FEMA Preliminary DFIRM 2010; Map Date: 2015.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Auburn. The methodology described in Section 4.3.7 of the base plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table A-8 shows the property use, improved parcel count, improved values, estimated contents, total values and estimated loss of parcels that fall in a floodplain in the City.

Table A-8 City of Auburn – Count and Improved Value by Property Use and Detailed Flood Zone

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
A	Agricultural	0	$0	0	$0	$0
	Commercial	0	$0	0	$0	$0
	Industrial	3	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total Zone A	**3**	**$0**	**0**	**$0**	**$0**
AE	Agricultural	0	$0	0	$0	$0
	Commercial	13	$394,948	0	$0	$394,948
	Industrial	5	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural / Open	1	$0	0	$0	$0
	Residential	13	$734,451	13	$1,341,290	$2,075,741
	Total Zone AE	**32**	**$1,129,399**	**13**	**$1,341,290**	**$2,470,689**
AO	Agricultural	0	$0	0	$0	$0
	Commercial	6	$2,066,120	4	$3,724,425	$5,790,545
	Industrial	0	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural / Open	1	$0	0	$0	$0
	Residential	1	$47,270	1	$241,611	$288,881
	Total Zone AO	**8**	**$2,113,390**	**5**	**$3,966,036**	**$6,079,426**
Shaded X	Agricultural	0	$0	0	$0	$0
	Commercial	0	$0	0	$0	$0
	Industrial	0	$0	0	$0	$0

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
	Institutional	0	$0	0	$0	$0
	Natural / Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total Shaded X	**0**	**$0**	**0**	**$0**	**$0**
X	Agricultural	4	$60,034	3	$40,109	$100,143
	Commercial	1,113	$82,284,651	356	$147,202,312	$229,486,963
	Industrial	66	$2,861,728	20	$6,125,207	$8,986,935
	Institutional	65	$4,357,808	24	$38,520,513	$42,878,321
	Natural/Open	19	$31,528	0	$0	$31,528
	Residential	4,796	$426,738,673	4,636	$896,323,858	$1,323,062,531
	Total Zone X	**6,063**	**$516,334,422**	**5,039**	**$1,088,211,999**	**$1,604,546,421**
Grand Totals		**6,106**	**519,577,211**	**5,057**	**1,093,519,325**	**1,613,096,536**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Table A-9 summarizes Table A-8 above and shows City of Auburn loss estimates and shows improved values at risk by FEMA 1% and 0.2% annual chance flood zones. As shown in this table, there is no 500-year flood risk in the City.

Table A-9 City of Auburn – Flood Loss Summary

Jurisdiction	Flood Zone	Improved Parcel Count	Total Improved Value	Estimated Contents Value	Total Improved/ Contents Value	Loss Estimate	Loss Ratio
Auburn	1%	18	$5,307,326	$4,515,876	$9,823,202	$1,964,640	0.12%
	0.2%	0	$0	$0	$0	$0	0.00%

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

According to Table A-8 and Table A-9, the City of Auburn has 18 improved parcels and $9,823,202 of structure and contents value in the 1% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.7 of the base plan, there is a 1% chance in any given year of a flood event causing roughly $1,964,640 in damage in the City of Auburn. A loss ratio of 0.12% indicates that losses in Auburn to flood would be relatively minor, as less than an eighth of a percent of the total values in the City would be damaged.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the City in comparison to total area within the City limits. The same methodology, as discussed in Section 4.3.7 of the base plan, was used for the City of Auburn as well as for the County as a whole. Table

A-10 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table A-10 City of Auburn – Flooded Acres

Flood Zone	Property Use	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
A	Agricultural	0	0	0.0%
	Commercial	0	0	0.0%
	Industrial	51.75	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
AE	Agricultural	0	0	0.0%
	Commercial	9.40	0	0.0%
	Industrial	0.45	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0.37	0	0.0%
	Residential	5.02	5.02	100.0%
AO	Agricultural	0	0	0.0%
	Commercial	5.39	4.88	90.5%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0.07	0	0.0%
	Residential	0.25	0.25	100.0%
Total 1%		**72.71**	**10.15**	**14.0%**
Shaded X	Agricultural	0	0	0.0%
	Commercial	0	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
Total 0.2%		**0**	**0**	**0.0%**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for Auburn. According to this analysis, there is a total population of 32 residents of the City at risk to flooding, all in the 1% annual chance floodplain. This is shown in Table A-11.

Table A-11 City of Auburn – Count of Improved Residential Parcels and Population by Flood Zone

Flood Zone	Improved Residential Parcels	Population*
A	0	0
AE	13	30
AO	1	2
Total 1% Annual Chance	**14**	**32**
Shaded X (0.2% Annual Chance)	0	0
D	0	0

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data, US Census Bureau
* Average household populations from the 2010 US Census were used: Auburn– 2.27.

Critical Facilities at Risk

There are no critical facilities at risk in the City of Auburn in the flood zones.

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Auburn joined the National Flood Insurance Program (NFIP) on December 23, 1983. The City does not participate in CRS program. NFIP data indicates that as of September 30, 2015, there were 21 flood insurance policies in force in the City with $5,559,700 of coverage. Of the 21 policies, 18 were residential (single-family homes) and 3 were nonresidential; 9 of the policies were in A zones; the remaining 12 were in B, C, and X zones. The GIS parcel analysis detailed above identified 18 improved parcels in the 100-year flood zone. 9 policies for 18 improved parcels in the 100-year floodplain equates to insurance coverage of 50 percent.

There have been 24 historical claims for flood losses totaling $607,083; all were located in B, C, or X zones. 23 of these were for pre-FIRM structures; 1 was for a post-FIRM structure. NFIP data further indicates that there are three repetitive loss (RL) buildings, with 2 RL buildings being insured. There have been a total of 12 RL losses, with 10 insured RL losses. 2 of the insured RL buildings has incurred 4 or more losses, making them Severe Repetitive Loss properties. All RL buildings are located outside of the 100- and 500-year floodplain in the B, C, or X zones. The RL properties are located in an older, built-out residential neighborhood with older infrastructure.

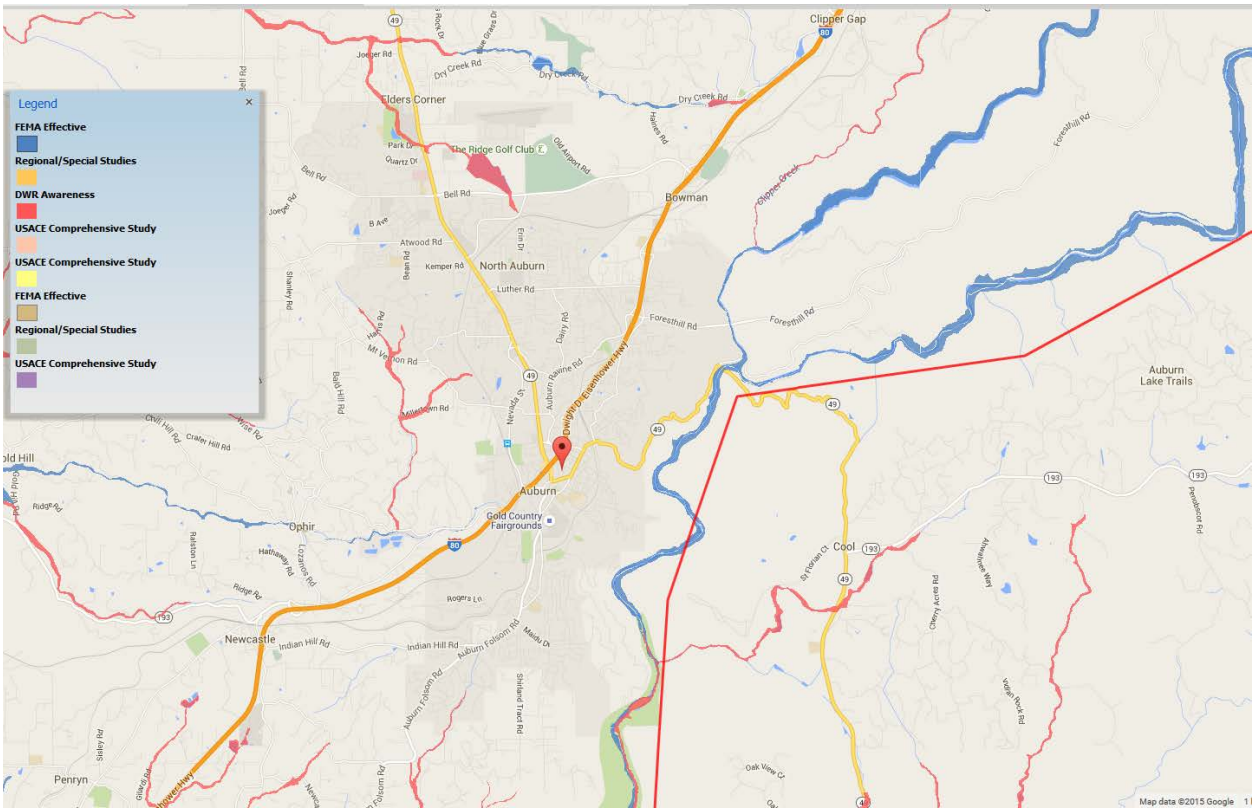
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. The BAM map for Auburn is shown in Figure A-5.

Figure A-5 City of Auburn Best Available Map



Source: California DWR

Future Development

The City enforces the floodplain ordinance. If any development is to occur in the floodplain, it would have to conform to the elevation standards of the floodplain ordinance. No development is expected in the floodplain in the future.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–High

Flooding and other issues caused by severe weather events, primarily heavy rains and thunderstorms, can often pose a risk to the community. Primary concerns include impacts to infrastructure that provides a means of ingress and egress throughout the community. Table A-12 identifies known and past occurrences of such areas and the associated problems encountered. This list is an initial inventory of key problem areas and is not intended to be a complete inventory of all problems and locations associated with severe weather events and localized flooding in the City of Auburn.

Table A-12 City of Auburn's Road List of Localized Flooding Problem Areas

Road Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
Auburn Ravine Rd.	X	X	X	X		X	X
Dairy Rd.	X	X	X	X	X	X	X
Auburn Folsom	X	X	X	X	X	X	X
Old Town	X			X			
Pine Street	X			X		X	
Foresthill Ave	X	X		X		X	
Brook-Shields	X	X		X		X	
Oakwood Dr.	X			X		X	
Nevada-Andrews St.	X			X		X	
Placer St.	X		X	X		X	X
E. Lincoln Way-Alta Vista School Area	X			X		X	
Upper Sacramento St.	X			X		X	
Sutton Place	X			X		X	
Agard Street	X			X		X	
Gold Street	X			X		X	

Source: City of Auburn

Future Development

Future development in the City will add more impervious surfaces and need to drain those waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for

stormwaters. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Likely
Vulnerability–High

Extreme heat does occur on occasion resulting in the facilitation of "cooling centers" as set forth in the Placer County Heat Emergency Plan. The fairgrounds and Auburn-Placer Library located within the City are identified "cooling centers". From late spring through fall, it is not unusual for temperatures to exceed 90°F and higher. The following highlights were taken from the Auburn Weather Station for the period of record from 1905 to 2014:

Record daily extremes include:

- May – 102°F (1910)
- June – 110°F (1925)
- July – 113°F (1972)
- August – 111°F (1978)
- September – 109°F (1950)
- October – 104°F (1928)

Average number of days in a month exceeding 90°F:

- April - .1 days
- May – 2.9 days
- June – 10.7 days
- July – 22.5 days
- August – 20.8 days
- September – 11.2 days
- October – 2.1 days

This equates to an average of 70.3 days annually in excess of 90°F.

Future Development

Vulnerability to extreme heat will increase as the average age of the population in each City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the planning area. The elderly are more at risk to the effects of extreme heat, especially those without proper air conditioning. However, many of the residents of the City are accustomed to living with extreme heat and take precautions to guard against the threat of extreme heat.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–High

In the past the City of Auburn has experienced severe cold/freeze temperatures over several consecutive days. Impact to such cold temperatures has resulted in damage to such infrastructure as; domestic water pipes, irrigation systems, unprotected fire protection systems (fire sprinklers) and surface icing on streets and walkways. From late fall through spring it is not unusual for temperatures go below 32°F. The following highlights were taken from the Auburn Weather Station for the period of record from 1905 to 2014.

Record daily extremes include:

- October – 26°F (1922)
- November – 20°F (1931)
- December– 16°F (1972)
- January – 17°F (1930)
- February – 21°F (1962)
- March – 20°F (1938)
- April – 25°F (1929)
- May - 25°F (1933)
- June - 30°F (1905)

Average number of days in a month falling below 32°F:

- October – .1 days
- November – 1.2 days
- December – 7.5 days
- January – 9.1 days
- February – 3.7 days
- March – 1.8 days
- April - .5 days

This equates to an average of 24 days annually below 32°F.

Future Development

Like extreme heat, vulnerability to freeze will increase as the average age of the population in the City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the City. The elderly are more at risk to the effects of freeze. However, many of the residents of the City are accustomed to living with freeze and take precautions to guard against the threat of freeze and severe cold.

Severe Weather: Heavy Rain/Thunderstorm/Hail/Lightning

Likelihood of Future Occurrence–Likely
Vulnerability–High

According to historical hazard data, severe weather is an annual occurrence in the City of Auburn. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rain and thunderstorms are the most frequent type of severe weather occurrence in the area. Wind and lightning often accompany these storms and have caused damage in the past. Problems associated with the primary effects of severe weather include flooding, pavement deterioration, washouts, high water

crossings, landslide/mudslides, debris flows, and downed trees. Table A.11 presented above in the discussion of the flood hazard details those areas within the City that are most often affected during these heavy storm events.

Future Development

The City enforces the state building code and other ordinances, which regulate construction techniques that minimize damage from heavy storms and rain. Future development in the City is subject to these building codes. New critical facilities such as communications towers should be built to withstand hail damage, lightning, and heavy rains.

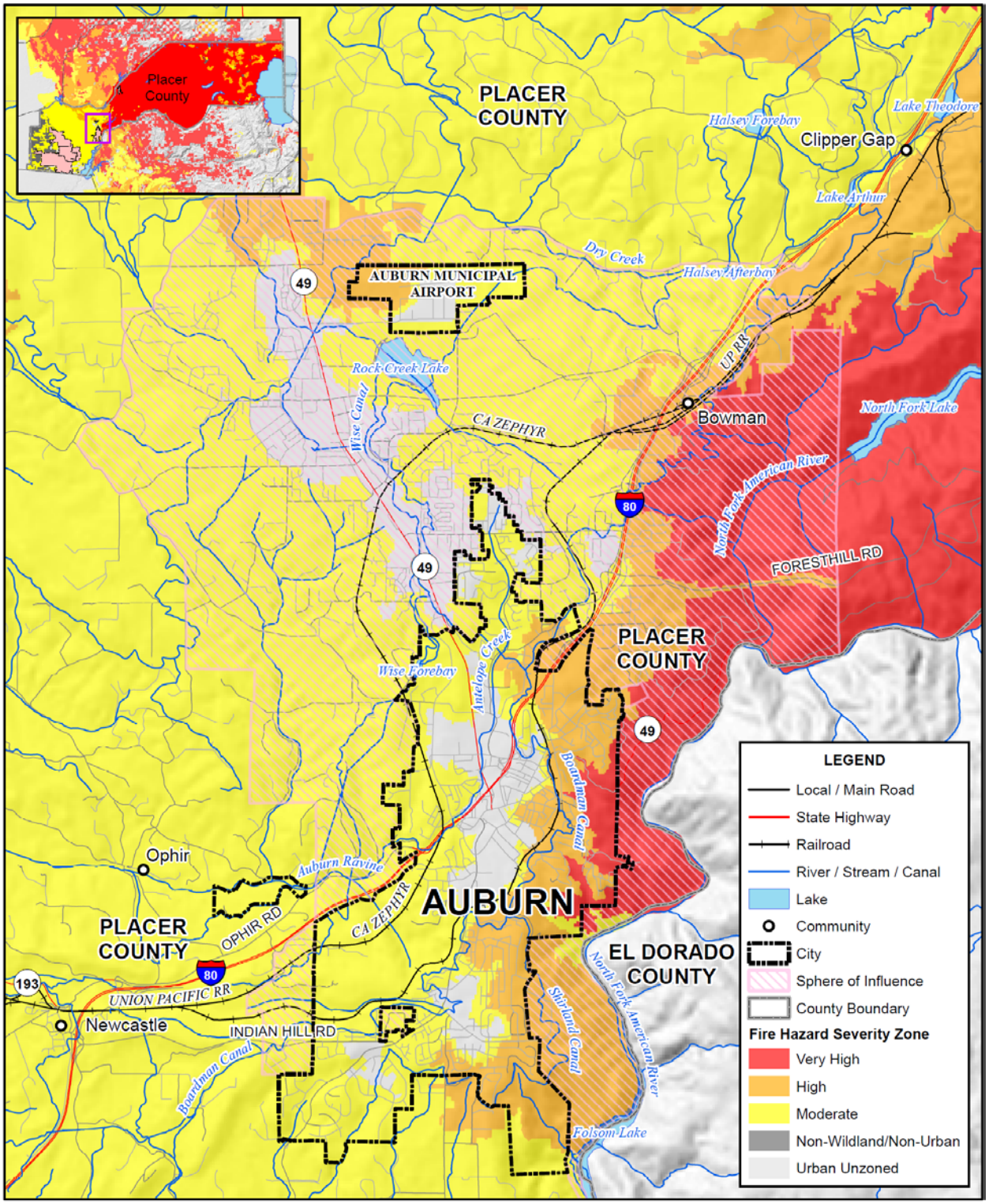
Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–High

Three types of fires are of concern to the City of Auburn: wildland, wildland urban interface, and, to a lesser extent, structural fires. According to the Safety Element of Auburn's General Plan, wildland and urban interface fires have occurred close to or encroached into the City, especially in the heavily fueled areas to the east and south. Urban structural fires have been due largely to human accidents, with are the older buildings in the City business districts the most vulnerable.

Following the methodology described in Section 4.3.2 Vulnerability of Placer County to specific hazards, a wildfire map for the City of Auburn was created (see Figure A-6). Wildfire threat within the city ranges from moderate to very high. The highest threat occurs along the eastern edge of the city.

Figure A-6 City of Auburn's Fire Severity Zones



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Values at Risk

Analysis results for Auburn are shown in Table A-13, which summarizes total parcel counts, improved parcel counts and their structure values by occupancy type as well as the percentage of parcels affected by fire.

Table A-13 City of Auburn – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
Very High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	165	$3,260,288	4	$122,584	$3,382,872	1.1%
	Industrial	10	$761,753	7	$1,085,318	$1,847,071	35.0%
	Institutional	1	$81,660	1	$693,426	$775,086	4.2%
	Natural/Open Space	8	$0	0	$0	$0	0.0%
	Residential	537	$41,172,581	530	$86,277,012	$127,449,593	11.4%
	Total	**721**	**$45,276,282**	**542**	**$88,178,340**	**$133,454,622**	**10.7%**
High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	158	$5,665,030	16	$3,893,512	$9,558,542	4.4%
	Industrial	12	$394,070	3	$633,685	$1,027,755	15.0%
	Institutional	14	$245,764	3	$2,562,827	$2,808,591	12.5%
	Natural/Open Space	3	$0	0	$0	$0	0.0%
	Residential	1,323	$102,498,748	1,284	$211,421,718	$313,920,466	27.6%
	Total	**1,510**	**$108,803,612**	**1,306**	**$218,511,742**	**$327,315,354**	**25.8%**
Moderate	Agricultural	3	$50,997	2	$23,156	$74,153	66.7%
	Commercial	424	$32,667,992	115	$56,785,973	$89,453,965	31.9%
	Industrial	37	$830,736	5	$1,079,346	$1,910,082	25.0%
	Institutional	16	$1,550,187	7	$16,080,356	$17,630,543	29.2%
	Natural/Open Space	7	$31,528	0	$0	$31,528	0.0%
	Residential	2,236	$216,926,532	2,130	$453,876,256	$670,802,788	45.8%
	Total	**2,723**	**$252,057,972**	**2,259**	**$527,845,087**	**$779,903,059**	**44.7%**
Urban Unzoned	Agricultural	1	$9,037	1	$16,953	$25,990	33.3%
	Commercial	385	$43,152,409	225	$90,124,668	$133,277,077	62.5%

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
	Industrial	15	$875,169	5	$3,326,858	$4,202,027	25.0%
	Institutional	34	$2,480,197	13	$19,183,904	$21,664,101	54.2%
	Natural/Open Space	3	$0	0	$0	$0	0.0%
	Residential	714	$66,922,533	706	$146,331,773	$213,254,306	15.2%
	Total	**1,152**	**$113,439,345**	**950**	**$258,984,156**	**$372,423,501**	**18.8%**
Non-Wildland/Non-Urban	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**0**	**$0**	**0**	**$0**	**$0**	**0.0%**
	Grand Total	**6,106**	**$519,577,211**	**5,057**	**$1,093,519,325**	**$1,613,096,536**	**100.0%**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
*Land and structure values

Population at Risk

The Fire Severity Zone dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for each jurisdiction and unincorporated area. Results were tabulated by jurisdiction. According to this analysis, there is a total population of 8,953 residents of Auburn at risk to moderate or higher wildfire risk. This is shown in Table A-14.

Table A-14 City of Auburn – Count of Improved Residential Parcels and Population by Fire Severity Zone

Fire Severity Zone	Improved Residential Parcels	Population*
Very High	530	1,203
High	1,284	2,915
Moderate	2,130	4,835
Urban Unzoned	706	1,603
Non-Wildland/Urban	0	0
None	0	0
Total	**4,650**	**10,556**

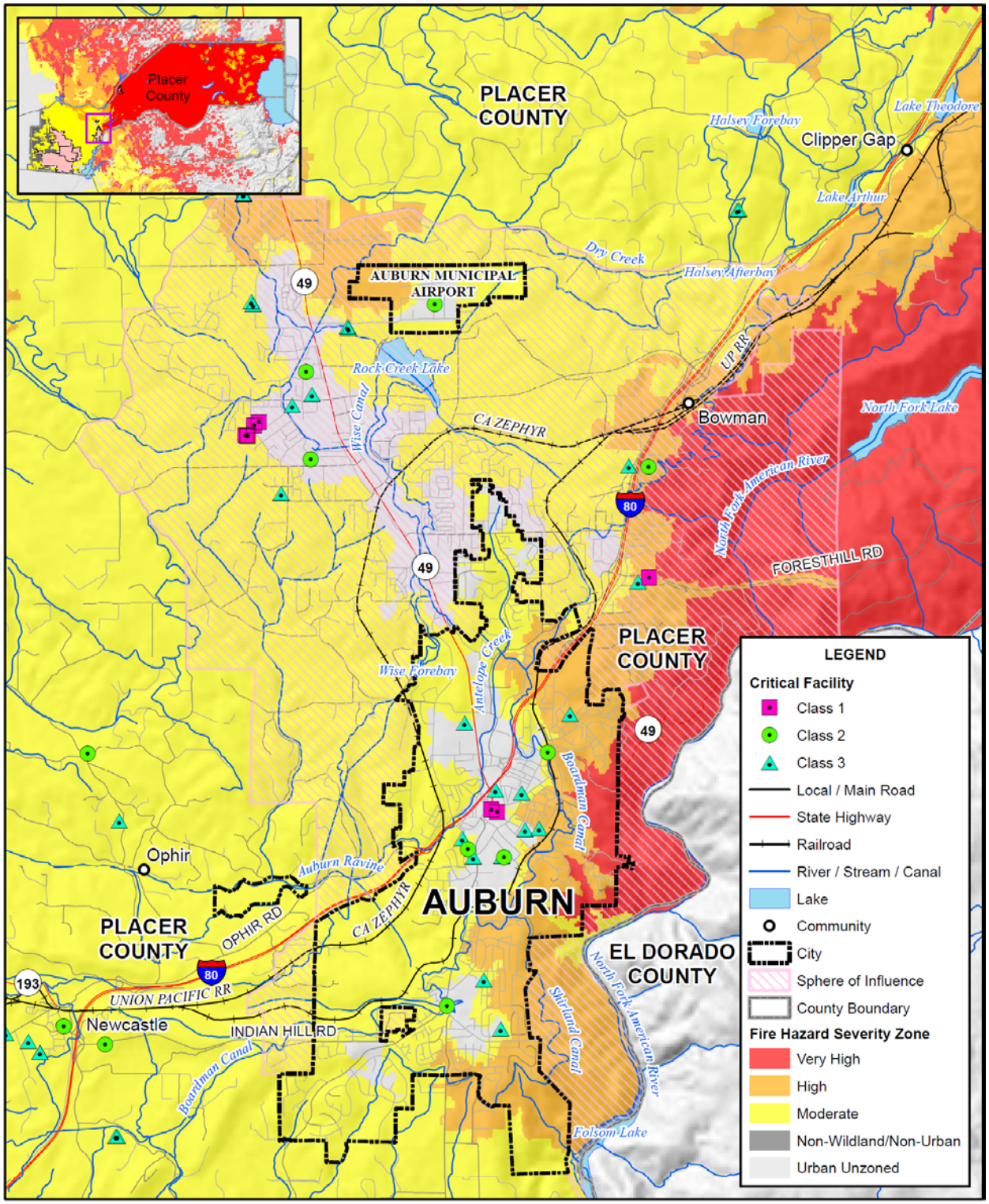
Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE

* Average household populations for Auburn (2.27) from the 2010 US Census were used

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a fire severity zone provided by CAL FIRE, and if so, which zone it intersects. There are seven facilities in the moderate or higher fire severity zone in the City. These are shown in Figure A-7 and detailed in Table A-15. Details of critical facility definition, type, name and address and jurisdiction by fire severity zone are listed in Appendix F.

Figure A-7 City of Auburn – Critical Facilities in the Fire Severity Zone



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Table A-15 City of Auburn – Critical Facilities in the Fire Severity Zone

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Very High	Class 1		-
	Class 2		-
	Class 3		-
		Total Very High	**0**
High	Class 1		-
	Class 2		-
	Class 3	School	2
		Total High	**2**
Moderate	Class 1		-
	Class 2	Fire Station	2
	Class 3	Hall	3
		Total Moderate	**5**
Non-Wildland/Non-Urban	Class 1		-
	Class 2		-
	Class 3		-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Airport	1
		Fire Station	1
		National/Coast Guard	1
		Police Station	1
	Class 3	Fairground	1
		Hall	2
		School	3
		Total Urban Unzoned	**12**
Total			**19**

Source: CAL FIRE, Placer County GIS

Future Development

Development may occur in the moderate or higher wildfire severity areas; however, City ordinances for building in these areas are enforced.

A.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

A.6.1. Regulatory Mitigation Capabilities

Table A-16 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Auburn.

Table A-16 City of Auburn's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	
Capital Improvements Plan	Y	
Economic Development Plan	Y	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan/Program	Y	
Engineering Studies for Streams		
Community Wildfire Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	Included in EOP
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 4
Site plan review requirements	Y	Performed by each City department

Land Use Planning and Ordinances	Y/N	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	Y	
Subdivision ordinance	Y	
Floodplain ordinance	Y	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	Fire Safe Standards in the WUI (Bates Bill, AB 337). Includes Class A Roofing Standards
Flood insurance rate maps	Y	
Elevation Certificates	Y	Integrated with GIS
Acquisition of land for open space and public recreation uses		
Erosion or sediment control program	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Auburn

The City of Auburn General Plan Program, 1993

The City of Auburn General Plan Program serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The General Plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the Auburn Planning Area. Identified hazards include wildfire, geologic/seismic, flooding, and other natural and man-made hazards. Mitigation-related goals, are presented below.

Safety Element Goals	
Goal 1	Protect the citizens and visitors of the Auburn area from loss of life while protecting property and watershed resources from unwanted fires through preplanning, education, fire defense improvements, and fire suppression.
Goal 2	Protect the lives and property of the citizens of the Auburn area from unacceptable risk resulting from flood hazards.
Goal 3	Minimize hazards to public health, safety, and welfare resulting from natural and man-made hazards.
Goal 4	Protect all residents from hazardous materials and the hazards associated with transport of such materials.
Goal 5	Maintain and enhance City emergency services.

City of Auburn Emergency Operations Plan

The City of Auburn Emergency Operations Plan (EOP) addresses the planned response for the City of Auburn to emergencies associated with disasters, technological incidents, or other dangerous conditions created by either man or nature. It provides an overview of operational concepts, identifies components of the City emergency management organization, and describes the overall responsibilities of local, state, and federal entities. The Emergency Operations Plan includes such plans as: Terrorism Contingency Plan, Airport Response Plan, Hazardous Materials Response Plan, Wildfire Response Plan, Community Wildfire Protection Plan, Greater Auburn Area Fire Safe Council Strategic Fire Safe Plan, I-80 Transportation Infrastructure Contingency Plan, Heat Emergency Plan, Wastewater Treatment Plant Emergency Response Plan, and Stormwater Pollution Prevention Plan (3 separate plans).

A.6.2. Administrative/Technical Mitigation Capabilities

Table A-17 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Auburn.

Table A-17 City of Auburn's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements		
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y FT	
Floodplain Administrator	Y FT	
Emergency Manager	Y FT	
Community Planner	Y FT	
Civil Engineer	Y FT	
GIS Coordinator		
Other		

Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Police Dispatch and Administrative Services, ESC
Hazard data and information		
Grant writing	Y	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Auburn

A.6.3. Fiscal Mitigation Capabilities

Table A-18 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table A-18 City of Auburn's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Storm water utility fee		
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	Y	
Community Development Block Grant	Y	
Other federal funding programs		
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Auburn

A.6.4. Mitigation Education, Outreach, and Partnerships

Table A-19 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table A-19 City of Auburn's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	Numerous service clubs, Police volunteers, fire department volunteers, neighborhood watch
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	
Natural disaster or safety related school programs	Y	
StormReady certification	N	
Firewise Communities certification	Y	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

The City of Auburn has Public Awareness and information programs continually throughout the year specific to emergency preparedness that include: "Open Houses", media publications, community events; "Town Hall Meetings," Fairs, "Fire Prevention Week," and "Family Night Out."

A.6.5. Other Mitigation Efforts

The City of Auburn has many other ongoing mitigation efforts that include the following:

Code Adoption

- Adopted the 2013California Building Code, Mechanical Code, Electrical Code, Plumbing Code, 2013 International Existing Building Code, and 2012 International Property Maintenance Code
- Adopted the 2013 California Fire Code

Municipal Code

- Amended to include Code adoption(s) of which included:

- ✓ Class A Roofing Standards
- ✓ Fire Hazard Severity Zones
- ✓ Fire Safe Standards
- ✓ Fire Sprinklers

- The City of Auburn has instituted new fire safe and building requirements in the City. Materials such as checklists, FAQ's, and Conditions and Requirements for Development, are made available to the public through website access and hand-outs at City facilities.
- The "Shaded Fuel Break" fuel modification project is implemented and continually evaluated as described in the 2015 Shaded Fuel Break Project, American River Canyon Implementation Program.
- "Fire Plans for Development" are required for all new development within the City of Auburn. Such fire plans address the mitigation measures implemented to reduce potential damage and threat of wildfire. In addition, the fire plan describes the long term application and implementation of such measures that include responsibilities, funding, and evaluation.
- Annually, physical inspections are made by fire department personnel for defensible space and fuel modification on residences throughout the City of Auburn. Specific areas are concentrated on each year.
- Development and implementation of the Stormwater Treatment Plan continues.
- The Greater Auburn Area Fire Safe Council was enhanced/expanded to include surrounding fire districts and areas of wildfire concern.
- The Greater Auburn Area Fire Safe Council was instrumental in developing the Greater Auburn Area Fire Safe Plan.
- The Greater Auburn Area Fire Safe Council participated in the development of the Community Wildfire Protection Plan.
- The City of Auburn is signatory and participates in the Western Placer County Fire Chief's Automatic Response Agreement and Operations Plan for Placer County.
- Several existing "open space" areas within the City of Auburn have been "fire planned" that includes fuel modification projects to reduce the exposure of wildfire.
- Prior to the storm season, physical inspections of waterways and the storm drain system are completed and then cleaned and cleared as necessary
- Prior to a storm warning, storm drains and waterways are inspected and cleaned as necessary
- Prior to a storm warning, Public Works crews prepare sand bags in preparation for possible flooding activities

A.7 Mitigation Strategy

A.7.1. Mitigation Goals and Objectives

The City of Auburn adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

A.7.2. NFIP Mitigation Strategy

The City of Auburn joined the National Flood Insurance Program (NFIP) on December 23, 1983. As a participant of the NFIP, the City of Auburn has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Auburn will continue to comply with the requirements of the NFIP in the future.

In addition, the City of Auburn actively participates with the County of Placer to address local NFIP issues through a regional approach. Many of the program activities are the same for the City of Auburn as for Placer County since participation at the County level includes all local jurisdictions. An elected official of the City of Auburn is a designated representative on the Placer County Flood Control District Board.

The City's regulatory activities apply to existing and new development areas of the City; implementing flood protection measures for existing structures and new development, and maintaining drainage systems. The goal of the program is to enhance public safety, and reduce impacts and losses while protecting the environment. The City's Municipal Code has a Flood Damage Prevention Section under the Zoning Ordinance that regulates construction in the floodplain. The City intends to continue to implement the ordinance and participate at the regional level with Placer County implementing appropriate measures to mitigate exposure and damages within designated flood prone areas.

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Auburn is not a current participant in the CRS program.

A.7.3. Mitigation Actions

The planning team for the City of Auburn identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: City of Auburn Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 1. Lincoln Basin (Downtown) Drainage Infrastructure

Hazards Addressed: Flooding

Issue/Background Statement: The Lincoln Basin drainage infrastructure project began out of evidence that the large metal drainage pipe running through downtown Auburn begun to fail along portions of its length. The Lincoln Basin drainage system collects from two different watershed basins. Currently the watershed collects from the Lincoln Basin which includes Electric Street and Hoffman Avenue and flows into a storm drain pipe. The water then connects to the Brewery Lane Basin drainage system in Old Town Auburn. The drainage infrastructure is estimated to be over 100 years old. The water from Electric Street and Lincoln Way travel in 36" – 48" corrugated metal pipe (CMP) that has deteriorated in places along Lincoln Way for approximately ¾ of a mile. Many buildings were built directly on top of the storm drain infrastructure and the City expects some possible depressions in parking lots and possible building subsidence due to the deterioration of the pipe and the back fill collapsing in.

The City of Auburn has responded to some isolated failures with the most recent occurring January 2007 at the Auburn Journal building along Lincoln Way. The other most significant isolated failure was on East Placer Street in January 1995 when a 42" CMP storm drain collapsed when a garbage truck fell through the pavement.

Other Alternatives: Don't fully implement the replacement of the failing infrastructure and continue only to do spot repairs as needed.

Existing Planning Mechanisms through which Action Will be Implemented: Identified in past budget proposals but not funded. This item has been brought to delegates in Washington D.C. in an attempt to secure funding.

Responsible Office: Department of Public Works and Planning

Priority (H, M, L): High

Cost Estimate: This project is estimated at approximately $2,000,000 to study the site and replace the necessary infrastructure. There is no funding dedicated for this project, all funding will come from the general fund and generated sources. Grant funding can provide a valuable source of funding for this program.

Benefits (Losses Avoided): Reduction of flood related damage and structural damage to historical building in Auburn. It is estimated that this project could eliminate millions of dollars worth of damage from a collapse of the pipe or a storm system with significant rainfall.

Potential Funding: Will need to seek assistance through either grant or public funding. Current repair(s) funded through General Fund revenues. Transportation Development Act Fund and General Fund Revenues.

Schedule: Identification of project only at this time. Currently awaiting funding source.

Action 2. Creek and Stream Cleaning and Maintenance Program.

Hazards Addressed: Flooding

Issue/Background Statement: Within the City of Auburn exist numerous small creeks and seasonal stream areas serving as a means of natural water drainage during periods of precipitation. Some of these creeks and streams are prone to overflow due to increased capacity needed at peak times and therefore pose risk of flooding and damage to property; both private and public. A recommended mitigation measure to potential flooding in these areas is to establish an initial treatment of cleaning the creeks and streams by way of removing overgrown vegetation and debris. In addition, establish an annual maintenance procedure prioritizing the most prone areas where additional work is completed annually to eliminate localized flooding.

Other Alternatives: Rely on existing procedures of clean-up only after such a flooding occasion occurs.

Existing Planning Mechanisms through which Action Will be Implemented: Flood Management and identification as in the Storm Water Plan.

Responsible Office: Department of Public Works and Planning

Priority (H, M, L): High

Cost Estimate: Unable to determine, will depend on analysis of personnel and equipment needed. Initial treatment to be where most cost will occur. Ongoing maintenance can be established through budget funding.

Benefits (Losses Avoided): Mitigation of potential flooding causing damage to persons and property; both private and public.

Potential Funding: Grant funding, budget funding. Transportation Development Act Fund and General Fund Revenues.

Schedule: Stormwater maintenance is performed on critical areas annually.

Action 3. Implementation of Storm Water Pollution Prevention Plan.

Hazards Addressed: Flooding and localized stormwater flooding

Issue/Background: The City of Auburn Public Works Department adopted an ordinance imposing limitations and procedures regarding storm water treatment and incidents affecting storm water run-off facilities. This was a mandated program by the Federal EPA. The plan was assembled and approved according to EPA recommendations.

Other Alternatives: Do not impose additional safety measures in such areas. Failure to comply with Federal mandate.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Planning and Public Works Department

Priority (H, M, L): High

Cost Estimate: Undergoing analysis of projected costs to implement all phases of the program. It is estimated that approximately $100,000 each year is required to fully implement the plan for successful results.

Benefits (Losses Avoided): Reduction of natural and environmental hazards to waterways and areas within the City and surrounding regional waterways.

Potential Funding: Grant funding can provide a valuable source of funding for this program and General Fund revenues upon availability.

Schedule: Plan completed, implementation phase in progress.

Action 4. Electric Street Diversion Project

Hazards Addressed: Flooding and localized stormwater flooding

Issue/Background: The City of Auburn Public Works Department is in process of developing and implementing a project to assist with the diversion of storm water run-off to alternate locations. This diversion project consists of infrastructure in place to reduce run-off to the historical section of Auburn causing potential flood related damages.

Other Alternatives: Do not conduct project. Continue damage repair when occurs.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Planning and Public Works Department

Priority (H, M, L): High

Cost Estimate: This project is estimated at approximately $2,000,000

Benefits (Losses Avoided): Reduction of flood related damage to historical buildings in Auburn. It is estimated that this project can eliminate up to $15,000,000 worth of damage from a storm system with significant rainfall.

Potential Funding: There is no funding dedicated for this project, all funding will come from general funding and generated sources. Grant funding can provide a valuable source of funding for this program.

Schedule: Identification of project only at this time. Awaiting funding source.

Action 5. Old Town Auburn Storm Drain System

Hazards Addressed: Flooding and localized stormwater flooding

Issue/Background: The storm drain system under the historic section of Old Town Auburn is comprised of a number of tunnels and channels directing run-off water to a local waterway. Most all this system is directly under historic buildings of the town. Several sections of the system are original and dating back to as many as 100 years. Significant rainfall can cause temporary flooding and cause erosion to this older drainage system. The system itself needs to be evaluated for future repair/replacement, or other in an effort to eliminate potential flooding which can result in the loss of historical buildings.

Other Alternatives: Do not evaluate system.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Planning and Public Works Department

Priority (H, M, L): High

Cost Estimate: It is estimated that $50,000 is required to conduct a full assessment and develop a plan that would identify required mitigation measures. It would be anticipated this assessment and plan development would provide mitigation/preparation in the event of a 100-year flood event.

Benefits (Losses Avoided): Reduction of flood related damage to historical buildings in Auburn. It is estimated that this project can eliminate up to $500,000 worth of damage from a storm system with significant rainfall.

Potential Funding: Transportation Development Act Funds and General Fund Revenues upon availability.

Schedule: It is undetermined at this time the cost benefit. It would be anticipated that such an assessment would identify such benefit.

Action 6. American River Canyon Shaded Fuel Break

Hazard Addressed: Wildfire

Issue/Background Statement: The City of Auburn is identified as a "Community at Risk" in the National Fire Plan. The fuel break is intended to provide a means of community protection from wildfire, enhance

watersheds, support wildlife habitat, preserve natural and cultural resources, and maintain recreational opportunities. Maintenance and growth of the fuel break is necessary for success.

Other Alternatives: No action – which will increase fire danger.

Existing Planning Mechanisms through which Action Will be Implemented: There is a current 2015/2016 Shaded Fuel Break Work Plan that needs to be updated with funding annually. Each agency recognizes the limited resources they have to fulfill agency missions. This plan is intended to capture resources that may be available to allocate specifically towards the American River Canyon Shaded Fuel. In no form does this plan constitute any agency commitment of such resources when resources are not available and or deemed vital to fulfill other agency missions and priorities.

Responsible Office: City of Auburn, California State Parks, US Bureau of Reclamation, Placer Land Trust

Priority (H, M, L): High

Cost Estimate: Approximately $1,000,000 has been spent on completing this project, and an additional $50,000-$100,000 is needed every year to maintain the project.

Benefits (Losses Avoided): Potential non-loss of structures (valued in the millions) and wildland/wildlife/

Potential Funding: Sierra Conservancy Grant

Schedule: Annual and ongoing.

Action 7. Community Education on Wildfire

Hazards Addressed: Reduce damage caused by wildfire by identifying public agency resources allocated to enhancement and maintenance of the American River Canyon Shaded Fuel Break; a natural vegetation fuels reduction project.

Issue/Background: Prevention efforts in the American River Canyon and the City of Auburn are intended to provide a means of protection to the Auburn community from the disaster of wildfire, preserve our natural and cultural resources, enhance our watershed, support wildlife habitat, and maintain recreational opportunities to the pristine American River, Auburn State Recreation Area, and U.S. Bureau of Reclamation lands in and around the City of Auburn.

Other Alternatives: At this time, there are no other alternative resources to complete this project.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Greater Auburn Area Fire Safe Council (GAAFSC) has developed a program that provides education to the citizens of the community about wildfire devastation and responsibilities of the homeowner in creating a fire safe area around the home. The focus of this issue the GAAFSC is intending to convey is that wildfire and prevention is everyone's responsibility, not just the fire department or governmental agencies.

Responsible Office/Partners: Greater Auburn Area Fire Safe Council

Project Priority: High

Cost Estimate: $5000.00 per year

Benefits (Losses Avoided): Educating the citizens of the community in the understanding of the importance in reducing potential fire damage due to wildfire and motivating individuals to take action will reduce the possibility of wildfire destruction and lessen the damages of those fires that do occur. A very small investment in education can result in the protection of a large value of resources.

Potential Funding: Grants

Timeline: On going

Action 8. Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.

Hazards Addressed: Reduce damage caused by wildfire by inspecting private property and providing the owners with suggestions that will create defensible space.

Issue/Background: The City of Auburn Fire Department personnel routinely inspect residential homes; approximately 40 each year, and perform on-site inspections with the property owner to create defensible space and other precautions to prevent loss due to wildfire. The state of California LE-38 inspection form is used to identify needed actions. The program is based on educating citizens about the need to make the residence fire safe. These inspections occur in the Very High Fire Severity Hazard Zones and Wildland Urban Interface Zones within the City of Auburn.

Other Alternatives: At this time, there are no other safe alternative resources to complete this project.

Existing Planning Mechanism(s) through which Action Will Be Implemented: This project is identified in the Community Wildfire Protection Plan, Local Hazard Mitigation Plan, and recognized by the Greater Auburn Area Fire Safe Council as a priority project.

Responsible Office/Partners: Auburn Fire Department-Auburn Public Safety

Project Priority: High

Cost Estimate: Currently, all costs are incurred in the fire department budget. At an estimated one hour per home inspection, at a burdened rate of $150 per hour for an engine company to do the inspection, the cost is $ 150 per home, for a total of $6000 per year. Grant funding would allow a greater number of homes to be inspected each year.

Benefits (Losses Avoided): This project reduces potential losses from wildfire. Using an average value of a home in the City of Auburn of $378,100, the value of 40 homes is $15,124,000. The $6000 for the inspections represents a fraction of values protected.

Potential Funding: Grants

Timeline: Ongoing

Action 9. Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA).

Hazards Addressed: Wildfire

Issue/Background Statement: The completion of the private lands portion (within the City of Auburn) of a multi-jurisdiction shaded fuel break on public/private lands along the interface of the American River Canyon and the City of Auburn, described in its own Recommended Mitigation Action Form, is only useful as long as the vegetation is continually managed.

Other Alternatives: To let the vegetation in the fuel break regrow, this will eliminate the fuel break as a viable project in 5 -10 years.

Existing Planning Mechanisms through which Action Will be Implemented: This project is identified in the CWPP, Local Hazard Mitigation Plan, Cal Fire Nevada-Placer-Yuba Unit Wildfire Protection Plan, and recognized by the Greater Auburn Area Fire Safe Council as a priority project.

Responsible Office: City of Auburn Fire and landowners in the project area.

Priority (H, M, L): High

Cost Estimate: Average costs per acre have varied from $500 to $9,000. Overall costs will depend on fuels, topography, maintenance needed. It is estimated that approximately 40-50 parcels of approximately 60 to 70 acres need annual maintenance. This use of the Placer County Chipper Program and can greatly reduce the maintenance costs.

Benefits (Losses Avoided): Without maintenance, the $1.1 billion in resources protected by the fuel break would again be exposed to a higher risk of wildfire damage and loss.

Potential Funding: Grant funding for ground work, the Placer County Chipper Program, donated labor, homeowner contributions, serve as the basis for this project.

Schedule: Private land maintenance would follow the same schedule as for the Public lands within the project area. Depending on fuels, topography, and vegetation growth, complete maintenance is required every 2 to 3 years to keep the integrity of the project.

Annex B City of Colfax

B.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Colfax, a participating jurisdiction to the Placer County LHMP Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the City. This Annex provides additional information specific to the City of Colfax, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

B.2 Planning Process

As described above, the City of Colfax followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the City formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table B-1. Additional details on plan participation and City representatives are included in Appendix A.

Table B-1 City of Colfax Planning Team

Name	Position/Title	How Participated
Amy Feagans	Planning Director	Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
John Brownlee	Building Official	Provided data on development in the City since 2010.
Wes Heathcock	Community Services Director	Attended Meetings. Provided edits and updates to past annex

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the City integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table B-2.

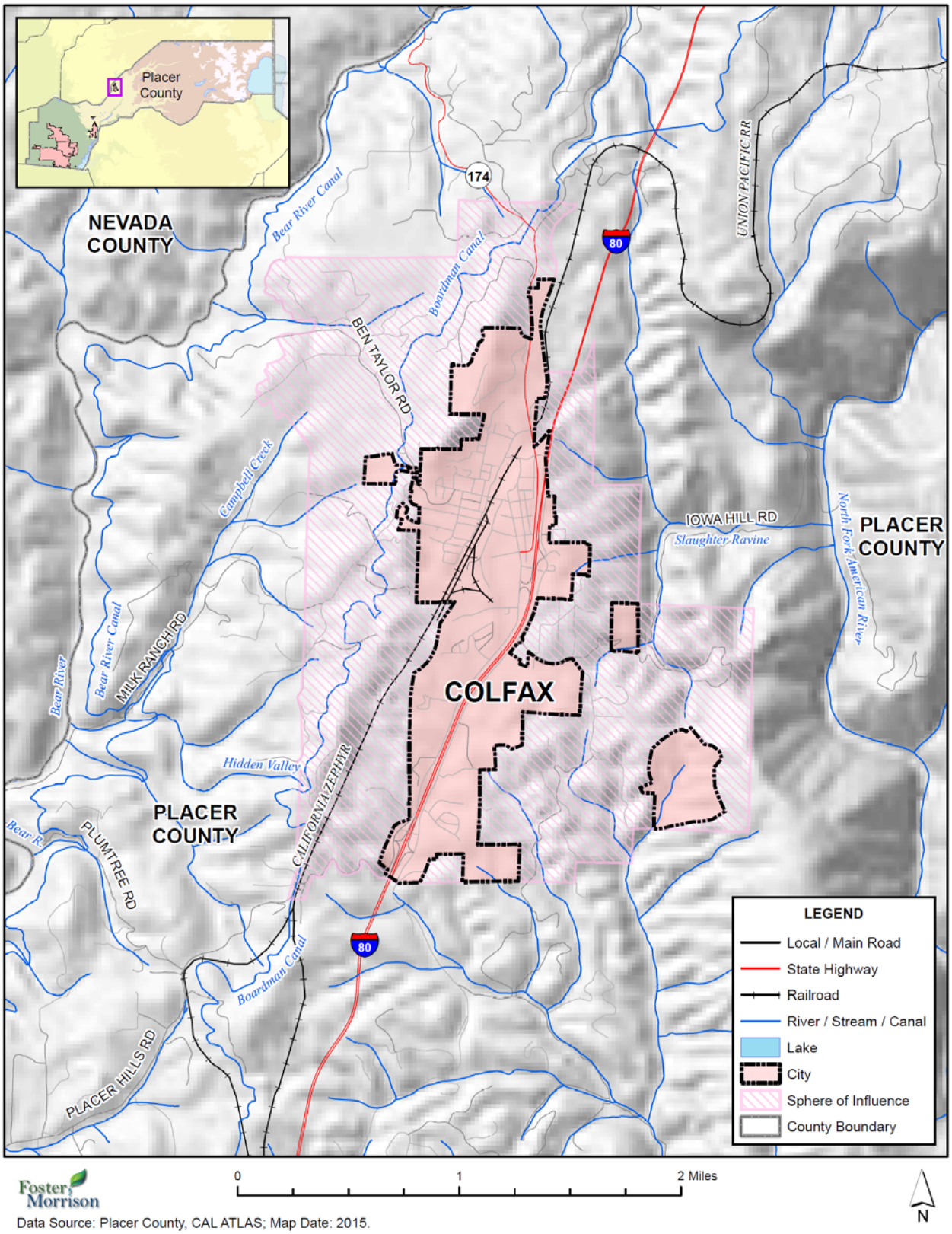
Table B-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
City of Colfax	The LHMP was adopted by City Council in 2010, but the City did not incorporate the plan into other documents. There were several reasons why this did not occur and included, financial constraints of the City resulting in very limited planning activities over the last five years and lack of consistent planning and other staff involved in the 2010 LHMP Update and responsible for plan implementation.
City of Colfax	Although not specifically part of City activities, many of the regional wildfire projects from the 2010 LHMP Update that were implemented since the last plan provided a direct benefit to the City of Colfax. Incorporation and implementation were coordinated by local Fire Safe Councils and Placer County Fire, and used existing area CWPPs.
City of Colfax	The LHMP is considered a supporting document to the General Plan that will be incorporated into the Safety Element during the next General Plan update. The next General Plan update timeframe will occur prior to expiration in 2020.

B.3 Community Profile

Figure B-1 displays a map and the location of the City of Colfax within Placer County.

Figure B-1 City of Colfax Basemap



B.3.1. Geography and Climate

The City of Colfax is the northern-most incorporated city in Placer County, located in the Sierra Nevada Foothills at a general elevation of 2,400 feet above msl. The City covers an area of 1.3 square miles and straddles I-80 approximately 16 miles north of Colfax and east of Grass Valley.

Colfax average temperatures range from the low 80°F to low 90°F during the summer to the mid 30°F to low 40°F during the winter. Colfax receives an average of 45.59 inches of rain and 18.9 inches of snow annually.

B.3.2. History

Colfax was originally inhabited by the Maidu Indians. In 1849 during the frenetic days of the Gold Rush, southeast of present-day Colfax, Illinoistown (previously known as Alder Grove) rose as a major supply hub for the Sierra Foothill mining camps. In 1865, destiny doomed the thriving community when transcontinental railroad engineers bypassed it. Railroad construction Camp 20 became the town site of choice. Camp 20 was later renamed Colfax in honor of Schuyler Colfax, who visited the town in 1865 when he was Speaker of the House, assuring the construction crew that the government was committed to completing the transcontinental railroad. The town went on to become a major switching and maintenance station for the Central Pacific and Southern Pacific, and in 1876 a terminus for the Nevada County Narrow Gauge Railroad, serving the fruit orchards of the area and Nevada County gold mines. Colfax was incorporated as a city in 1910.

B.3.3. Economy

Colfax is the home several major employers: GKM Corporation, Winner Chevrolet, Placer Union High School District, Hills Flat Lumber, Sierra Energy, Crispin Cider, and Sierra Market. US Census estimates show economic characteristics for the City of Colfax. These are shown in Table B-3.

Table B-3 City of Colfax Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	0	0.0%
Construction	120	11.5%
Manufacturing	93	8.9%
Wholesale trade	18	1.7%
Retail trade	139	13.3%
Transportation and warehousing, and utilities	116	11.1%
Information	11	1.1%
Finance and insurance, and real estate and rental and leasing	45	4.3%
Professional, scientific, and management, and administrative and waste management services	51	4.9%
Educational services, and health care and social assistance	199	19.0%

Industry	Estimated Employment	Percent
Arts, entertainment, and recreation, and accommodation and food services	135	12.9%
Other services, except public administration	26	2.5%
Public administration	94	9.0%

Source: US Census Bureau American Community Survey 2009-2013 Estimates

B.3.4. Population

The California Department of Finance estimated the January 1, 2014 total population for the City of Colfax was 1,998.

B.4 Hazard Identification and Summary

Colfax's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Colfax (see Table B-4). In the context of the plan's planning area, there are no hazards that are unique to Colfax.

Table B-4 City of Colfax Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Likely	Critical	Medium
Earthquake	Significant	Occasional	Critical	Medium
Flood: 100/500 year	Limited	Unlikely	Negligible	Low
Flood: Localized Stormwater Flooding	Significant	Occasional	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Significant	Likely	Limited	Low
Severe Weather: Freeze and Snow	Significant	Likely	Limited	Low
Severe Weather: Fog and Freezing Fog	Significant	Limited	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Significant	Likely	Critical	Medium
Soil Bank Erosion	Significant	Occasional	Limited	Low
Subsidence	Limited	Unlikely	Negligible	low
Volcano	Significant	Likely	Catastrophic	High
Wildfire	Significant	Unlikely	Catastrophic	High
Hazardous Materials Transport	Limited	Unlikely	Negligible	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

B.5 Vulnerability Assessment

The intent of this section is to assess Colfax's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. In addition, although ranked as low significance by the community, the 100-year flood hazard is also included in the below analysis. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

B.5.1. Assets at Risk

This section identifies Colfax's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, and growth and development trends.

Values at Risk

The following data from the Placer County Assessor's Office is based on the 2015 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the base plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table B-5 shows the 2015 Assessor's values (e.g., the values at risk) broken down by property type for the City of Colfax.

Table B-5 City of Colfax – Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	0	$0	0	$0	$0
Commercial	236	$14,522,057	71	$22,372,620	$36,894,677
Industrial	39	$6,017,055	16	$10,130,484	$16,147,539
Institutional	12	$676,080	9	$4,324,806	$5,000,886
Natural/Open	0	$0	0	$0	$0
Residential	610	$30,030,239	599	$69,684,204	$99,714,443
Total	**897**	**$51,245,431**	**695**	**$106,512,114**	**$157,757,545**

Source: Placer County 2015 Parcel/Assessor's Data

Critical Facilities and Infrastructure

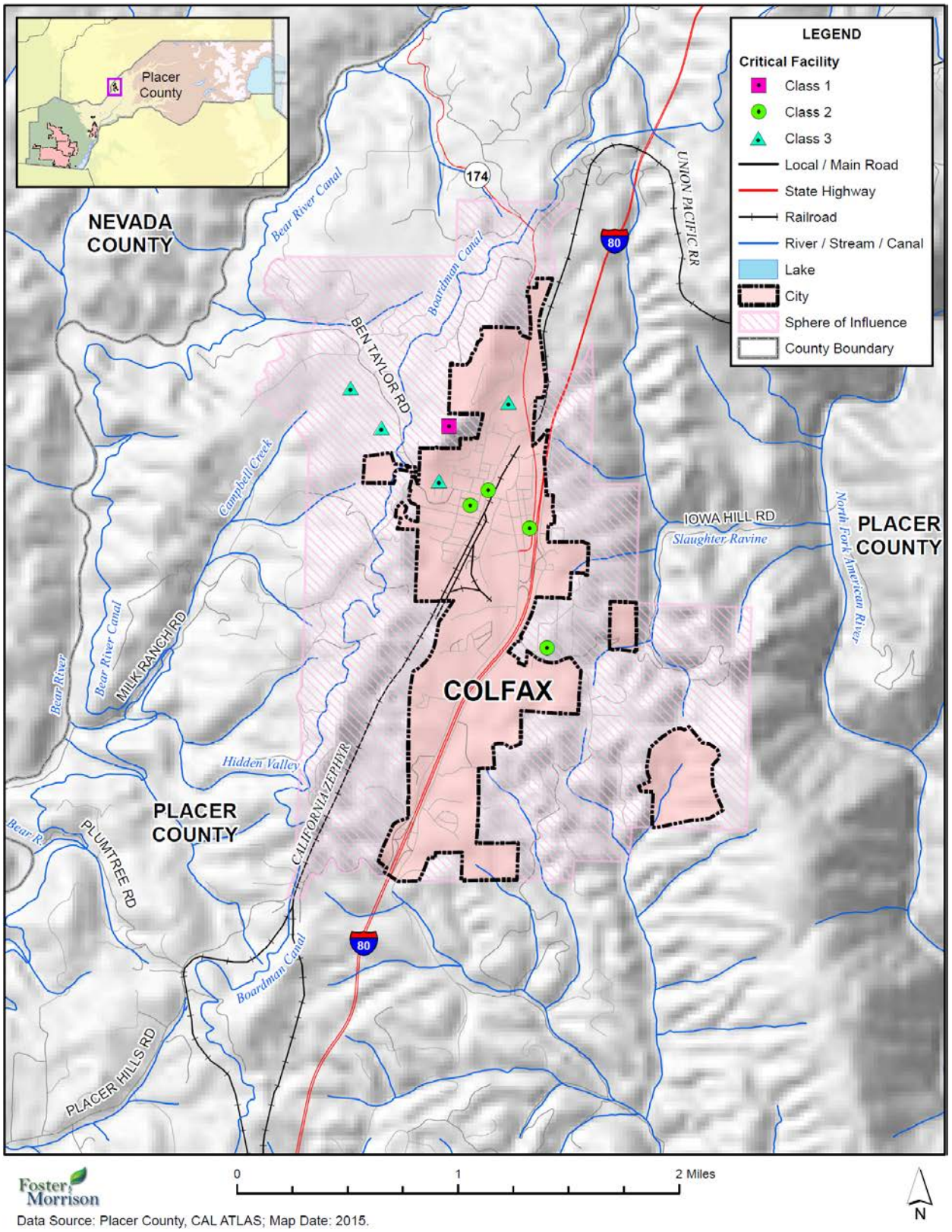
For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

This definition was refined by separating out three classes of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the City of Colfax from Placer County GIS is shown on Figure B-2 and detailed in Table B-6. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure B-2 City of Colfax – Critical Facilities



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

Table B-6 City of Colfax – Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
Class 1	-	-
Class 2	Fire Station	2
	PCSO	1
Class 3	Hall	1
	Water Treatment Plant	1
Total City of Colfax		**5**

Source: Placer County GIS

Natural Resources

The City of Colfax has a variety of habitat types that include urban, annual grasslands, seasonal wetlands, riparian zones, and oak savannah woodlands. These environments support plant and wildlife that include protected and special status species listed in the Table B-7.

Table B-7 Threatened Species in the City of Colfax Planning Area

Common name	Scientific Name	Federal Status*	State Status
Birds			
Fringed myotis	*Myotis thysanodes*	SC	–
Long-eared myotis	*Myotis evotis*	SC	–
Long-legged myotis	*Myotis volans*	SC	–
Small-footed myotis	*Myotis ciliolabrum*	SC	–
Spotted bat	*Euderma macalatum*	SC	SSC
Yuma myotis bat	*Myotis yumanensis*	SC	SSC
Black swift	*Cypseloides niger*	SC, MNBMC	SSC
Vaux's swift	*Chaetura vauxi*	–	SSC
Prairie falcon	*Falco mexicanus*	MNBNC	SSC
Lawrence's golfinch	*Carduells lawrencei*	SC, MNBMC	–
Bank swallow	*Riparia riparia*	–	T
Tricolored blackbird	*Agelalus tricolor*	SC, MNBMC	SSC
Loggerhead shrike	*Lanius ludovicianus*	SC, MNBMC	SSC
Bald eagle	*Haliaeetus leucocephalus*	T	E
Northern goshawk	*Accipeter gentilis*	SC	SSC
Insects			
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	–
Shirttail Creek stonefly	*Megaleuctra sierra*	SC	–
Sagehen Creek goracean caddisfly	*Goracea oregano*	SC	–
Spiny rhyacophilan caddisfly	*Rhyacophila spinata*	SC	–

Common name	Scientific Name	Federal Status*	State Status
Amphibians			
Foothill yellow legged frog	*Rana boylii*	SC	SSC
California red-legged frog	*Rana aurora dratonii*	T	SSC
Northwestern pond turtle	*Clemmys marmorat marmorata*	SC	SSC
California horned lizard	*Phrynosoma coronatum frontale*	SC	SSC
***Status explanations**			
Federal E – listed as endangered under the federal Endangered Species Act T – listed as threatened under the federal Endangered Species Act MNBMC – Fish and Wildlife Service: Migratory Nongame Birds of Management Concern SC = species of concern, formerly Category 2 candidate for federal listing – = no listing status		State E = listed as endangered under the California Endangered Species Act T = listed as threatened under the California Endangered Species Act SSC = species of special concern – = no listing status	

Source: City of Colfax Wastewater Treatment Plant improvements Project Environmental Impact Report

Historic and Cultural Resources

The City of Colfax has three registered federal historic sites:

- Colfax Freight Depot – 7 Main St.
- Colfax Passenger Depot – Main St. and Railroad Ave.
- Stevens Trail – Roughly bounded by Iowa Hill, Canyon of North Fork of American River until at Secret Ravine, to top of ridge of Colfax

In addition to the registered sites, there are several assets within Colfax that define the community and represent the City's history. Some of the historical sites of importance to Colfax are listed below.

- Neff House at 55 West Grass Valley St.
- The Colfax Hotel at Grass Valley St. and Railroad St.
- Chamber of Commerce Rail Car
- Perkins-Lobner Victorian on Railroad St.
- Colfax Fruit Sheds
- Lincoln Highway and Highway 40 routes went through the City
- Schuyler Colfax statue at Grass Valley St. and Railroad St.
- Northwestern Pacific Caboose, Number 28 at Main St. and Grass Valley St.
- Fire Bell Tower at the north end of the Colfax Freight Depot
- Hydraulic Monitor at the foot of the flagpole on North Main St.
- Judge Jacob Kuenzly home at Depot St. and Pleasant St.
- Masonic Building and IOOF Building on North Main St.
- Colfax Record Newspaper building at 25 W. Church St.
- Colfax City Hall at 33 South Main St.
- Colfax Theater at 49 South Main St.
- Building currently housing the Colfax Branch Library at South Main St. and Church St.
- All of the other buildings along the west side of North and South Main St.
- Colfax Cemetery on North Canyon Way
- Cape Horn railroad roadbed

Growth and Development Trends

The City of Colfax saw steady population growth between 2000 and 2010, with an estimated 22.9 percent growth rate. However, population growth in Colfax between 2010 and 2015 slowed. This can be seen in Table B-8.

Table B-8 City of Colfax – Past Growth

City	2000 Population	2010 Population	% Change 2000-2010	2015 Population	% Change 2010-2015
Colfax	1,597	1,963	22.9	1,994	1.6%

Source: 2013-20121 City of Colfax Housing Element, California Department of Finance E-1 Report

Development since 2010 Plan

The City Planning Team reviewed building permit data since 2010. One new residential property and two commercial buildings were built since the 2010 LHMP. With no floodplain in the City, these properties were not built in the floodplain. Since the whole of the City is in the Very High Fire Severity Zone, they would have been built in these very high fire risk areas. The Planning Team noted that changes to the State Building Code requires that new construction be more fire resistive due to the entire City being in the Very High Fire Severity Zone (VHFS). In addition the State Fire Code requires that all new dwellings have fire sprinklers. This will help mitigate the spread of fire from one house to another.

Given the severe wildfire risk within the City of Colfax, any new development since the 2010 plan would have increased the vulnerability of the community to additional loss during future fires. However, effective building codes and construction standards within the City will assist mitigating potential losses from any new development. With continued population growth, the City's vulnerability to wildfire will likely continue to increase as well.

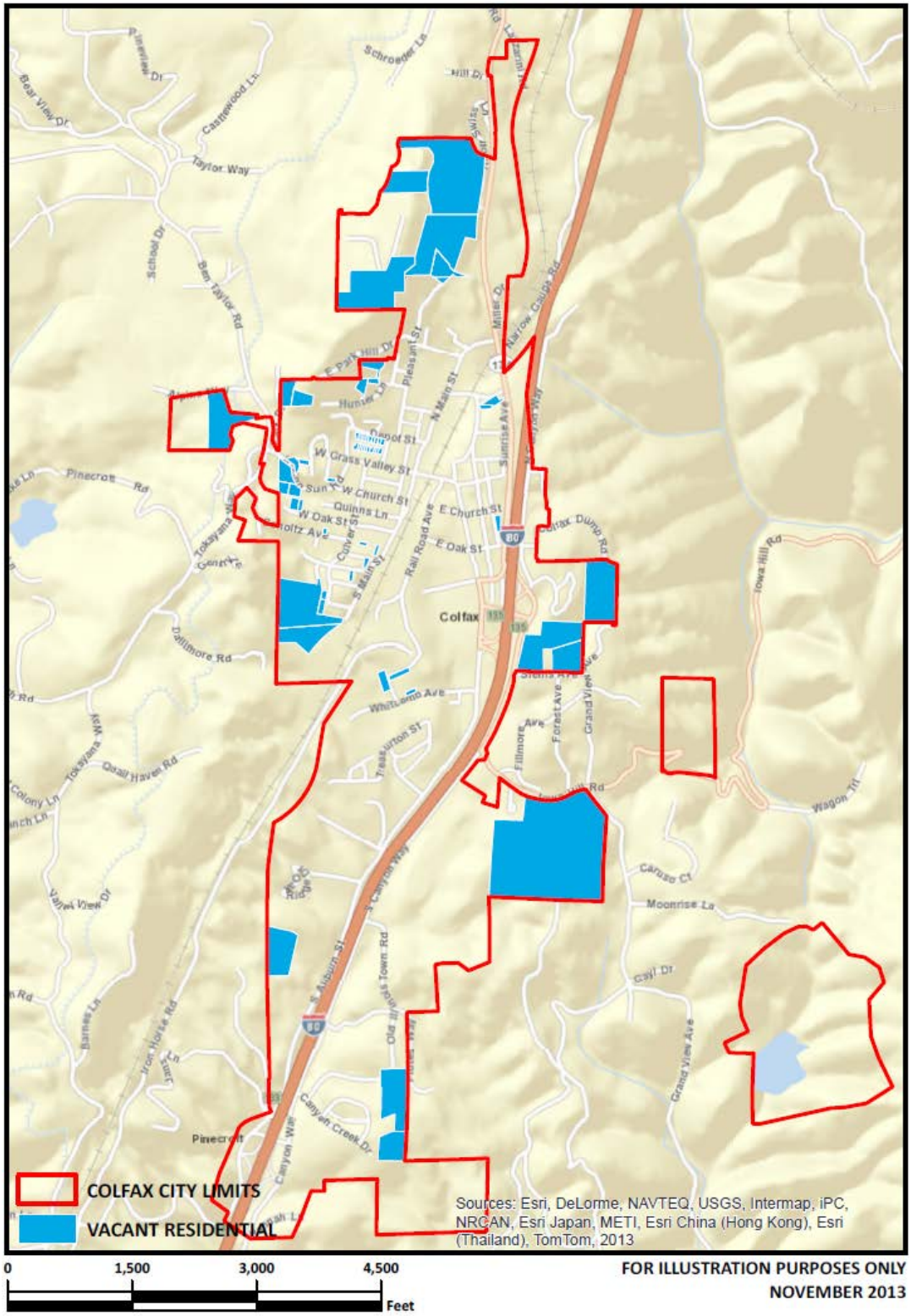
Future Development

New development in Colfax continues to be slow. While there are a few areas for new development, the majority of the undeveloped land in the City is very sloped and therefore challenging to build.

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Colfax and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 1,788 and 1,976 respectively.

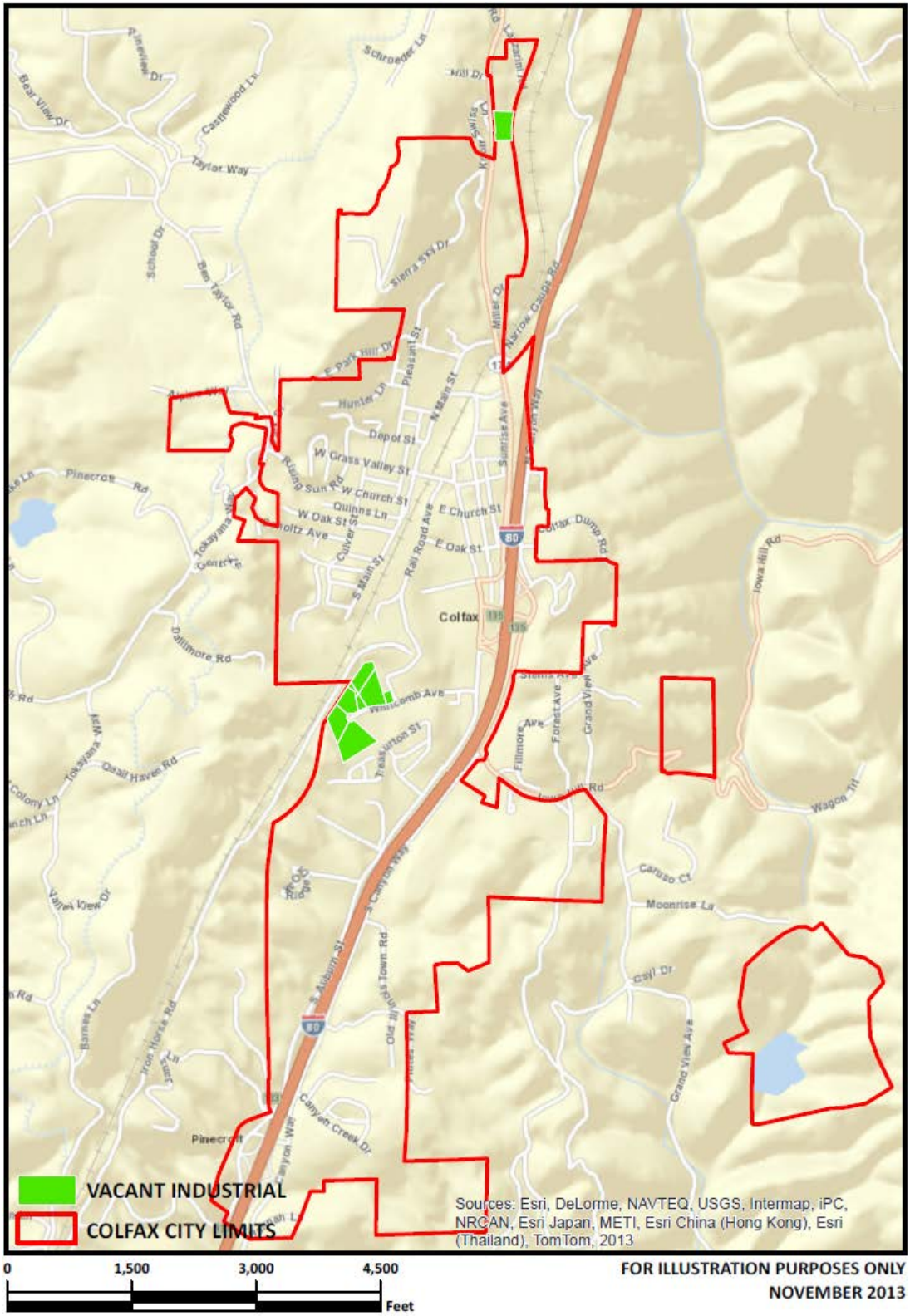
In the City's 2013-20121 Housing Element, maps of vacant residential and industrial lands were created. These are areas where future development could occur in the City. These are shown in Figure B-3 and Figure B-4.

Figure B-3 City of Colfax – Residential Vacant Land Inventory Map



Source: 2013-2021 City of Colfax Housing Element

Figure B-4 City of Colfax – Industrial Vacant Land Inventory Map



Source: 2013-2021 City of Colfax Housing Element

B.5.2. Priority Hazards: Vulnerability Assessment

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table B-4 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the base plan for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the WUI areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the City to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence—Likely
Vulnerability—High

The impact of a drought on the City of Colfax is primarily one of water supply; however, the impact to natural resources in the area is also a concern. In addition, drought conditions contribute to increased wildfire risk. Domestic water for the City of Colfax is provided by the Placer County Water Agency. The source of water for the City of Colfax is the South Fork of the Yuba River and the Bear River. The water is conveyed from Lake Spaulding via the PG&E Drum Canal, into the Agency's Boardman Canal, and then in a pipe to the Colfax Water Treatment Plant. Near the City's ballpark, the Agency has an additional 1.0 million gallon reservoir.

A multiple year drought can severely compromise the water supply within the district and adversely impact natural resources. Most recently, after 2 years of below-average rainfall and very low snow-melt run off, Governor Brown, in 2014, declared a state of emergency for drought conditions statewide. The final California Department of Water Resources showed snowpack water content at only 5 percent of normal. With the unknowns of drought and globally changing climate conditions, the City continues to promote water conservation throughout the community.

Future Development

As the population in the area continues to grow, so will the demand for water. Water shortages in the future may be worsened by drought, as the City relies on surface water for its water source. Increased planning will be needed to account for population growth and increased water demands.

Earthquake

Likelihood of Future Occurrence—Occasional
Vulnerability—Medium

Placer County is traversed by a series of northwest trending-faults that are related to the Sierra Nevada uplift. According to the Safety Element of the General Plan, the City of Colfax is located in a seismically active region, and while the City has no recent experience with earthquake effects, it is reasonable to assume the potential exists for moderate ground shaking to occur one or more times over the next century, especially if an epicenter is located nearby, such as was the case in 1975 in Oroville, which is approximately 40 miles north of Colfax.

The Colfax General Plan Safety Element notes that the State's listing of active faults does not include any showing surface rupture in the City of Colfax, but relatively little fault mapping has been completed in the region. A study for the nearby City of Colfax notes that "potentially active" faults in the area include the Bear Mountain and the Melones Faults, which are in the vicinity of Colfax, and are located about three to four miles to the west and east of Colfax, respectively. Earthquakes on these faults would have the greatest potential for damaging buildings in Colfax, especially the unreinforced masonry structures in the older part of the city.

Additionally, Colfax may experience ground shaking from distant major to great earthquakes on faults to the west and east. For example, to the west, both the San Andreas fault (source of the 8.0 estimated Richter magnitude San Francisco earthquake that damaged Sacramento in 1906) and the closer Hayward fault have the potential for experiencing major to great events. To the east in Nevada, the several faults associated with the series of earthquakes in 1954, especially the major (7.1 Richter magnitude) December 16, 1954 Fairview Peak event (about 100 miles east of Carson City) could cause minor ground shaking in Colfax.

Future Development

The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

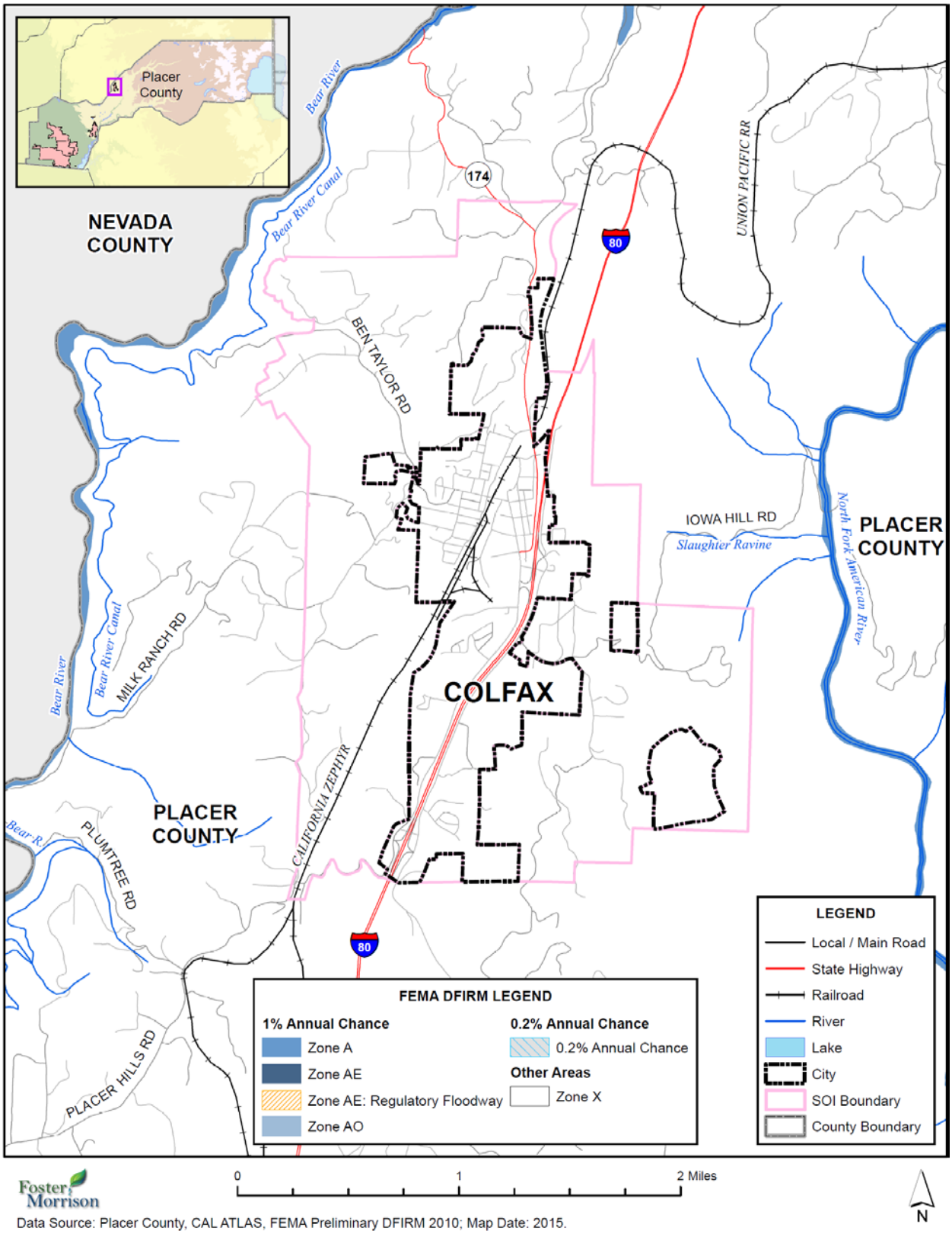
Flood: 100/500 year

Vulnerability to Flood: 100/500 year

Likelihood of Future Occurrence—Unlikely
Vulnerability—Low

Flooding generally is not a significant hazard to the City of Colfax, but limited localized stormwater flooding has occurred occasionally during heavy rainfalls. Figure B-5 shows there are no FEMA floodplains within the City limits. Based on this data, there is no 100- or 500-year flood risk in the City.

Figure B-5 City of Colfax Floodplains



Foster Morrison

Data Source: Placer County, CAL ATLAS, FEMA Preliminary DFIRM 2010; Map Date: 2015.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Colfax. The methodology described in Section 4.3.7 of the base plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. With no FEMA mapped floodplains within the City of Colfax, there are no values at risk to the 1% or 0.2% floods.

Insurance Coverage, Claims Paid, and Repetitive Losses

Because there are no 100- or 500-year floodplains within the City of Colfax, it does not participate in the National Flood Insurance Program (NFIP). The City also does not participate in CRS. NFIP Insurance data indicates that as of September 15, 2014, there are no flood insurance policies in the City and no repetitive loss buildings.

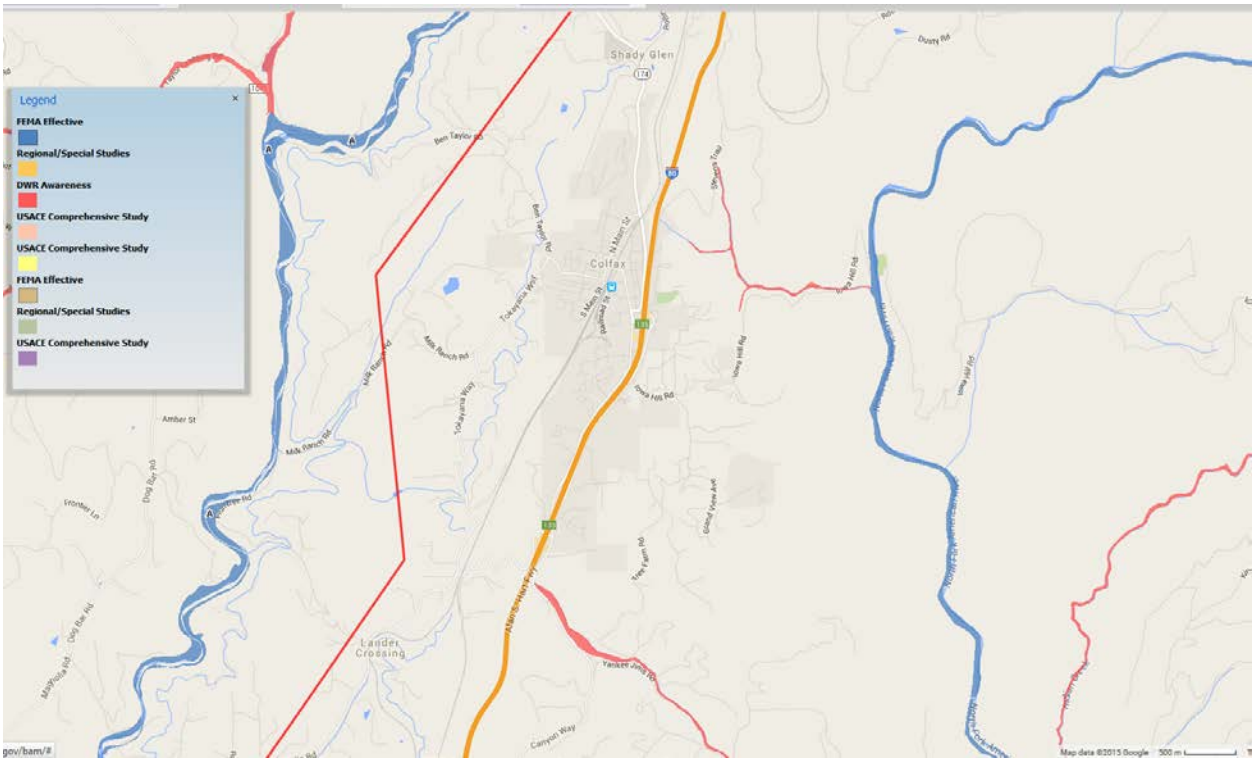
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. The BAM map for Colfax is shown in Figure B-6.

Figure B-6 City of Colfax Best Available Map



Source: California DWR

Future Development

Because there are no 100- or 500-year floodplains within the City of Colfax, all future development will occur outside of FEMA mapped floodplains.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence—Occasional
Vulnerability—Medium

Flooding and other issues caused by severe weather events-primarily heavy rains and thunderstorms-can often pose a risk to the community. Primary concerns include impacts to infrastructure which provides a means of ingress and egress throughout the community. In addition to the high waters, these localized flooding areas also cause problems with pavement deterioration and debris. Because of storm drain improvements completed since 2010, damages from localized flooding have been significantly reduced.

Future Development

Future development in the City will add more impervious surfaces and need to drain those waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. The risk of localized flooding to future development can also be minimized by accurate

recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses.

Landslide and Debris Flows

Likelihood of Future Occurrence—Occasional
Vulnerability—Medium

The Safety Element also identifies other local geologic hazards, which may or may not be associated with earthquake shaking. These include a moderate to very high erosion hazard; the potential for soil liquefaction in or near stream beds or nearby slopes that are highly saturated with water; and landslides due to a variety of slope, vegetation, and development conditions. However, no injuries to people or property damage from landslides have been identified within the City of Colfax.

Future Development

The likelihood of a development occurring in a landslide area is reduced because the City would require mitigation engineering in the design. The costs to mitigate landslide potential would reduce the viability of a proposed project.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence—Likely
Vulnerability—Medium

According to historical hazard data, severe weather is an annual occurrence in the City of Colfax. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rain and thunderstorms are the most frequent type of severe weather occurrence in the area. Wind and lightning often accompany these storms and have caused damage in the past. In addition to localized flooding issues, the storms can cause several mudslides and lightning can cause many electrical poles to short.

Problems associated with the primary effects of severe weather include flooding, pavement deterioration, and debris issues. Areas located on West Church Street as described above are the areas of the City most often affected during these heavy storm events.

Future Development

The City enforces the state building code and other ordinances, which regulate construction techniques that minimize damage from heavy storms and rain. Future development in the City is subject to these building codes. New critical facilities such as communications towers should be built to withstand hail damage, lightning, and heavy rains.

Wildfire

Vulnerability to Wildfire

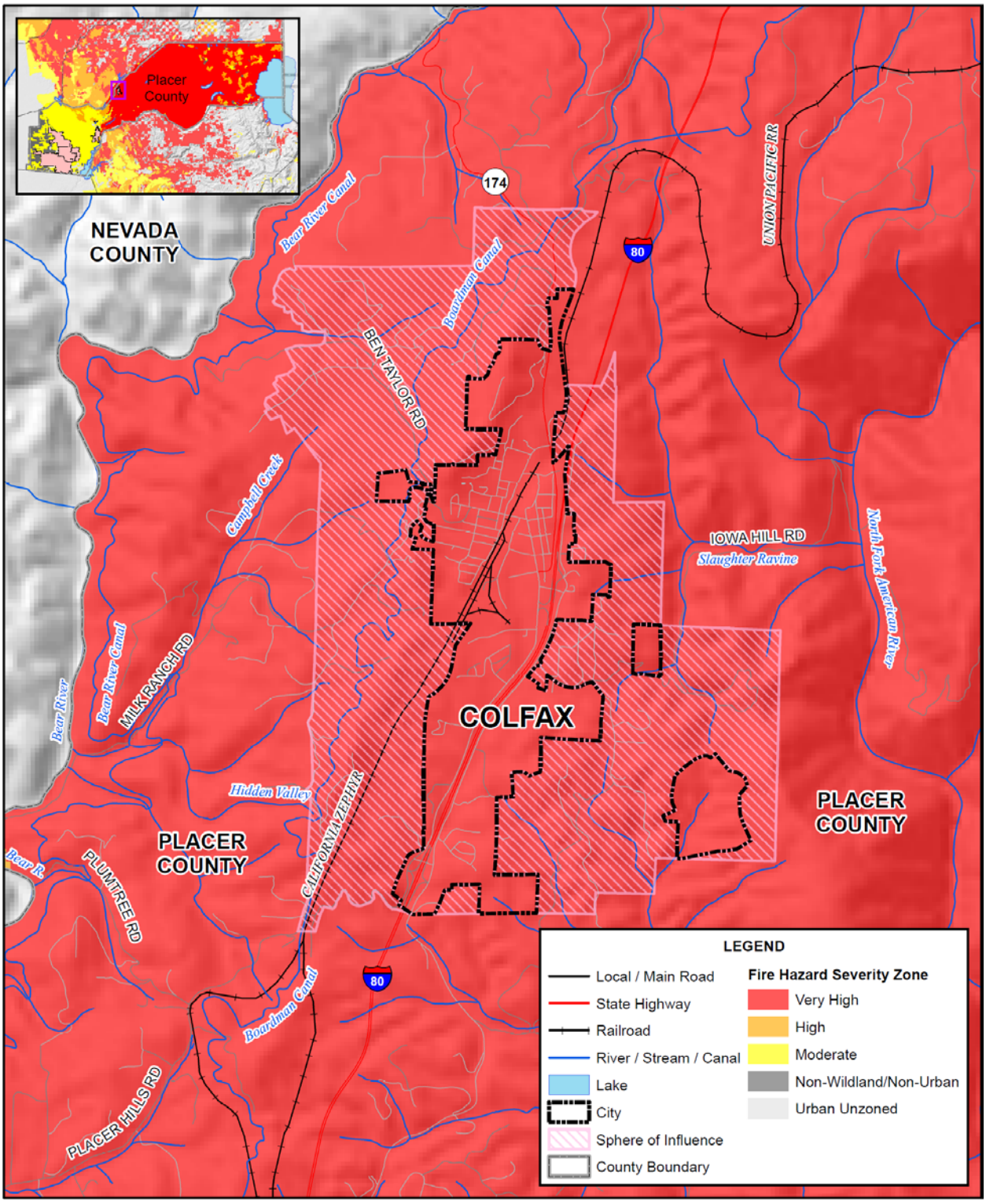
Likelihood of Future Occurrence—Likely
Vulnerability—Extremely High

Wildfire is a constant threat to the City of Colfax. The Safety Element of Colfax's General Plan notes that Colfax and the surrounding area is designated as a "very high hazard area", and wildland and wildland urban interface fires do occur relatively frequently. The 2004 Stevens Fire threatened the city. The Safety Element describes the following three factors that contribute to the wildfire hazard within the city and surrounding areas:

- A climatic pattern with long dry summers, clear skies with maximum solar radiation, high daytime summer temperatures, and extremely low relative humidity.
- Vegetation communities which often have adapted to this seasonal drought by becoming fire tolerant (e.g., chaparral), and have high fuel loading.
- Human settlement patterns which often are interspersed with areas of heavy vegetation/fuel accumulations along canyons, slopes, and foothill areas.

As illustrated in Figure B-7, the entire community of Colfax and surrounding areas are at a very high threat of wildfire.

Figure B-7 City of Colfax Fire Hazard Severity Zones



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Values at Risk

Analysis results for Colfax are shown in Table B-9, which summarizes total parcel counts, improved parcel counts and their structure values by occupancy type as well as the percentage of parcels affected by fire. Based on CAL FIRE data, all of the City of Colfax falls within the Very High Fire Severity Zone.

Table B-9 City of Colfax – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
Very High	Agricultural	0	$0	0	$0	$0	0%
	Commercial	236	$14,522,057	71	$22,372,620	$36,894,677	100%
	Industrial	39	$6,017,055	16	$10,130,484	$16,147,539	100%
	Institutional	12	$676,080	9	$4,324,806	$5,000,886	100%
	Natural/Open Space	0	$0	0	$0	$0	0%
	Residential	610	$30,030,239	599	$69,684,204	$99,714,443	100%
	Total	**897**	**$51,245,431**	**695**	**$106,512,114**	**$157,757,545**	**100%**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
*Land and structure values

Population at Risk

The Fire Severity Zone dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for each jurisdiction and unincorporated area. Results were tabulated by jurisdiction. According to this analysis, there is a total population of 1,426 residents of Colfax residing within the Very High Fire Severity Zone. This is shown in Table B-10.

Table B-10 City of Colfax – Count of Improved Residential Parcels and Population by Fire Severity Zone

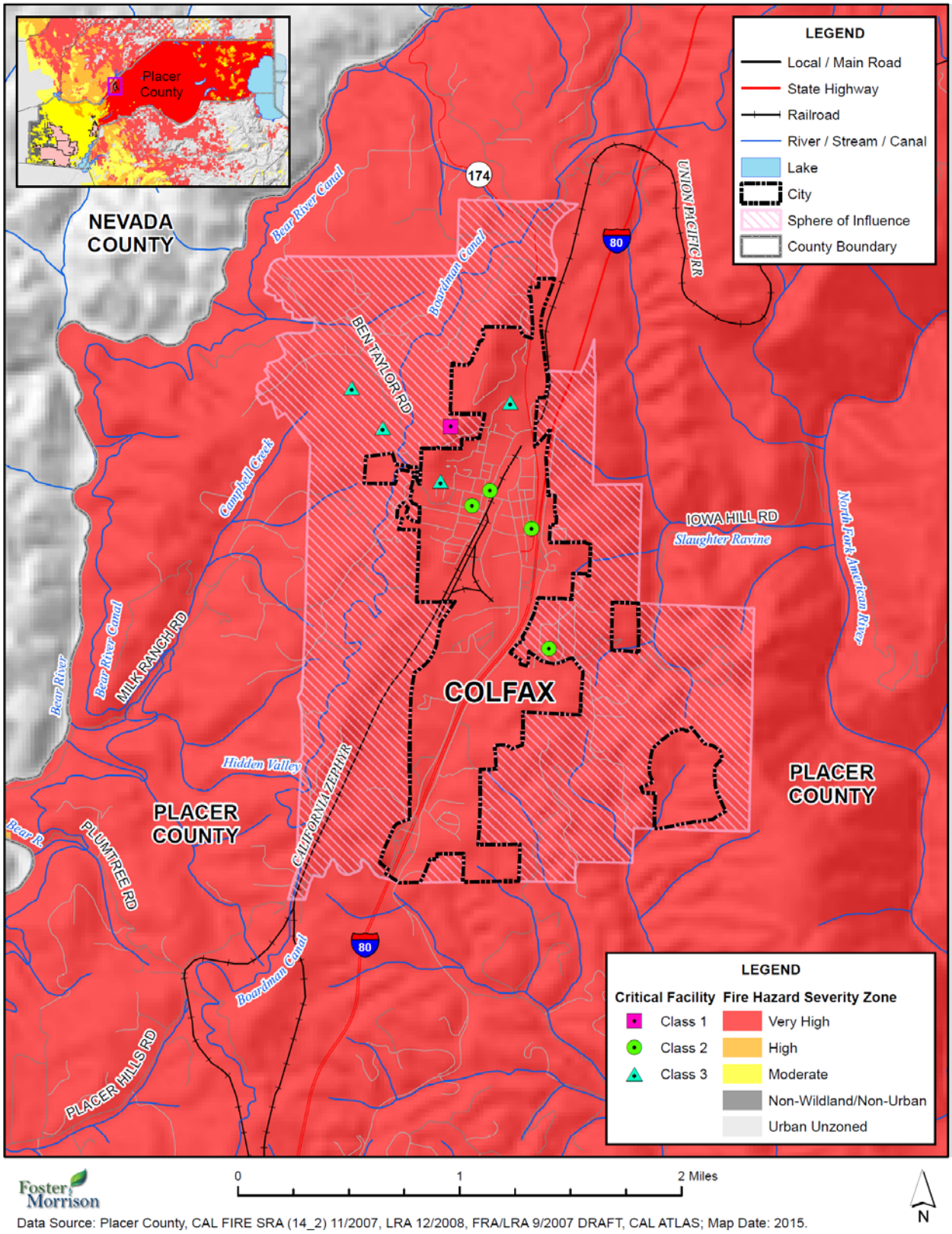
Fire Severity Zone	Improved Residential Parcels	Population*
Very High	599	1,426

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
* Average household populations for Colfax (2.38) from the 2010 US Census were used

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a fire severity zone provided by CAL FIRE, and if so, which zone it intersects. There are five facilities in the moderate or higher fire severity zone in the City. These are shown in Figure B-8 and detailed in Table B-11. Details of critical facility definition, type, name and address and jurisdiction by fire zone are listed in Appendix F.

Figure B-8 City of Colfax – Critical Facilities in the Fire Severity Zones



Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Table B-11 City of Colfax – Critical Facilities in the Fire Severity Zones

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Very High	Class 1	-	-
	Class 2	Fire Station	2
		PCSO	1
	Class 3	Hall	1
		Water Treatment Plant	1
		Total Very High	**5**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Moderate	**0**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Urban Unzoned	**0**
Total			**5**

Source: CAL FIRE, Placer County GIS

Future Development

Since the whole of the City is located in a very high fire severity zone, all future development in the City is at risk to wildfire. However, building codes in force reduce the risk to new construction based on the use of more wildfire resistant construction.

Hazardous Materials Transport

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

The Union Pacific Railroad line passes through the City of Colfax. Hazardous materials are regularly shipped via the rail line and, while unlikely based on past occurrences, an incident involving a rail accident within the City could have devastating effects.

The City has little control over the types of materials that are shipped via the rail line. With regard to government activities, the content of shipments may be confidential for reasons of security and/or is generally unknown to the City. While the City has little influence over the types of material transported via the rail line, the potential for rail incidents can be reduced by ensuring that at-grade crossings within the City are operating in a safe and effective manner.

Interstate 80 passes through the City as well. This is a designated Cal Trans haz-mat routes.

Populations at Risk

To determine the populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table B-12. This table shows total population that are within the proximity of this two-mile buffer of all the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel data. Those parcel centroids that intersect the buffered corridor were counted and multiplied by the 2010 Census Bureau average household factors for the City. According to this analysis, there is a total population of 45,398 in the buffered corridors.

Table B-12 City of Colfax– Jurisdictional Populations at Risk in Haz-Mat Corridors

Jurisdiction	Residential Parcels	Population
Colfax	610	1,452

Source: Cal Trans, Placer County GIS, US Census Bureau
* Average household populations from the 2010 US Census were used: Colfax– 2.38.

Critical Facilities at Risk

To determine the critical facilities at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for the City and is detailed in Table B-13. This table shows critical facilities located within the proximity of this two-mile buffer of all the highway and railroad corridors. Some facilities fall in the highway routes, some in the rail routes, and some fall in both the highway and rail routes. According to this analysis, there are 5 critical facilities in the buffered corridors.

Table B-13 City of Colfax – Critical Facilities at Risk in Haz-Mat Corridors

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Highway Route	**0**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Railroad Route	**0**
Combined Hazardous Materials Highway and Railroad Route	Class 1	-	-
	Class 2	Fire Station	**2**
		PCSO	1
	Class 3	Hall	**1**
		Water Treatment Plan	1
		Total Combined Routes	**5**
Total			**5**

Source: Cal Trans, Placer County GIS

Future Development

Development will continue to occur in hazmat affected areas. It is important that the City make residents who choose to live or develop in hazmat zones about the possibility of being affected by a hazmat spill.

B.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capability assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

B.6.1. Regulatory Mitigation Capabilities

Table B-14 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Colfax.

Table B-14 City of Colfax Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y 1998	Housing Element was updated in 2014. The General plan addresses hazards in the safety element. Mitigation actions are included in many elements. The General Plan is used to implement mitigation actions.
Capital Improvements Plan	Y	
Economic Development Plan	Y	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan/Program	Y	Terrence Lowell and Associates
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	Y	Y, it is a WUI (Wildland Urban Interface) plan, Y
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating:	Y	Rating: 5
Site plan review requirements	Y	Design Guidelines in Zoning Ord
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	Updated in 2012. It is effective and adequately enforced.
Subdivision ordinance	Y	
Floodplain ordinance	N	No 100- or 500-year floodplain in the City.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)		
Flood insurance rate maps	N/A	

Elevation Certificates		
Acquisition of land for open space and public recreation uses		
Erosion or sediment control program	Y	Terrence Lowell and Associates
Other		
How can these capabilities be expanded and improved to reduce risk?		

The City of Colfax General Plan Program, 2020

The City of Colfax General Plan Program serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The current General Plan is considered outdated. It is anticipated that this process will be completed by 2016. The most substantive changes in this document will be the Land Use, Circulation and Natural Resources Elements. Minor changes will be made to bring the document into internal consistency to the Safety, Community Design, and Economic Development Elements. No changes are anticipated to the Noise Element.

The current Safety Element, for the most part, provides accurate and current information and focuses on safety issues to be considered in planning for the present and future development of the Colfax Planning Area. Identified hazards include fire, geologic/seismic, erosion, flooding, and hazardous materials. Mitigation-related goals, policies, and actions are presented below.

Goal 7.9.1:	**To protect the community of Colfax from injury, loss of life, and property damage resulting from natural catastrophes and any hazardous conditions.**
Policy 7.9.1.1:	Require a review of all potential hazards in areas to be developed.
7.9.1.A	Actions: Make information relating to potential hazards on site specific areas in the City available to all City agencies and related City leadership and planners.

Goal 7.9.2:	**To effectively minimize risks associated with seismic hazards by regulating the design and siting of new development in the City of Colfax.**
Policy 7.9.2.1	Avoid placement of critical structures, public facilities, and high-occupancy structures in areas prone to ground failure during an earthquake.
Policy 7.9.2.2	Establish acceptable seismic safety standards so that all new buildings shall be constructed to resist the stresses and ground shaking produced during earthquakes.
Policy 7.9.2.3	Require a review of all potential geological hazards, including seismic hazards, for all developments in identified hazardous areas.
7.9.2.A	Action: Record information on potential geologic and seismic hazards with parcel or subdivision maps.

7.9.2.B	Action: Review Building Code requirements to determine the adequacy of standards necessary to protect against all seismic hazards and to assure that the Code is current with the latest technological advances.
7.9.2.C	Action: Develop programs in cooperation with other public agencies to increase public awareness of seismic hazards and to assure that the Code is current with the latest technological advances.

Geological Hazards

Goal 7.9.3	**New development proposed within areas of potential geological hazards shall not be endangered by, nor contribute to, the hazardous conditions on the site or an adjoining properties.**
Policy 7.9.3.1:	Adequate mitigation shall be required on sites with landslide potential, or erodible soils to protect against injury and property damage and to assure a level of development which will not accelerate runoff or degrade water quality.
Policy 7.9.3.2	Replanting of vegetation following development shall be required on all slopes prone to erosion and/or instability. Drought resistant plant types shall be used for landscaping on post development slopes where excess water might induce land slippage or soil erosion.
Policy 7.9.3.3	Encourage clustering of development away from areas considered geologically unstable.
7.9.3.A	Actions: Adopt and enforce a comprehensive Grading and Erosion Control Ordinance, requiring control of existing erosion problems, as well as the installation of erosion, sediment, and runoff control measures in new developments.
7.9.3.B	Actions: Adopt regulations relative to zoning and subdivision ordinances which regulate land alterations, road construction or structural development on slopes of 15 percent or greater.

Wastewater Treatment

Goal 7.9.4	**To insure the adequate wastewater collection, treatment and safe disposal.**
Policy 7.9.41	The City shall limit development if the limits of the Wastewater Treatment Plan (WWTP) are reached.
Policy 7.9.4.2	The City shall promote efficient water use and reduced wastewater system demand by:
A.	Require water-conserving design and equipment in new construction;
B.	Encouraging retrofitting with water-conserving devices;
C.	Design waste water systems to minimize inflow and infiltration to the extent economically feasible.
Policy 7.9.4.3	The City shall encourage pre-treatment of commercial and industrial wastes prior to their entering community collection and treatment systems.
7.9.4.4	The city shall permit on-site sewage treatment and disposal on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.
7.9.4.A	Actions: The City shall proceed with the design, financing and construction of capital improvements of the current wastewater treatment system to meet future growth and development demands.
7.9.4.B	Actions: City staff shall monitor and report quarterly to the City Council on the current inflow levels of the WWTP.

7.9.4.C	Actions: The city shall continue to evaluate and collect development fees to cover the maintenance and improvements required in the wastewater system.

Fire Hazard Safety

Goal 7.9.5	To protect the public from wildland and urban fire hazards and reduce the risks of wildfires and structural conflagrations by mitigating or minimizing use and development in high fire hazard areas, and by maximizing fire prevention measures and citizen awareness of fire hazards.
Policy 7.9.5.1	All new development shall be constructed, at a minimum, to the fire safety standards contained in the California Fire and Building Codes.
Policy 7.9.5.2	Require all new developments, including single family dwellings on existing parcels of record, to provide adequate access for fire protection.
Policy 7.9.5.3	Amend City Ordinances to include specific road standards developed in conjunction with Colfax Fire Department.
7.9.5.A	Action: Enforce the existing City Ordinance regarding weed abatement on lots and larger properties within city-limits.
7.9.5.B	Action: Adopt an ordinance for the provision of fire-resistant materials and landscaping, and the use of early warning systems such as sprinklers with alarms for all new developments.
7.9.5.C	Action: To the maximum extent feasible conduct-periodic inspections of vacant properties to ensure that dry weeds and other combustible fuels are not permitted to accumulate.

City of Colfax Emergency Operations Plan

The City of Colfax Emergency Operations Plan (EOP) Plan addresses the planned response for the City to emergencies associated with disasters, technological incidents, or other dangerous conditions created by either man or nature. It provides an overview of operational concepts, identifies components of the City emergency management organization, and describes the overall responsibilities of local, state, and federal entities.

B.6.2. Administrative/Technical Mitigation Capabilities

Table B-15 identifies the personnel responsible for activities related to mitigation and loss prevention in Colfax.

Table B-15 City of Colfax's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	City Council sits as PC when needed
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	Storm draining clearing, tree trimming for defensible space (fire danger)

Mutual aid agreements	Y	Cal Fire and other fire agencies
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y, P/T	Y, Y, Y
Floodplain Administrator	N	
Emergency Manager	Y	Community Services Director
Community Planner	Y P/T	
Civil Engineer	Y	
GIS Coordinator	Y	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	City is part of the Everbridge program through Placer Sheriff Dept. and Placer Alert (cell phone register to receive alerts)
Hazard data and information		
Grant writing	Y	
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Colfax

B.6.3. Fiscal Mitigation Capabilities

Table B-16 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table B-16 City of Colfax's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Storm water utility fee	Y	
Incur debt through general obligation bonds and/or special tax bonds	Y	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Incur debt through private activities	Y	
Community Development Block Grant	Y	
Other federal funding programs		
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Colfax

B.6.4. Mitigation Education, Outreach, and Partnerships

Table B-17 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table B-17 City of Colfax's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	ALTA CERT (through Alta Fire dept), Red Cross
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	Y	CSOs thru Placer County Sheriff
StormReady certification		
Firewise Communities certification		
Public-private partnership initiatives addressing disaster-related issues	Y	Haz Mat transport training with UPRR and residents
Other		
How can these capabilities be expanded and improved to reduce risk?		

The City contracts with the Placer County Sherriff's Department to provide police services. The 24 hour per day service includes patrol, detectives, evidence, juvenile services, dispatch center, traffic enforcement and traffic accident investigation. Other specialized units that are available upon need include: S.W.A.T,

Dive/Rescue Team, Explosive Ordinance Detail, K-9/Narcotic Detection, Air Operations, Bike Patrol, Mounted Patrol, Reserve Details, D.U.I., and Targeted Enforcement and Search and Rescue Operations.

The City contracts with the California Department of Forestry to provide fire safety services. The 24 hour per day service includes a paid part-time Fire Chief, fire marshal services, dispatch and staffing. The Department maintains active volunteer program with 17 members. The City maintains two volunteer staffed fire stations.

The City also utilizes the new county-wide Wide Area Rapid Notification (WARN) system. WARN is a regional system that can be used by all Placer County law agencies as well as fire departments, the Office of Education and the Office of Emergency Services. WARN utilizes a list of telephone numbers and addresses from the phone company. Officials can pinpoint a geographic area, then type in a message that a computer automated voice will read to residents. The system is used for a variety of purposes including missing persons, fire evacuations, snow days and more.

B.6.5. Other Mitigation Efforts

The City of Colfax has many other ongoing mitigation efforts that include the following:

- The City has increased enforcement of its weed abatement ordinance since 2002.
- The Colfax Lions Club is ensuring that all homes within the city have adequate address signs.
- The Wastewater Treatment Plant has been upgraded, which will lessen the potential of a contamination event. Ongoing improvements to the Colfax Water Treatment Plant will improve water quality and serve an additional 231 more housing units.

B.7 Mitigation Strategy

This section describes the mitigation strategy process and mitigation action plan for the City of Colfax's inclusion with the Placer County Local Hazard Mitigation Plan update.

B.7.1. Mitigation Goals and Objectives

The City of Colfax adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

B.7.2. NFIP Mitigation Strategy

The City of Colfax does not have any FEMA floodplains and thus does not participate in the NFIP nor the CRS.

B.7.3. Mitigation Actions

The planning team for the City of Colfax identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. General processes and information on plan implementation and maintenance

of this LHMP by all participating jurisdictions is included in Section 7, Plan Implementation and Maintenance, of the base plan.

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: City of Colfax Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 1. Continue Annual Weed Abatement Ordinance

Hazards Addressed: Wildland fire hazards within the City Limits

Issue/Background: The City of Colfax is classified as a "Very High Fire Hazard Severity Zone" Local Responsibility Area (LRA) by CDF in compliance with the Bates Bill (California Government Code sections 51175-51188). The city is surrounded by State Responsibility Area (SRA) rated as high fire hazard. Wildfire is a constant threat to the city. There are several vacant parcels, and some developed properties, which have excessive growth of grass and other potential ladder fuels each year. If left untreated these fuels increase the fire hazard within the city limits. Further, one large parcel near the Interstate 80 exit is used by CDF as a staging area during fire season and this lot needs to be available for use. Note that the City is in the process of revising its grading ordinance to further delineate what is vegetation removal and what is grading. The intent is to facilitate vegetation removal without a lengthy permit process.

Other Alternatives: Continue to rely on property owners to take action without prompting, which has not worked historically

Existing Planning Mechanism(s) through which Action Will Be Implemented:

- General Plan, 1998 The Safety Element recognizes that Colfax and the surrounding area are designated as a "very high hazard area" with regard to wildland and urban-wildland fires. Flooding is not recognized as a hazard to the City as no portions are located within the 100-year floodplain. The Safety Element notes that the State's listing of active faults does not include any showing surface rupture in the City of Colfax, but relatively little fault mapping has been completed in the region.
- The City upgraded its building code to the 1997 Universal Building Code in 2003.
- In 2004, the City updated its Hillside Development Guidelines to address wildfire issues, particularly vegetation management and restrictions when building on slopes.
- The City has increased enforcement of its weed abatement ordinance in 2002.
- The Colfax Lions Club is ensuring that all homes within the city have adequate address signs.

Responsible Office/Partners: City Manager; Placer Sierra Fire Safe Council

Project Priority: Very High

Cost Estimate: Inspect all parcels in the City to determine which ones need treatment—$4,000. To reduce costs, some of this could be done by the Volunteer Fire Department. Re-inspect— $2,000. To reduce costs, some of this could be done by the Volunteer Fire Department. For those parcels which do not comply, the City must perform the work at $500 to $1,000 per parcel. Technically, this cost is recovered by tax liens on the property but in reality the City has to carry the cost for some time, and the likelihood of recovery is low.

Benefits (Losses Avoided): The direct benefit would be to the 2000 residents of Colfax City and their business community. Plus Colfax High School enrolls 1000 students plus faculty and the Colfax Elementary School enrolls 380 students plus faculty. The City is also home to the largest publisher of medical forms in Northern California. Protecting the residents, students, businesses, and workforce in this community from wildfire is the greatest benefit from this project.

Potential Funding: Grants, City General Fund

Timeline: Annually in the Spring before fire season is declared, assuming funding is available.

Action 2. Colfax Schools Evacuation Site Shaded Fuel Break

Hazards Addressed: The mitigation goals of this project are to put a 200' wide Shade Fuel Break on the ridge line to the west of the Colfax High and Elementary Schools to help protect this area from a wildfire approaching from the surrounding unincorporated areas.

Wildfire is the largest hazard this community faces. If a wildfire rages through this community unchecked the ability for Colfax City and area's within its sphere of influence to rebuild and survive are slim. It's not only an issue of if but when this community and its population will be threatened by wildfire. Wildfire has knocked at the door 3 times in the past 7 years. As the brush continues to grow the likelihood of a wildfire succeeding in opening that door continues to grow. This project will at least start the process to giving this community and its population a fighting chance.

Issue/Background: The City of Colfax encompasses 1.3 square miles. Wildfire is a constant threat. The Safety Element of Colfax's General Plan notes that Colfax and the surrounding area are designated as a "very high fire hazard area", and wildland and urban-wildland interface fires do occur relatively frequent, with a significant interface fire (the "Narrow Gauge Fire") burning close to the edge of town in 2001. The 2001 Ponderosa Fire and the 2004 Stevens Fire also threatened the city.

The Colfax Elementary School and Colfax High School are located in a feasible location for an evacuation site but a Shade Fuel Break needs to be in place in the event of a wildfire coming out of the Bear River drainage to the West of their location.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented:

- General Plan, 1998 The Safety Element recognizes that Colfax and the surrounding area are designated as a "very high hazard area" with regard to wildland and urban-wildland fires.
- The City upgraded its building code to the 1997 Universal Building Code in 2003.
- In 2004, the City updated its Hillside Development Guidelines to address wildfire issues, particularly vegetation management and restrictions when building on slopes.
- The City has increased enforcement of its weed abatement ordinance in 2002. •
- The Colfax Lions Club is ensuring that all homes within the city have adequate address signs.

Responsible Office/Partners: City of Colfax and Placer County

Project Priority: Very High

Cost Estimate: $400,000

Benefits (Losses Avoided): The following sections show the value of property and key inventories at risk within the City of Colfax. Utilizing Placer County assessor data, the following information was obtained for the City of Colfax.

Property Type	# of units	Value
Residential	701 Units	$90,073,829
Commercial	119 Units	$24,574,567
Industrial	26 Units	$16,714,795
Total	850 Units	$131,363,191

2004 Certified Roll Values Property Type Units Net Value

Potential Funding: Grants

Timeline: Complete assessment and plan, and identify sources of funding, by no later than the next update of this plan, due in 2020

Action 3. Evaluate the Need and Feasibility of Improving Fire Prevention for the Historic Business District

Hazards Addressed: Potential Structural Fires within the business district of Colfax City

Issue/Background: Much of the historic downtown of Colfax was built over a century ago. While most of the individual buildings do not qualify for classification as historic, due to past interior remodeling, etc., the aggregate of the Historic District is essential to the character and even the survival of the City. These buildings do not have interior sprinklers or even smoke alarms or emergency lighting. Some buildings share attic space, which could easily spread a fire from one business to another, as happened in historic Nevada City, CA a couple of years ago. This project will evaluate the historic downtown business buildings to see what fire prevention measures are advisable, what are feasible to accomplish, and identify sources of funding

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented:

- General Plan, 1998 The Safety Element recognizes that Colfax and the surrounding area are designated as a "very high hazard area" with regard to wildland and urban-wildland fires. Flooding is not recognized as a hazard to the City as no portions are located within the 100-year floodplain. The Safety Element notes that the State's listing of active faults does not include any showing surface rupture in the City of Colfax, but relatively little fault mapping has been completed in the region.
- The City upgraded its building code to the 1997 Universal Building Code in 2003.
- In 2004, the City updated its Hillside Development Guidelines to address wildfire issues, particularly vegetation management and restrictions when building on slopes.
- The City has increased enforcement of its weed abatement ordinance in 2002.
- The Colfax Lions Club is ensuring that all homes within the city have adequate address signs.

Responsible Office/Partners: City Manager

Project Priority: Very High

Cost Estimate: TBD

Benefits (Losses Avoided): While the Assessor Roll book puts a value of $24.6 million of all 119 businesses in Colfax (which includes businesses outside of the Historic District), the buildings in the Historic Downtown are actually irreplaceable. If any of these buildings is lost to fire, the character of the Historic District would be lessened or even lost. This would negatively impact the ability of the City to survive since the Historic District is one of its major attractions for tourists and visitors and their dollars.

Potential Funding: Grants

Timeline: Complete assessment and plan, and identify sources of funding, by no later than the next update of this plan, due in 2020.

Annex C City of Lincoln

C.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Lincoln, a participating jurisdiction to the Placer County LHMP Update. This annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the City. This annex provides additional information specific to the City of Lincoln, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

C.2 Planning Process

As described above, the City of Lincoln followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the City formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table C-1. Additional details on plan participation and City representatives are included in Appendix A.

Table C-1 City of Lincoln Planning Team

Name	Position/Title	How Participated
Mike Davis	Fire Department	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
Rex Marks	Police Department	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
Steve Ambrose	Finance	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
Ray Leftwich	Engineering	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
Matt Wheeler	Community Development	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the City integrated the previously-approved 2010 Plan into

existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table C-2.

Table C-2 2010 LHMP Incorporation

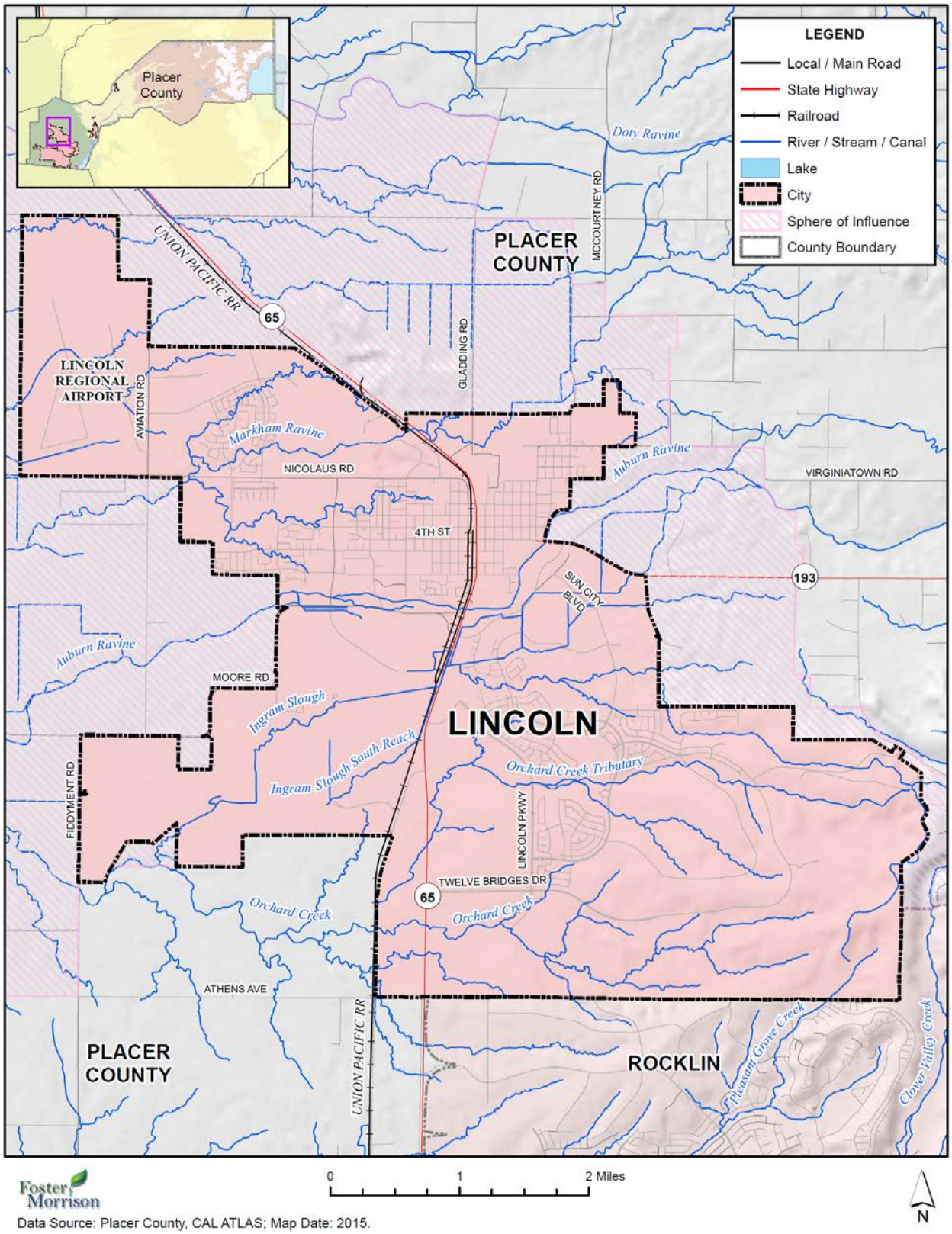
Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
City of Lincoln	The previous LHMP was adopted by City Council, but the City did not incorporate the plan into other documents. There were several reasons why this did not occur and included, financial constraints of the City resulting in very limited planning activities over the last five years and lack of consistent and available staff responsible for plan implementation.
City of Lincoln	Although not specifically part of City activities, implementation of regional planning efforts and associated projects, such as through the County CWPP and flood planning efforts and projects since 2010 provide a direct benefit to the City of Lincoln.
City of Lincoln	The LHMP is considered a supporting document to the General Plan that will be incorporated into the Safety Element during the next General Plan update.

The City did not incorporate the 2010 LHMP through other plans and programs as no major planning efforts have occurred in the City in that timeframe.

C.3 Community Profile

Figure C-1 displays a map and the location of the City of Lincoln within Placer County.

Figure C-1 City of Lincoln Basemap



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

C.3.1. Geography and Climate

The City of Lincoln is located in the Sacramento Valley, 25 miles northeast of the City of Sacramento. Lincoln is one of six cities in Placer County and is located on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills. The City is traversed by a number of waterways, including Markham Ravine, Auburn Ravine, Ingram Slough, Orchard and Rock Creek, Coon Creek and Doty Ravine are to the north within the proposed Sphere of Influence. The City of Lincoln is located just east of State Route 65 (SR 65), which connects to Interstate 80 (I-80) approximately ten miles east of the City and south of SR 193. Lincoln encompasses 19.3 square miles and is at a general elevation of 164 feet above sea level.

Average temperatures range from the high 80°F to high 90°F during the summer to the mid 30°F to high 50°F during the winter. Lincoln receives an average of 22.3 inches of rain and 0.2 inches of snow annually.

C.3.2. History

The City of Lincoln was named after Charles Lincoln Wilson, a real estate magnate who is largely credited with bringing the railroad to the area in 1861. The City was incorporated in 1890. Lincoln is the home of one of the County's oldest businesses, the Gladding McBean terra cotta clay manufacturing plant, which was established in 1875 when rich clay deposits of the Ione Formation were discovered nearby.

C.3.3. Economy

US Census estimates show economic characteristics for the City of Lincoln. These are shown in Table C-3.

Table C-3 City of Lincoln Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	56	0.3%
Construction	1,144	7.1%
Manufacturing	1,023	6.3%
Wholesale trade	550	3.4%
Retail trade	2,373	14.7%
Transportation and warehousing, and utilities	723	4.5%
Information	466	2.9%
Finance and insurance, and real estate and rental and leasing	1,325	8.2%
Professional, scientific, and management, and administrative and waste management services	1,868	11.6%
Educational services, and health care and social assistance	3,219	20.0%
Arts, entertainment, and recreation, and accommodation and food services	1,274	7.9%
Other services, except public administration	662	4.1%
Public administration	1,429	8.9%

Source: US Census Bureau American Community Survey 2009-2013 Estimates

C.3.4. Population

The California Department of Finance estimated the January 1, 2014 total population for the City of Lincoln was 45,206.

C.4 Hazard Identification and Summary

Lincoln's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Lincoln (see Table C-4). In the context of the plan's planning area, there are no hazards that are unique to Lincoln.

Table C-4 City of Lincoln Hazard Identification Lincoln

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Limited	High
Earthquake	Extensive	Occasional	Limited	Medium
Flood: 100/500 year	Limited	Occasional	Negligible	Medium
Flood: Localized Stormwater Flooding	Limited	Highly Likely	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Likely	Critical	Medium
Severe Weather: Freeze and Snow	Extensive	Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Likely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Negligible	Low
Soil Bank Erosion	Limited	Occasional	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Volcano	Extensive	Unlikely	Catastrophic	Low
Wildfire	Significant	Highly Likely	Limited	Medium
Hazardous Materials Transport	Significant	Likely	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

C.5 Vulnerability Assessment

The intent of this section is to assess Lincoln's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

C.5.1. Assets at Risk

This section identifies Lincoln's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, and growth and development trends.

Values at Risk

The following data from the Placer County Assessor's Office is based on the 2015 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the base plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table C-5 shows the 2015 Assessor's values (e.g., the values at risk) broken down by property type for the City of Lincoln.

Table C-5 City of Lincoln – Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	4	$1,946,450	0	$0	$1,946,450
Commercial	1513	$395,275,204	457	$523,142,972	$918,418,176
Industrial	240	$58,893,048	153	$125,689,906	$184,582,954
Institutional	67	$17,218,965	22	$72,982,008	$90,200,973
Natural/Open	102	$2,993,739	6	$3,123,464	$6,117,203
Residential	18024	$1,621,943,518	17373	$4,323,097,708	$5,945,041,226
Total	**19,950**	**$2,098,270,924**	**18011**	**$5,048,036,058**	**$7,146,306,982**

Source: Placer County 2015 Parcel/Assessor's Data

Critical Facilities and Infrastructure

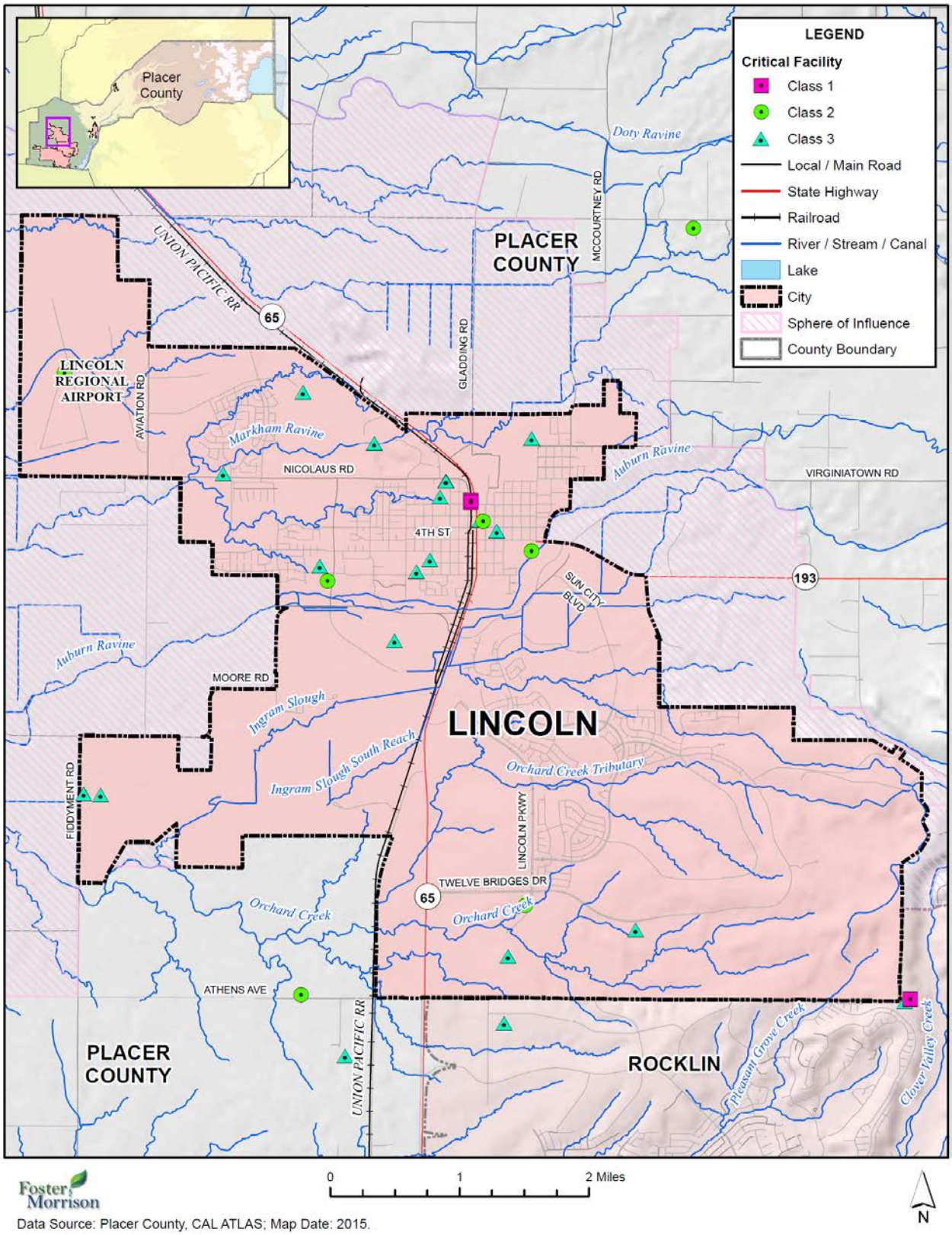
For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

This definition was refined by separating out three classes of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the City of Lincoln from Placer County GIS is shown on Figure C-2 and detailed in Table C-6. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure C-2 City of Lincoln – Critical Facilities



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

Table C-6 City of Lincoln – Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
Class 1	Dispatch Center	1
	Emergency Operation Center	1
Class 2	Airport	1
	Fire Station	3
	Police Station	1
Class 3	Hall	2
	Hazardous Materials Facility	1
	School	12
	Water Treatment Plant	1
Total City of Lincoln		**23**

Source: Placer County GIS

Natural Resources

The City of Lincoln has a variety of natural resources of value to the community as identified in the Background Report to the General Plan, 2006:

- Two sensitive biological resources: Northern Hardpan Vernal Pools occurring in the western portion of the City and Foothill Riparian Woodland found along several of the larger watercourses (e.g., Auburn Ravine and Markham Ravine);
- Five special status plant species known to occur: the California Linderiella, Dwarf Downingia, Ahart's Dwarf Rush, Big-Scale Balsamroot, and Bogg's Lake Hedge-hyssop;
- One special status animal species known to occur: the Vernal Pool Fairy Shrimp;
- Twenty-four special status plant species with the potential to occur; and
- Fifty-five special status animal species with the potential to occur.

Historic and Cultural Resources

The City of Lincoln has two registered federal historic sites:

- Lincoln Public Library – 590 Fifth Street
- Women's Club of Lincoln – 499 E Street

Growth and Development Trends

Lincoln's population grew 282 percent from 11,205 in 2000 to 42,819 in 2010, making it the fastest growing place in the United States for that time period. While growth slowed from 2010 to 2014, the City is expected to see significant growth in the future.

Development since Last Plan

Significant development has occurred within the City since the last LHMP (2010). While the number of occupancies and dwelling units has increased, the vulnerability of the jurisdiction has largely decreased

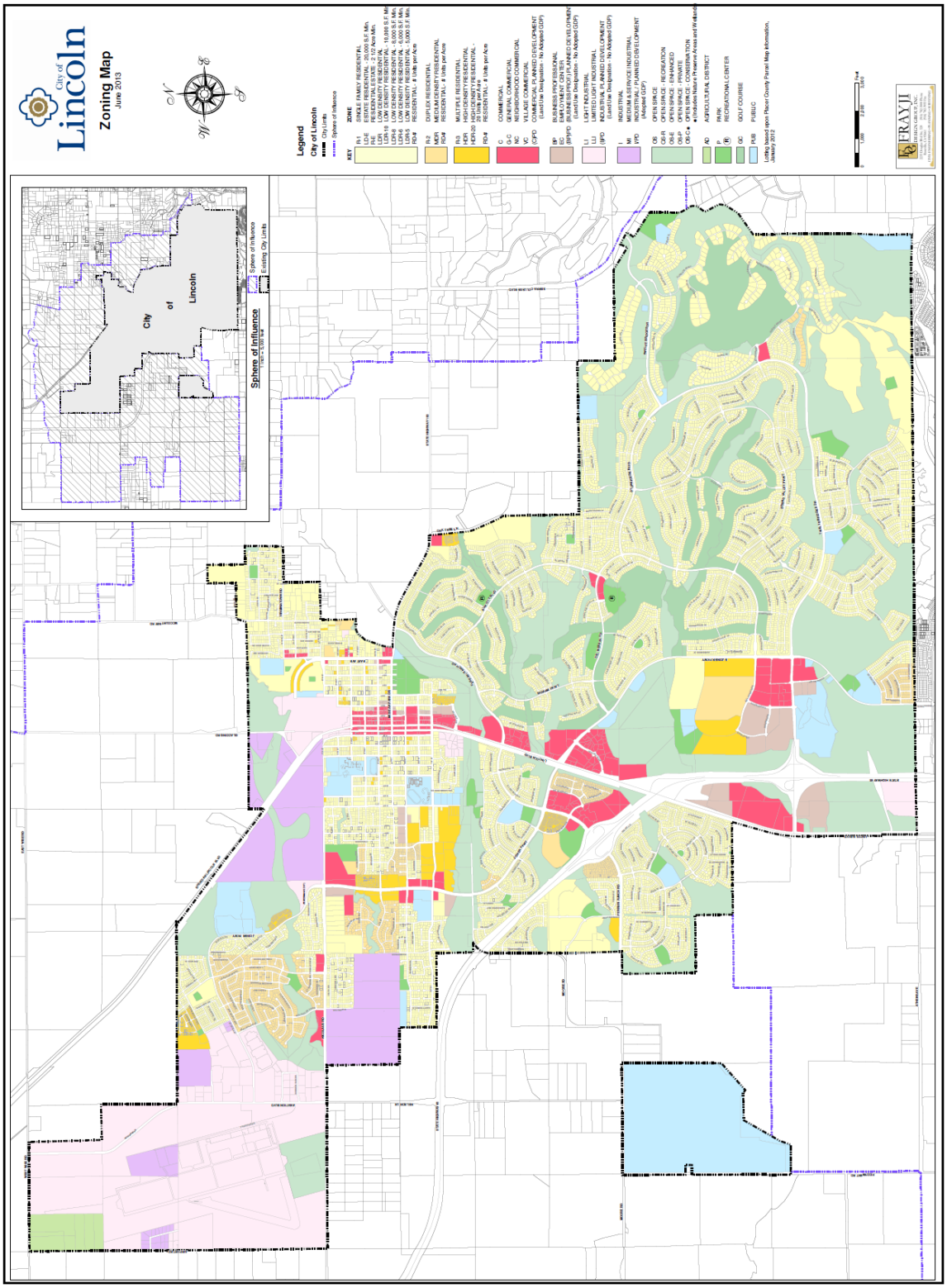
with mitigating measures implemented in association with development. No development is allowed in identified flood prone areas without proper mitigation; and no development is allowed in fire Hazard Zones without proper fire mitigation. With continued population growth anticipated, the City will need to continue to effectively manage future development in hazard-prone areas.

Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Lincoln and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 50,915 and 55,832 respectively.

Development in the City is expected to continue. The City provided the zoning map, shown in Figure C-3, and made not that development is occurring in Village 1, 5, and 7.

Figure C-3 City of Lincoln – Zoning and Future Development Map



Source: City of Lincoln

C.5.2. Priority Hazards: Vulnerability Assessment

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table C-4 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the base plan for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain or within dam inundation areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the City to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence—Likely
Vulnerability—High

The impact of a drought on the City of Lincoln is primarily one of water supply; however, the impact to natural resources in the area is also a concern. A multiple year drought can severely compromise the water supply within the City and adversely impact natural resources. Most recently, after 2 years of below-average rainfall and very low snow-melt run off, Governor Schwarzenegger, in June of 2008, declared a state of emergency for drought conditions statewide. The final California Department of Water Resources showed snowpack water content at only 67 percent of normal. With the unknowns of drought and globally changing climate conditions, the City continues to promote water conservation throughout the community.

Future Development

As the population in the area continues to grow, so will the demand for water. Water shortages in the future may be worsened by drought, as the City relies on surface water for its water source. Increased planning will be needed to account for population growth and increased water demands. The City does also have access to wells as a backup water supply.

Earthquake

Likelihood of Future Occurrence—Unlikely
Vulnerability—Medium

Placer County is traversed by a series of northwest trending-faults that are related to the Sierra Nevada uplift. As previously discussed in Section 4.2.10 of the main plan, several active faults are located within the vicinity of Placer County and the City of Lincoln. The Cleveland Hills Fault is the closest active fault to the City, located over 40 miles north. The nearest mapped fault trace to the City is the Willow Fault. The northwest-southeast trending pre-Quaternary Willows fault zone, is located approximately 15 miles southwest of Lincoln; however, it is considered inactive for planning purposes.

According to the Safety Element, throughout recorded history, no major earthquakes have been recorded within the City. It further states that earthquakes on various active and potentially active San Francisco Bay Area fault systems could produce a wide range of groundshaking intensities within the vicinity of the City. However, the impacts to the City resulting from such an event would likely be less severe than those experienced closer to the source.

The greatest ground shaking in the immediate area occurred on April 21, 1892. The epicenter was between Winters and Vacaville in Yolo County. No fatalities occurred in the City and only minor structural damages resulted from the earthquake.

Future Development

The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

Flood: 100/500 year

Likelihood of Future Occurrence—Occasional
Vulnerability—Medium

Lincoln is traversed by several stream systems that collect and convey storm runoff to the west towards the Cross Canal collection system, ultimately discharging into the Sacramento River near its confluence with the Feather River in Sutter County. The primary stream systems in the City include: Auburn Ravine (including Orchard Creek and Ingram Slough tributaries); Markham Ravine (including Clay Creek and Markham Ravine South, and Markham Ravine Central tributaries); and Coon Creek.

The City of Lincoln is at risk to both the 100-year flood as well as to localized stormwater flooding.

According to the Safety Element of Lincoln's General Plan, rainy season floods most commonly occur from November through April. Periods of prolonged, heavy rainfall create large runoff volumes and high peak stream flows. Flooding is more severe when previous rainfall has saturated the ground surface and subsurface. This is due to clay nature of the soils as well as the prevalence of an impermeable subsurface throughout most of the Lincoln area, which can result in some areas of standing water and localized flooding. Other localized flooding hazards are caused by obstacles to natural drainage flows, such as the

railroad and highway bridges along SR 65 at the Auburn Ravine. During periods of high runoff, these structures tend to act as barriers, causing water to back up east of the highway into natural depressions and south between the railroad tracks and SR 65.

Cloudburst storms, sometimes lasting as long as three hours, can occur any time from the late fall to early spring, and may occur as an extremely severe sequence within a general winter rainstorm. These are high intensity storms that can produce peak flows equal or somewhat greater that those of general rainstorms in parts of the City. Flooding from cloudburst is characterized by high peak flow, short duration of flood flow, and a small volume of runoff.

A general lack of curbs and gutters in parts of the City and locally inadequate or incomplete storm drains results in standing water that is both a nuisance and a potential hazard. Areas with the most significant flood hazards are the natural drainage channels of Auburn and Markham Ravines and their tributaries and localized areas due to inadequate surface flow. Recent flood history taken from the City of Lincoln General Plan Background Report includes:

Auburn Ravine: The City has recorded several flooding events in the recent past involving structures along the Auburn Ravine corridor and its tributaries in the City of Lincoln. In 1986, 1995, and 1997, the Auburn Ravine bridge structures at State Route 65 and State Route 193 were overtopped. The existing bridge at the Joiner Parkway crossing of Auburn Ravine did not flood in these events and would not be expected to flood in an event less than the 500-year. Downstream from the City of Lincoln, flooding was also noted at the Moore Road and Nelson Lane crossings. Several smaller private crossings overtop frequently. Along the south bank of Auburn Ravine, west of State Route 65, Moore Road parallels the creek and is known to flood often. This road was abandoned with the South Lincoln Master Drainage Plan (SLMP) improvements east of Joiner Parkway, and culvert improvements were made west of Joiner Parkway to improve conveyance capacity. Flooding of the roadway is still expected west of Joiner Parkway as a result of flood stages in Auburn Ravine greater than the 10-year event.

More recently, the New Year's Eve event of 2005/2006 did not result in overtopping of any of the main bridge structures along the ravine (SR 193, SR 65, and Joiner Parkway). Moore Road along the south bank was flooded both east and west of Joiner Parkway. The Moore Road and Nelson Lane crossings were reported as overtopped. The storm was estimated to be a 10-year event for Auburn Ravine and a lesser event in the tributaries.

In Orchard Creek, flooding of Fiddyment Road is expected in greater than the 5-year event. Flooding of private drives and agricultural fields is also noted in the SLMP floodplain analysis. Flooding at the Fiddyment Road crossing was not reported in the New Year's Eve 2005/2006 event.

At Ingram Slough, significant flooding of the field areas on each side of the slough was noted prior to the construction of the SLMP improvements. Also, reports from local residents indicated that in 1986 and 1995, flows from Auburn Ravine overtopped the southern bank and flowed via overland release into Ingram Slough. The SLMP designed for this issue included constructing a control weir at the south bank of Auburn Ravine, upstream of State Route 65, and an interconnection channel to convey the spillway flows safely to Ingram Slough. Downstream improvements in the SLMP increase conveyance capacity to accommodate

the combined flows from Ingram Slough and the Auburn Ravine spills. Flooding has not been experienced in the Slough since the construction of the SLMP improvements began in 1988.

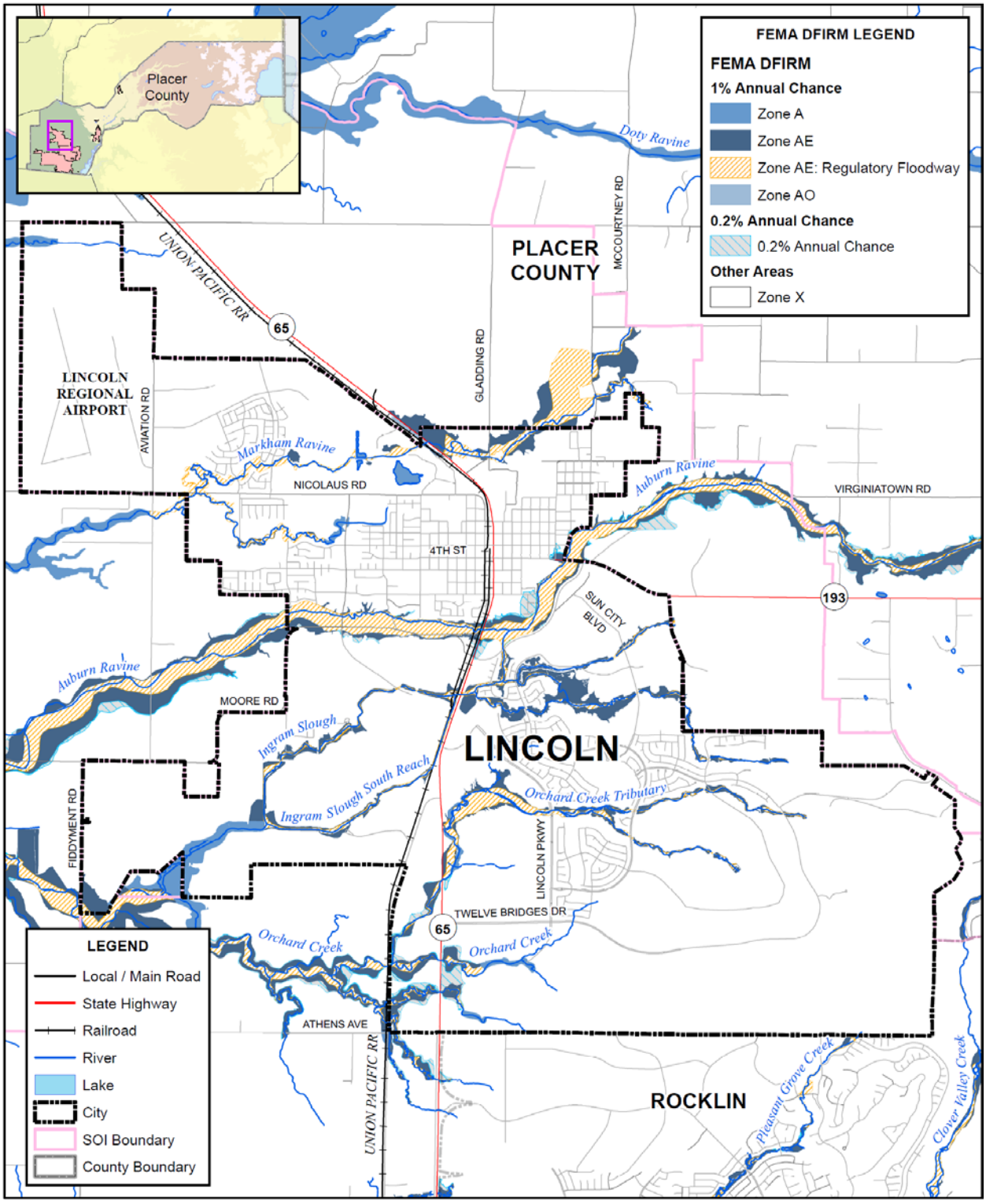
Markham Ravine: Flooding within Markham Ravine is known to occur mostly in the rural areas of the City, where culvert and bridge crossings do not provide adequate capacity. East of State Route 65, flooding occurs at Gladding Road and McCourtney Roads annually. West of State Route 65, flooding has occurred at the low areas of Nicolaus Road (not at the bridge location). At Nelson Lane flooding is expected annually. The SR 65 Bridge is expected to overtop in storm events greater than the 10-year, and the Union Pacific Railroad Bridge is only expected to be overtopped in a 50-year or greater event. These estimates were supported by the New Year's Eve 2005/2006 event. Other private crossings of the Ravine are expected to overtop annually.

At the north tributary, Clay Creek, shallow flooding in the remaining natural areas of the creek is still expected. The developed areas of the Creek are protected from flooding in the 100-year event. At the southern tributary, 100-year protection is provided from Joiner Park, downstream to the City Limits. Shallow flooding beyond the stream banks is expected in flood events, in the natural stream areas downstream of Joiner Parkway. Upstream of Joiner Park, the existing channel and storm drain systems may not provide 100-year protection to the existing residential areas in the 5th-8th Street Corridor between H Street and Q Street.

Coon Creek: Very little is known about the flooding conditions of Coon Creek at this time. No detailed study of the watershed hydrology has been performed since the "Cross Canal Watershed Study" was performed by CH2MHILL in 1988. As part of an effort on the North Lincoln Master Drainage Plan (NLMDP), shed boundaries for the Coon Creek watershed were verified. Many issues with the watershed assumptions of the Cross Canal Study of 1988 were found. It was recommended that the City try to obtain County participation in producing a rectified hydrology study for the watershed, as part of the NLMDP efforts.

A portion of the City is located inside of the 100 year flood zone as defined by the Federal Emergency Management Agency (FEMA). This is seen in Figure C-4.

Figure C-4 City of Lincoln – FEMA DFIRM Flood Zones



Foster Morrison

Data Source: Placer County, CAL ATLAS, FEMA Preliminary DFIRM 2010; Map Date: 2015.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Lincoln. The methodology described in Section 4.3.7 of the base plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table C-7 shows the property use, improved parcel count, improved values, estimated contents, total values and estimated loss of parcels that fall in a floodplain in the City.

Table C-7 City of Lincoln – Count and Improved Value by Property Use by Detailed Flood Zone

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
A	Agricultural	0	$0	0	$0	$0
	Commercial	2	$0	0	$0	$0
	Industrial	1	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural/Open	1	$0	0	$0	$0
	Residential	1	$0	0	$0	$0
	Total	**5**	**$0**	**0**	**$0**	**$0**
AE	Agricultural	2	$136,886	0	$0	$136,886
	Commercial	61	$3,102,119	4	$3,654,477	$6,756,596
	Industrial	6	$3,641,842	2	$8,805,937	$12,447,779
	Institutional	0	$0	0	$0	$0
	Natural/Open	25	$332,968	1	$15,960	$348,928
	Residential	15	$885,920	12	$2,289,819	$3,175,739
	Total	**109**	**$8,099,735**	**19**	**$14,766,193**	**$22,865,928**
AO	Agricultural	0	$0	0	$0	$0
	Commercial	0	$0	0	$0	$0
	Industrial	0	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total	**0**	**$0**	**0**	**$0**	**$0**
Shaded X	Agricultural	0	$0	0	$0	$0
	Commercial	5	$88,101	0	$0	$88,101
	Industrial	0	$0	0	$0	$0

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	49	$2,514,872	49	$6,595,122	$9,109,994
	Total	**54**	**$2,602,973**	**49**	**$6,595,122**	**$9,198,095**
X	Agricultural	7	$741,465	0	$0	$741,465
	Commercial	1,037	$131,302,140	198	$173,856,915	$305,159,055
	Industrial	155	$34,347,131	49	$52,188,545	$86,535,676
	Institutional	70	$5,135,273	23	$36,996,674	$42,131,947
	Natural/Open	134	$7,227,161	8	$1,473,098	$8,700,259
	Residential	18,154	$1,529,806,392	17,043	$4,198,506,664	$5,728,313,056
	Total	**19,557**	**$1,708,559,562**	**17,321**	**$4,463,021,896**	**$6,171,581,458**
Totals		**19,725**	**1,719,262,270**	**17,389**	**4,484,383,211**	**6,203,645,481**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Table C-8 summarizes Table C-7 above and shows City of Lincoln loss estimates and shows improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table C-8 City of Lincoln – Flood Loss Summary

Jurisdiction	Flood Zone	Improved Parcel Count	Total Improved Value	Estimated Contents Value	Total Improved/ Contents Value	Loss Estimate	Loss Ratio
Lincoln	1%	19	$14,766,193	$18,024,252	$32,790,445	$6,558,089	0.11%
	0.2%	49	$6,595,122	$3,297,562	$9,892,684	$1,978,537	0.03%

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

According to Table C-7 and Table C-8, the City of Lincoln has 19 improved parcels and $32,790,445 of structure and contents value in the 1% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.7 of the base plan, there is a 1% chance in any given year of a flood event causing roughly $6,558,089 in damage in the City of Lincoln. A loss ratio of 0.11% indicates that losses in Lincoln to flood would be relatively minor, as less than an eighth of a percent of the total values in the City would be damaged. In addition to the 1% chance floodplain, there are 49 parcels in the 0.2% annual chance floodplain, with $9,892,684 in total structure and contents values.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the City in comparison to total area within the City limits. The same methodology, as discussed in Section 4.3.7 of the base plan, was used for the City of Lincoln as well as for the County as a whole. Table C-9 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table C-9 City of Lincoln – Flooded Acres

Flood Zone	Property Use	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
A	Agricultural	0	0	0.0%
	Commercial	4.97	0	0.0%
	Industrial	15.26	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	2.54	0	0.0%
	Residential	24.75	0	0.0%
AE	Agricultural	26.11	0	0.0%
	Commercial	569.01	5.23	0.9%
	Industrial	221.87	172.19	77.6%
	Institutional	0	0	0.0%
	Natural/Open	317.41	6.33	2.0%
	Residential	10.71	4.57	42.7%
AO	Agricultural	0	0	0.0%
	Commercial	0	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
Total 1%		**1,192.63**	**188.32**	**15.8%**
Shaded X	Agricultural	0	0	0.0%
	Commercial	3.32	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	11.37	11.37	100.0%
Total 0.2%		**14.70**	**11.37**	**77.4%**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for Lincoln. According to this analysis, there is a total population of 169 residents of the City at risk to flooding. This is shown in Table C-10.

Table C-10 City of Lincoln – Improved Residential Parcels and Population by Flood Zone

Flood Zone	Improved Residential Parcels	Population*
A	1	3
AE	15	39
AO	0	0
Total 1% Annual Chance	**16**	**42**
Shaded X (0.2% Annual Chance)	49	127
D	0	0

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data, US Census Bureau
* Average household populations from the 2010 US Census were used: Lincoln– 2.59.

Critical Facilities at Risk

There are no critical facilities at risk in the City of Lincoln in the flood zones.

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Lincoln joined the National Flood Insurance Program (NFIP) on February 3, 1983. The City does not participate in the Community Rating System (CRS). NFIP Insurance data indicates that as of September 30, 2015, there were 90 flood insurance policies in force in the City with $27,547,400 of coverage. Of the 90 policies, 88 were residential and 2 were nonresidential; 1 of the policies was in A zones (the remaining 89 were in B, C, and X zones). The GIS parcel analysis detailed above identified 19 improved parcels in the 100-year flood zone. One policy for 19 improved parcels in the 100 year floodplain equates to insurance coverage of 5.3 percent.

There have been 5 historical claims for flood losses totaling $65,571; two were in A zones and three were standard policies located in B, C or X zones. Two of these were for pre-FIRM structures; three were for post-FIRM structures. NFIP data further indicates that there are two repetitive loss (RL) buildings in the community. There have been a total of 5 RL losses. One of the RL buildings is located in the A zone. It is zoned Business Professional and has an office use. The site has development restrictions in place; the building cannot be enlarged and any outdoor uses have to comply with the City's floodplain requirements. The other RL building is located outside of the 100- and 500-year floodplain in the B, C, or X zones, with most of its damage occurring as a result of heavy rains. This building is zoned commercial and is in commercial use.

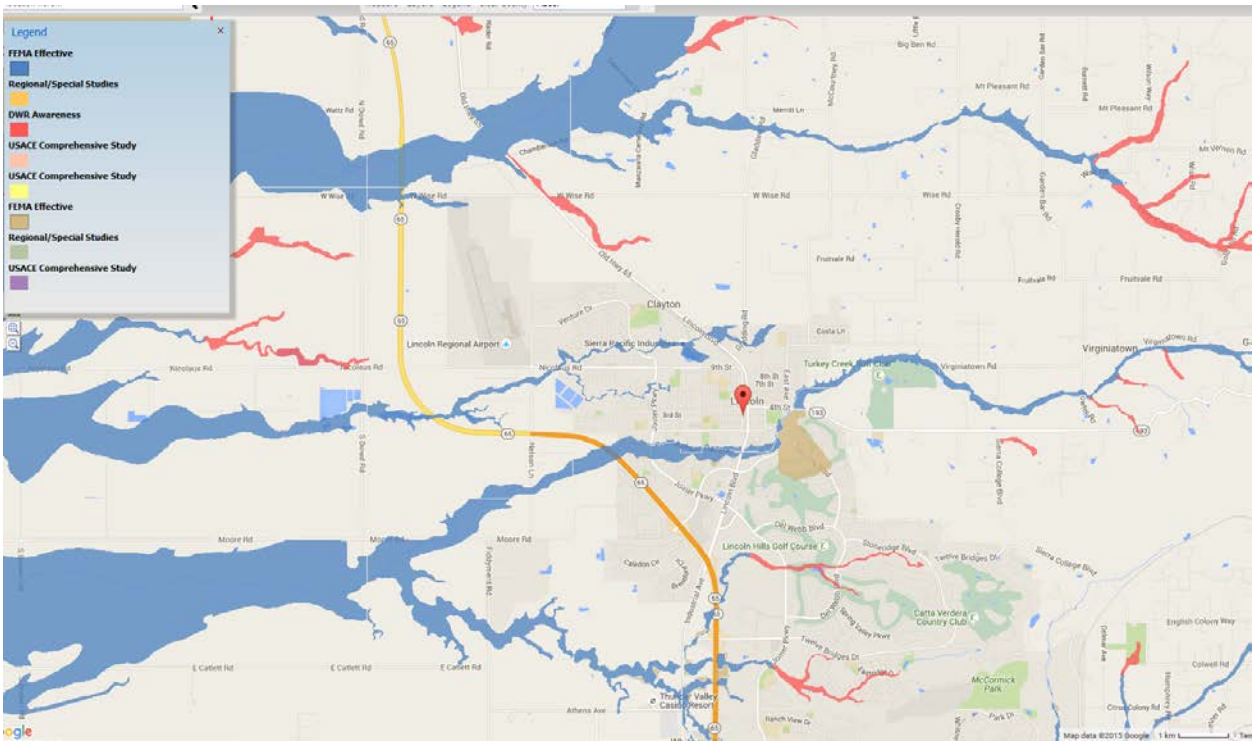
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. The BAM map for Lincoln is shown in Figure C-5.

Figure C-5 City of Lincoln Best Available Map



Source: California DWR

Future Development

Development may occur in the floodzone, so long as it is built to the standards of both the building code and the floodplain ordinance.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Medium

Flooding and other issues caused by severe weather events-primarily heavy rains and thunderstorms-can often pose a risk to the community. Primary concerns include impacts to infrastructure which provides a means of ingress and egress throughout the community. Table C-11 identifies known and past occurrences of such areas and the associated problems encountered. This list is an initial inventory of key problem areas and is not intended to be a complete inventory of all problems and locations associated with severe weather events and localized flooding in the City of Lincoln.

Table C-11 City of Lincoln Localized Flooding Problem Areas

Road Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
Gladding Road	X			X			
Moore Road	X			X			

Road Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
McCourtney Road	X			X			

Source: City of Lincoln

In December of 2014, heavy rain fell in Lincoln. Localized flooding of many streets resulted from the flooding. Some of these streets closed until they drained. Schools released students early due to the street closures.

Future Development

Future development in the City will add more impervious surfaces and need to drain those waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence—Likely
Vulnerability—Medium

Extreme heat tends to occur on an annual basis in Lincoln. Health impacts are the primary concern with this hazard, though economic impacts are also an issue. The elderly and individuals below the poverty level are the most vulnerable to extreme heat. Nursing homes and elder care facilities are especially vulnerable to extreme heat events if power outages occur and air conditioning is not available. In addition, individuals below the poverty level may be at increased risk to extreme heat if use of air conditioning is not affordable.

Weather data specific to the City of Lincoln is limited, but generally corresponds with temperature patterns of other cities in its vicinity, including Roseville, Rocklin and Loomis. Typical patterns for area cities are 85-90 days per year with high temperatures higher than or equal to 90 degrees.

Future Development

Vulnerability to extreme heat will increase as the average age of the population in the City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the planning area. The elderly are more at risk to the effects of extreme heat, especially those without proper air conditioning. However, many of the residents of the City are accustomed to living with extreme heat and take precautions to guard against the threat of extreme heat.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence—Likely
Vulnerability—Medium

Extreme cold and snow tend to occur on an annual basis in Lincoln. Health impacts are the primary concern with this hazard, though economic impacts are also an issue. The elderly and individuals below the poverty level are the most vulnerable to freeze and snow. Risk of exposure is a possibility for homeless persons during periods of extreme cold, though this is less common than extreme heat in western Placer County.

Weather data specific to the City of Lincoln is limited, but generally corresponds with temperature patterns of other cities in its vicinity, including Roseville, Rocklin and Loomis. Typical patterns for area cities are 40-45 days with low temperatures below 32 degrees.

Future Development

Like extreme heat, vulnerability to freeze will increase as the average age of the population in the City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the City. The elderly are more at risk to the effects of freeze. However, many of the residents of the City are accustomed to living with freeze and take precautions to guard against the threat of freeze and severe cold.

Wildfire

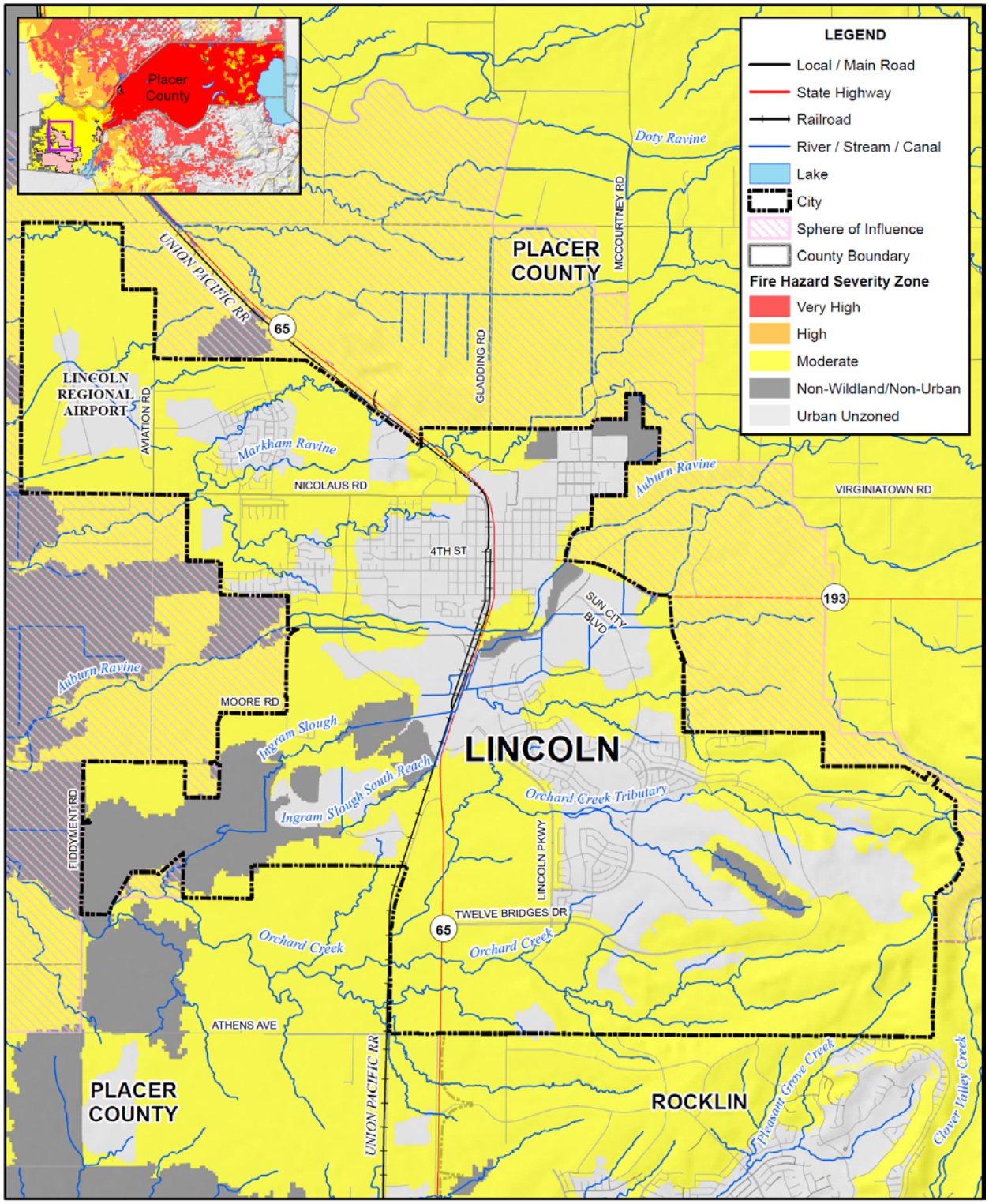
Vulnerability to Wildfire

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Medium

The wildland fire season in the Sierra foothills typically lasts mid-June through early-October, although drought years or unusual weather may extend the period. Extreme weather conditions during periods of low humidity, low fuel moisture, and high winds also contribute to the severity of any potential wildfires. Fires occurring during these times typically burn hot and fast, and are difficult to control unless initial suppression occurs immediately. Lincoln has a significant amount of dry range grass that is susceptible to wildland fires that can move quickly if accompanied by a stiff breeze. In addition, there is a great potential for wildland fires in the more open hillside areas in the eastern part of the City.

Following the methodology described in Section 4.3.2 Vulnerability of Placer County to Specific Hazards, a wildfire map for the City of Lincoln was created (see Figure C-6). In general, the wildfire threat level is moderate in the outlying areas of the City.

Figure C-6 City of Lincoln – Fire Severity Zone



0 1 2 Miles

N

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Values at Risk

Analysis results for Lincoln are shown in Table C-12, which summarizes total parcel counts, improved parcel counts and their structure values by occupancy type as well as the percentage of parcels affected by fire.

Table C-12 City of Lincoln – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
Very High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**0**	$0	**0**	**$0**	**$0**	**0.0%**
High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**0**	**$0**	**0**	**$0**	**$0**	0.0%
Moderate	Agricultural	5	$878,351	0	$0	$878,351	0.0%
	Commercial	457	$63,203,281	33	$46,943,691	$110,146,972	16.3%
	Industrial	119	$24,396,314	23	$27,373,114	$51,769,428	45.1%
	Institutional	24	$2,772,440	5	$16,147,616	$18,920,056	21.7%
	Natural/Open Space	80	$924,129	1	$23,058	$947,187	11.1%
	Residential	7,736	$677,758,748	6,735	$1,789,589,751	$2,467,348,499	39.4%
	Total	**8,421**	**$769,933,263**	**6,797**	**$1,880,077,230**	**$2,650,010,493**	39.1%
Urban Unzoned	Agricultural	4	$0	0	$0	$0	0.0%
	Commercial	522	$47,969,548	161	$100,407,565	$148,377,113	79.7%

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
	Industrial	40	$13,592,659	28	$33,621,368	$47,214,027	54.9%
	Institutional	45	$2,362,833	18	$20,849,058	$23,211,891	78.3%
	Natural/Open Space	70	$6,426,000	8	$1,466,000	$7,892,000	88.9%
	Residential	9,850	$807,207,251	9,790	$2,309,349,842	$3,116,557,093	57.2%
	Total	**10,531**	**$877,558,291**	**10,005**	**$2,465,693,833**	**$3,343,252,124**	57.5%
Non-Wildland/Non-Urban	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	126	$23,319,531	8	$30,160,136	$53,479,667	4.0%
	Industrial	3	$0	0	$0	$0	0.0%
	Institutional	1	$0	0	$0	$0	0.0%
	Natural/Open Space	10	$210,000	0	$0	$210,000	0.0%
	Residential	633	$48,241,185	579	$108,452,012	$156,693,197	3.4%
	Total	**773**	**$71,770,716**	**587**	**$138,612,148**	**$210,382,864**	3.4%
	Grand Total	**19,725**	**1,719,262,270**	**17,389**	**4,484,383,211**	**6,203,645,481**	**100.0%**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
*Land and structure values

Population at Risk

The Fire Severity Zone dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for each jurisdiction and unincorporated area. Results were tabulated by jurisdiction. According to this analysis, there is a total population of 17,444 residents of Lincoln at risk to moderate or higher wildfire risk. This is shown in Table C-13.

Table C-13 City of Lincoln – Count of Improved Residential Parcels and Population by Fire Severity Zone

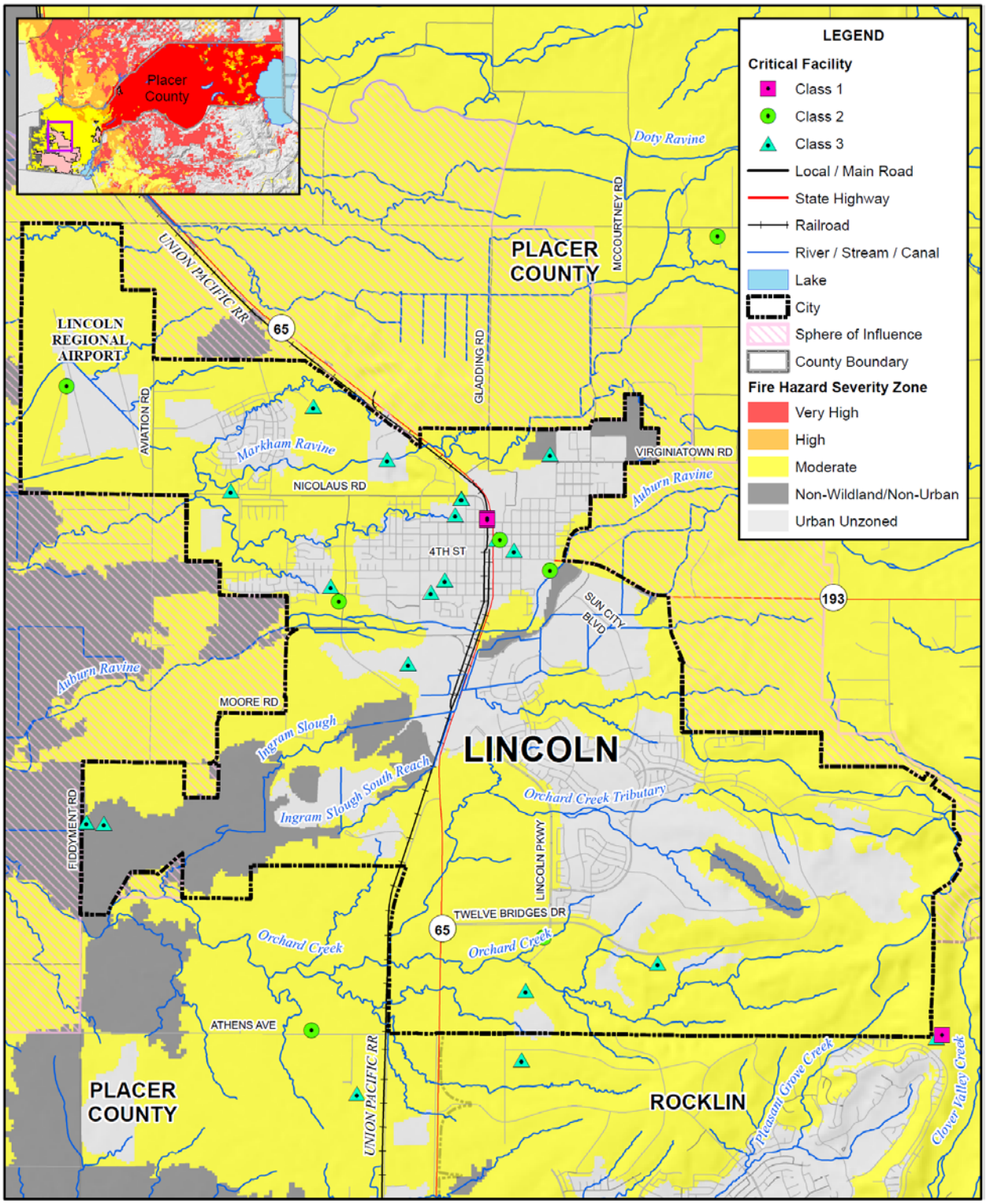
Fire Severity Zone	Improved Residential Parcels	Population*
Very High	0	0
High	0	0
Moderate	6,735	17,444
Urban Unzoned	9,790	25,356
Non-Wildland/Urban	579	1,500
None	0	0
Total	**17,104**	**44,299**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
* Average household populations for Lincoln (2.59) from the 2010 US Census were used

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a fire severity zone provided by CAL FIRE, and if so, which zone it intersects. There are nine facilities in the moderate or higher fire severity zone in the City. These are shown in Figure C-7 and detailed in Table C-14. Details of critical facility definition, type, name and address and jurisdiction by fire zone are listed in Appendix F.

Figure C-7 City of Lincoln – Critical Facilities in the Fire Severity Zones



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Table C-14 City of Lincoln – Critical Facilities in the Fire Severity Zones

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	Airport	1
		Fire Station	2
	Class 3	School	6
		Total Moderate	**9**
Non-Wildland/Non-Urban	Class 1		-
	Class 2		-
	Class 3	School	1
		Water Treatment Plan	1
		Total Non-Wildland/Non-Urban	**2**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	5
		Total Urban Unzoned	**12**
Total			**23**

Source: CAL FIRE, Placer County GIS

Future Development

Given that much of the City is primarily located in the moderate fire severity zone, future development will occur in wildfire zones. The City requires homes built in these areas to be built to code, and requires wildfire mitigation before new development is permitted.

Hazardous Materials Transport

Likelihood of Future Occurrence–Likely
Vulnerability–High

Highways 65 and 193 both pass through the City of Lincoln. These are designated Cal Trans haz-mat routes. The UPRR rail line passes through the City as well. Hazardous materials are regularly shipped via these highways and, while unlikely, an incident involving an accident within the City could have devastating effects.

On August 23, 2011 such an incident occurred (see Figure C-8). At 9th street and H Street, a rail tank car filled with 30,000 gallons of liquefied propane gas caught fire. All homes and businesses within a one-mile radius were closed/evacuated for over two days. Streets, roads, and schools in were also closed. A commercial kitchen caught fire during the blaze. As a result, the City of Lincoln did not renew the conditional use permit of the facility, and the facility closed.

Figure C-8 August 2011 Rail Car Fire

Source: City of Lincoln

The City has little control over the types of materials that are shipped through the City. With regard to government activities, the content of shipments may be confidential for reasons of security and/or is generally unknown to the City. While the City has little influence over the types of material transported via the highways, the potential for incidents can be reduced by ensuring that at-grade rail crossings and truck routes within the City are well marked, safe, and effective.

Populations at Risk

To determine the populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table C-15. This table shows total population that are within the proximity of this two-mile buffer of all the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel data. Those parcel centroids that intersect the buffered corridor were counted and multiplied by the 2010 Census Bureau average household factors for the City. According to this analysis, there is a total population of 45,398 in the buffered corridors.

Table C-15 City of Lincoln – Jurisdictional Populations at Risk in Haz-Mat Corridors

Jurisdiction	Residential Parcels	Population
Lincoln	17,528	45,398

Source: Cal Trans, Placer County GIS

Critical Facilities at Risk

To determine the critical facilities at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for the City and is shown on Figure C-9 and detailed in Table C-15. This table shows critical facilities located within the proximity of this two-mile buffer of all the highway and railroad corridors. Some facilities fall in the highway routes, some in the rail routes, and some fall in both the highway and rail routes. According to this analysis, there are 17 critical facilities in the buffered corridors.

Figure C-9 City of Lincoln – Critical Facilities at Risk in Haz-Mat Corridors

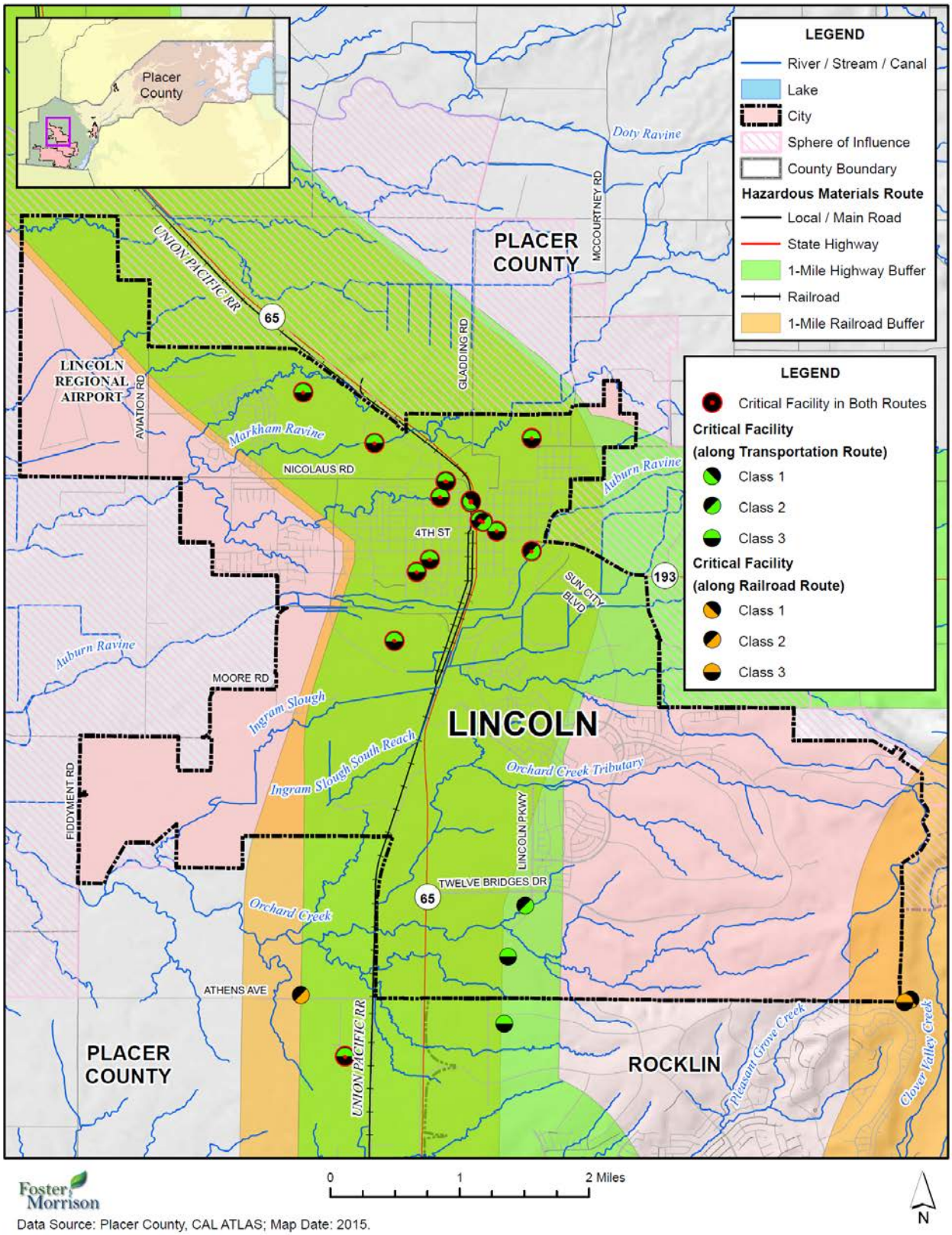


Table C-16 City of Lincoln – Critical Facilities at Risk in Haz-Mat Corridors

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	Fire Station	1
	Class 3	School	1
		Total Hazardous Materials Highway Route	**2**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Railroad Route	**0**
Combined Hazardous Materials Highway and Railroad Route	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	8
		Total Combined Routes	**15**
Total			**17**

Source: Cal Trans, Placer County GIS

Future Development

Development will continue to occur in hazmat affected areas. It is important that the City make residents who choose to live or develop in hazmat zones about the possibility of being affected by a hazmat spill.

C.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capability assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

C.6.1. Regulatory Mitigation Capabilities

Table C-17 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Lincoln.

Table C-17 City of Lincoln Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	
Capital Improvements Plan	Y	
Economic Development Plan	Y	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	Y	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 4
Site plan review requirements		
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	
Subdivision ordinance	Y	
Floodplain ordinance	Y	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	Y	
Elevation Certificates	Y	

Acquisition of land for open space and public recreation uses	
Erosion or sediment control program	
Other	
How can these capabilities be expanded and improved to reduce risk?	

As indicated above, the City has several programs, plans, policies, codes, and ordinances in place and/or that they follow. The General Plan for the City of Lincoln is the most comprehensive. The following section provides an overview of the General Plan and identifies specific policies related to hazard mitigation that are included in the plan.

The City of Lincoln General Plan, 2008

The City of Lincoln General Plan serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The general plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the Lincoln Planning Area. Identified hazards include geologic/seismic, air quality, human-made, flooding, fires, public safety, and noise. Applicable mitigation-related goals, policies, and actions are presented below in Table C-18.

Table C-18 Lincoln General Plan Mitigation Related Goals and Policies

Goal/Policy Number	Explanation
General	
General - Goal HS-1:	To minimize the danger of natural and Human-Made hazards and to protect residents and visitors from the dangers of earthquake, fire, flood other natural disasters, and man-made dangers.
Policy HS-1.1:	Engineering Analysis of Potential Hazards: The City shall require engineering analysis of new development proposals in areas with possible soil instability, flooding, earthquake faults, or other hazards, and to prohibit development in high danger areas.
Geologic	
Geologic and Seismic Hazards Goal HS-2:	To minimize exposure of persons and property to damage resulting from geologic and seismic hazards.
Policy HS-2.1:	Seismic Safety of Structures: The City shall require that new structures intended for human occupancy are designed and constructed to minimize risk to the safety of occupants due to groundshaking.
Policy HS-2.2:	Limit Hillside Development: To limit development in areas with severe slopes.
Policy HS-2.3:	Development in Areas Subject to Geologic Hazards: The City shall discourage incompatible land uses from being located in areas subject to geologic or seismic hazards

Goal/Policy Number	Explanation
Policy HS-2.4:	California Building Standard Code: The City shall continue to require that alterations to existing buildings and all new buildings be built according to the seismic requirements of the California Building Standard Code.
Flood	
Flood Hazards Goal HS- 6:	To minimize the risk of life and property of the City's residents from flood hazards.
Policy HS-6.1:	Flood Protection: The City shall ensure that adequate flood protection is provided throughout the community.
Policy HS-6.2:	Drainage and Flood Control Facilities: The City will continue to cooperate and coordinate efforts with the Placer County Flood Control and Water Conservation District for the construction, operation, and maintenance of drainage and flood control facilities and where feasible provide for their joint use. This includes cooperation with Placer County, cities within Placer County, and Sutter County and special districts to provide regional flood control protection.
Policy HS-6.3:	Master Drainage Plans: The City shall require master drainage plans as a condition of approval for large development projects.
Policy HS-6.4:	New Residential Construction: The City shall require new residential construction to have its lowest habitable floor elevated above the base flood level elevation, determined by FEMA standards
Policy HS-6.5:	Stream Channels: The City shall prohibit development along stream channels that would reduce the stream capacity, increase erosion, or cause deterioration of the channel.
Policy HS-6.6:	Flood Insurance Program: The City shall continue to participate in the National Flood Insurance Program.
Urban and Wildland Fire Hazards	
Goal HS-7	To minimize the risk of life and property to from urban and wildland fires.
Policy HS-7.1:	Enforce Code/Ordinances: The City shall enforce the City building code, fire code, and ordinances in regard to fire safety and fire protection.
Policy HS-7.2:	Educate Residents of Fire Hazards: The City shall educate residents of urban and wildland fire hazards and safety measures.
Policy HS-7.3:	Wildland Fire Management Plans: The City shall require the development of wildland fire management plans for projects adjoining significant areas of open space that may have high fuel loads.
Policy HS-7.4:	Buffer Zones for Fire Protection: The City shall require new development to incorporate additional greenbelts, fuel breaks, fuel reduction and buffer zones around communities to minimize potential fire loses.
Policy HS-7.5:	Weed Abatement: The City shall maintain a weed abatement program to ensure clearing of dry brush areas. Weed abatement activities shall be conducted in a manner consistent with all applicable environmental regulations.
Emergency Response	
Goal HS-9	To ensure the maintenance of the Emergency Response Plan in order to maintain its effectiveness in preparing and responding to a natural or human-made disaster.
Policy HS-9.1	Emergency Response Plan: The City shall ensure that the Emergency Response Plan meets current federal, state, and local emergency requirements.

Goal/Policy Number	Explanation
Policy HS-9.2	Coordinate Emergency Response Services with Local Agencies: The City shall continue to coordinate emergency response services with Placer County, other cities within Placer County, special districts, service agencies, voluntary organizations, and state and federal agencies.
Policy HS-9.3	Educate Public on Emergency Response: The City shall conduct training programs for staff in disaster preparedness.
Policy HS-9.4	Coordinate with Placer County: The City will strive to work with other local agencies including Placer County and cities within the County to develop coordinated geographical information systems (GIS) planning for emergency response services.
Policy HS-9.5	Siting of Critical Emergency Responses: The City shall ensure that the siting of critical emergency response facilities such as hospitals, fire stations, police offices, substations, emergency operations centers, and other emergency service facilities and utilities have minimal exposure to flooding, seismic and geological effects, fire, and explosions.

General Plan, Appendix H: Drainage and Surface Water Impacts and Constraints

As part of the General Plan Update process, Lincoln performed a detailed review of the proposed land use scenario as well as an impact analysis of the development expansion areas to the local and regional drainage systems. Appendix H of the General Plan contains a list of drainage related constraint issues, identifies hydraulically sensitive areas, and provides proposed guidelines for developing within and around those areas.

South Lincoln Master Drainage Plan/North Lincoln Master Drainage Plan

Regional master plans identify the needs of a watershed or portion thereof and formulate plans, programs, and policies for effective stormwater management. The plans coordinate facilities and policies, and help assure that all effects of watershed changes are identified, including especially the cumulative effects of many small-scale changes. These plans play an important role in a developing region by providing critical information and criteria for the coordinated planning and design of development projects in the watershed. In addition, appropriate on-site flood control facilities may be required, and offsite facilities are identified for which developers may be charged shares.

C.6.2. Administrative/Technical Mitigation Capabilities

Table C-19 identifies the personnel responsible for activities related to mitigation and loss prevention in Lincoln.

Table C-19 City of Lincoln's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	
Mitigation Planning Committee	N	

Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y	
Floodplain Administrator	Y	
Emergency Manager	Y	
Community Planner	Y	
Civil Engineer	Y	
GIS Coordinator	Y	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	
Hazard data and information	N	
Grant writing	Y	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Lincoln

C.6.3. Fiscal Mitigation Capabilities

Table C-20 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table C-20 City of Lincoln's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	Y	
Community Development Block Grant	Y	
Other federal funding programs	N	
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Lincoln

C.6.4. Mitigation Education, Outreach, and Partnerships

Table C-21 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table C-21 City of Lincoln's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Limited
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

The City of Lincoln works cooperatively with the State Regional Board, the Central Valley Regional Water Quality Control Board, the Placer County Flood Control and Water Conservation District, and the neighboring jurisdictions of Rocklin, Roseville, Auburn, and Placer County.

C.6.5. Other Mitigation Efforts

The City of Lincoln has many other ongoing mitigation efforts that include the following:

- public awareness and information programs specific to emergency preparedness that include: e-mail bulletins, fire prevention events, police department events, police Community Services Officer conducts neighborhood meetings, writes newspaper articles, and sends mailings with reminders on weed abatement for fire safety;
- implementation of the City's stormwater management program with public outreach (e-mail bulletins, newspaper articles, posters, and elementary school activities), regular inspections, and enforcement activities;
- adoption of new building code requirements with stricter fire construction standards;
- new specific plans/planned developments are required to prepare wildfire management plans to identify responsibilities, funding, and ongoing methods to reduce potential damage and threat of wildfires;
- enforcement of existing wildfire management plans and assisting private Homeowner Associations (HOAs) with their fuel reduction programs; and,
- implementation of fuel reduction methods identified in open space management plans for existing open spaces.

C.7 Mitigation Strategy

This section describes the mitigation strategy process and mitigation action plan for the City of Lincoln's inclusion with the Placer County Local Hazard Mitigation Plan update.

C.7.1. Mitigation Goals and Objectives

The City of Lincoln adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

C.7.2. NFIP Mitigation Strategy

The City of Lincoln joined the NFIP on February 3, 1982. As a participant of the National Flood Insurance Program (NFIP), the City of Lincoln has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Lincoln will continue to comply with the requirements of the NFIP in the future.

In addition, the City of Lincoln actively participates with the County of Placer to address local NFIP issues through a regional approach. Many of the program activities are the same for the City of Lincoln as for Placer County since participation at the County level includes all local jurisdictions. An elected official of the City of Lincoln is a designated representative on the Placer County Flood Control District Board.

The City's regulatory activities apply to existing and new development areas of the City; implementing flood protection measures for existing structures and new development and maintaining drainage systems. The goal of the program is to enhance public safety, and reduce impacts and losses while protecting the environment. The City has a Flood Damage Prevention Ordinance that regulates construction in the floodplain. The City intends to continue to implement the ordinance and participate at the regional level with Placer County implementing appropriate measures to mitigate exposure and damages within designated flood prone areas.

The City of Lincoln Planning and Engineering Department provides public outreach activities which include map information services, public awareness, public hazard disclosure, and flood protection information. This information is readily available to the public and consists of current and accurate flood mapping. In addition, the Planning and Engineering Department provides information about their stormwater management program and up-to-date information related to the maintenance of the City's drainage system.

The NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Lincoln does not participate in the CRS.

C.7.3. Mitigation Actions

The planning team for the City of Lincoln identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. General processes and information on plan implementation and maintenance of this LHMP by all participating jurisdictions is included in Section 7, Plan Implementation and Maintenance, of the base plan.

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: City of Lincoln Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 1. Lincoln Boulevard: Auburn Ravine Bridge – Reconstruct Bridge

Hazards Addressed: Flooding

Issue/Background Statement: The present bridge structure crossing SR 65 is antiquated and does not pass the 100-year storm event. In fact flooding of the roadway has occurred in storm events smaller than the 10-year. This is a major entryway to the City, and road closures at this location represent a serious risk to health, safety, and emergency services. Replacement of the bridge structure will involve adding capacity and raising roadway elevations to meet current design standards.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Engineering Department.

Priority (H, M, L): High

Cost Estimate: Although this is a State highway project, the City's participation is estimated at $5.5 million.

Benefits (Losses Avoided): The main benefit would be for the safety and welfare of the citizens of the City of Lincoln. State Route 65 south of Lincoln is one of three entry and exit points to the downtown area of the City. All three entry and exit points are projected to flood in the 100-year event, which results in isolation of the downtown areas. Auburn Ravine also bisects the historical areas of the City from the newly developing South Lincoln Master Plan area. Roadway closures at this location would prevent emergency services from being able to provide service across this waterway.

Potential Source of Funding:

Schedule: Ongoing – not likely before 2020.

Action 2. McBean Park Drive: Auburn Ravine Bridge – Additional 110' Span

Hazards Addressed: Flooding

Issue/Background Statement: The existing State Route 193 Bridge at Auburn Ravine does not meet City requirements for freeboard in the 100-year design storm event. A new bridge span of 110 feet located in the overbank areas would provide additional conveyance capacity, but roadway elevations at SR-193 would also need to be raised.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Engineering Department.

Priority (H, M, L): High

Cost Estimate: The estimated $5,500,000 for the project is anticipated to be budgeted in 2015-2017. Much of the roadway elevating at the existing structure was performed by a previous CAL Trans project.

Benefits (Losses Avoided): This project is necessary for health and safety issues relating to emergency service accessibility during a major flood event. This is also one of three major access points to the historical downtown Lincoln area and new areas of future growth.

Potential Source of Funding: Federal Highway Administration & CalTrans relinquishment funds

Schedule: 2015-2017

Action 3. Lakeview Farms Regional Volumetric Mitigation Facility

Hazards Addressed: Flood

Issue/Background Statement: Newly developing areas of the Markham Ravine and Coon Creek watersheds, which are a part of the current general plan, and which have not previously been studied for potential peak flow and volumetric impacts will require the development of mitigation facilities.

Other Alternatives: Require project by project mitigation or no action which would result in downstream impacts.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Engineering Department.

Priority (H, M, L): High

Cost Estimate: $4,000,000

Benefits (Losses Avoided): Reduces the potential for development impact at known flooding areas downstream of the City at Sutter County and the Cross Canal areas.

Potential Source of Funding: Combination of City and Development Fees.

Schedule: Construction of future phases will be determined by development.

Action 4. Gladding Parkway, Lincoln Boulevard, McCourtney Road – Stream Restoration And Culvert Improvement

Hazards Addressed: Flood

Issue/Background Statement: Project improvements include new culverts at Gladding Road at Markham Ravine, raising roadway elevations at the north/south stretch of Gladding Road and local storm drainage improvements for the streets.

Other Alternatives: Required by adapted master plan.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): High

Cost Estimate: $1,840,000

Benefits (Losses Avoided): This project is necessary for health and safety issues relating to emergency service accessibility during a major flood event.

Potential Source of Funding: Combination of City and development fees.

Schedule: Ongoing.

Action 5. "O" Street Drainage Improvements

Hazards Addressed: Flood

Issue/Background Statement: Modifications to the south tributary of Markham Ravine channel as it meanders through the City will be necessary to reduce flooding potential in the adjacent subdivisions. The recommendation is that the invert be lowered to provide additional capacity to reduce flood elevations by zero to three feet.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Medium

Cost Estimate: $485,000

Benefits (Losses Avoided): An analysis of the existing storm drainage systems in the area shows that there is a potential of structural flooding and roadway flooding in a 100-year event.

Potential Source of Funding: Combination of City and development fees.

Schedule: Ongoing improvements as new development permits.

Action 6. 7th Street Drainage Improvements

Hazards Addressed: Flood

Issue/Background Statement: Significant surface flooding is known to occur in the area. An additional Storm drainage trunk pipeline is planned for 7th Street to extend storm drain service along this corridor and to relieve other existing systems which ultimately pick up this drainage area. The proposed system would bring the storm drainage protection to City Standards.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Medium

Cost Estimate: $915,000:

Benefits (Losses Avoided): Many of the roadways along this corridor flood during normal rainfall events, and access to the high school and residences is restricted. Several residents have complained that they fear the flood waters and have witnessed encroachment of floodwater in their yards, which may encroach into their structures in larger storms.

Potential Source of Funding: Combination of City and development fees, grants.

Schedule: Construct as funds available.

Action 7. Auburn Ravine at State Route 193 Bridge

Hazards Addressed: Flood

Issue/Background Statement: Significant sediment and debris accumulate at the "chevron" style piers and abutments. Full bridge capacity needs to be restored for flood protection

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): High

Cost Estimate: $90,000

Benefits (Losses Avoided): Improvements would reduce flood frequency upstream of SR 193 and increase flood protection back to the intended installation of the bridge structure.

Potential Source of Funding: Reoccurring item is programmed $10,000 in permits and $35,000 in work every 4 years. Currently programmed through 2009. Ongoing operation and maintenance monitoring.

Schedule: Ongoing.

Action 8. Auburn Ravine at State Route 65 Bridge

Hazards Addressed: Flood

Issue/Background Statement: Significant sediment and debris accumulate at the invert and abutments of the bridge. Full bridge capacity needs to be restored for flood protection. The accumulation of sediment in this location also results in a significant sediment accumulation issue upstream.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Medium

Cost Estimate: $90,000

Benefits (Losses Avoided): Improvements would reduce flood frequency upstream of SR 65 and increase flood protection back to the intended installation of the bridge structure.

Potential Source of Funding: Re-occurring item is programmed $10,000 in permits and $35,000 in work every 4 years. Currently programmed through 2009. Ongoing operation and maintenance monitoring.

Schedule: Ongoing.

Action 9. Ingram Slough – Orchard Creek Return Channel

Hazards Addressed: Flood

Issue/Background Statement: This project is located east of the Lincoln Crossings Development at the Nader Property. The Construction of the channel provides a gravity release for the new channels constructed through the Lincoln Crossings development and reduces floodplain elevations and floodplain inundation areas.

Other Alternatives: No action would result in a large shallow overspill area with limited development potential.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Medium

Cost Estimate: $1,568,946

Benefits (Losses Avoided): The construction of the channel would bring 100-year flood elevations within Ingram Slough at the Lincoln Crossing development to City Standard Freeboard requirements, however, the interim operation would not be expected to cause any structural damages.

Potential Source of Funding: Combination of City and development fees.

Schedule: Dependent on Nader Ranch/Village 7 development.

Action 10. Markham Ravine – Updated FEMA Analysis And Mapping

Hazards Addressed: Flood

Issue/Background Statement: Detailed mapping and analysis will be performed for the Markham Ravine watershed. Evaluation and updating of existing FEMA mapping will be accomplished.

Other Alternatives: Required by master plan.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Medium

Cost Estimate: $180,000

Benefits (Losses Avoided): Precise definition of 100-year flood allows for construction to be set at required criteria. Verification of base flood data will help to determine if any flood protection deficiencies exist in this system.

Potential Source of Funding: Development fees.

Schedule: Ongoing

Action 11. Markham Ravine Drainage Improvements – Union Pacific Railroad & State Route 65 Crossings

Hazards Addressed: Flood

Issue/Background Statement: Modification of the existing UPRR and SR 65 crossings at Markham Ravine will be necessary to provide 100-year protection at these structures.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Engineering Department.

Priority (H, M, L): Medium

Cost Estimate: $402,000

Benefits (Losses Avoided): The main benefit would be the safety and welfare of the citizens of the City of Lincoln. State Route 65 north of Lincoln is one of three entry and exit points to the downtown area of the City. All three are projected to flood in the 100-year event, which results in isolation of the downtown areas.

Potential Source of Funding: Development funds.

Schedule: Ongoing

Action 12. Auburn Ravine Stream Restoration Projects (Analysis and Repairs)

Hazards Addressed: Flood

Issue/Background Statement: Auburn Ravine is one of the three major watercourses in the City. The previously defined streambed may have been altered by improper encroachment into the floodplain, which changed sediment loading conditions, or acts of nature, resulting in changes to the flow regimes. This task will analyze and recommend specific areas of improvement.

Other Alternatives: Leaving stream unrepaired results in erosion potential, and the potential of additional deposition downstream of the City, which reduces conveyance capacity.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Low

Cost Estimate: $400,000

Benefits (Losses Avoided): Creek restoration improvements to include restoring the channel's cross section for maximum flow, efficient transportation of sediment, and restoration of the ecosystem.

Potential Source of Funding: Combination of City and development fees, grants.

Schedule: As funding becomes available.

Action 13. Markham Ravine Streambed Restoration Projects (Analysis Only)

Hazards Addressed: Flood

Issue/Background Statement: The existing streambed of Markham Ravine must be evaluated to determine what is necessary to restore the creek section to optimum capacity for flow of water and sediment transport.

Other Alternatives: This stream is extremely sensitive to the large amounts of attenuation currently present. Changes in the sediment loading of this system could reduce the storage capacity of the system and result in significant increases to peak flow rates and flooding potential.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Low

Cost Estimate: $90,000

Benefits (Losses Avoided): Determination can be made of deficiencies

Potential Source of Funding: Combination of City and development fees, grants.

Schedule: As funding becomes available.

Action 14. Coon Creek Streambed Restoration Projects (Analysis Only)

Hazards Addressed: Flood

Issue/Background Statement: The existing streambed of Coon Creek must be evaluated to determine what is necessary to restore the creek section to optimum capacity for flow of water and sediment transport.

Other Alternatives: Identification of potential problems can lead to solutions.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: City of Lincoln Public Services Department.

Priority (H, M, L): Low

Cost Estimate: $90,000

Benefits (Losses Avoided): Determination of deficiencies can lead to solutions.

Potential Source of Funding: Combination of City and development fees, grants.

Schedule: As funding comes available.

Action 15. Fire Prevention and Fuels Management Plan

Hazards Addressed: Wildfire

Issue/Background: The City of Lincoln has adopted a General Plan that will carry the City's growth and planning into the year 2050. The new General Plan calls for a balance of development and open space with the recommendation of maintaining 40 percent open space. This presents some significant maintenance and fire suppression challenges. Additionally it increases the fire prevention workload to monitor and provide for abatement. Access, abatement, fuels management, and staffing to address the increased incidents are just some of the problems forecasted in order to implement the new General Plan policies.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Currently the City of Lincoln has several fuels management plans in place for specific areas within the existing boundaries. Bringing forth a comprehensive plan to ensure continuity within the City's jurisdiction would aid in planning (Community Wildfire Preparedness Plan). Additionally, a funding mechanism would have to be developed in order to provide for adequate abatement and fuels modification which the Public Services and Fire Departments have not been able to provide.

Responsible Office: City of Lincoln Community Development, Public Services and Fire Departments

Priority (L, M, H): High

Cost Estimate: Unknown, but would have to rely on new staff or consultant services due to limited fire department staffing.

Benefits (Losses Avoided): Responses to such areas would be quicker with proper access. Incidents could be reduced in magnitude under normal environmental conditions (not including high fire danger weather events) by reducing fuel load. A comprehensive citywide plan would provide greater public safety without loss of desirable open space features. A comprehensive plan would provide higher protection for housing, commercial, and recreational components that border such areas. Several different fuels management plans could be consolidated into a citywide plan.

Potential Funding: Grants, development, cooperation with other jurisdictions that have developed plans of this type.

Schedule: Continuous as the General Plan is implemented and the City of Lincoln realizes additional growth and development.

Annex D Town of Loomis

D.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Town of Loomis, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Town. This Annex provides additional information specific to the Town of Loomis, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

D.2 Planning Process

As described above, the Town followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the Town formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table D-1. Additional details on plan participation and Town representatives are included in Appendix A.

Table D-1 Town of Loomis Planning Team

Name	Position/Title	How Participated
Rich Angelocci	Town Manager	Attended meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects
Britton Snipes	Director of Public Works	Attended meetings. Provided edits and updates. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table D-2.

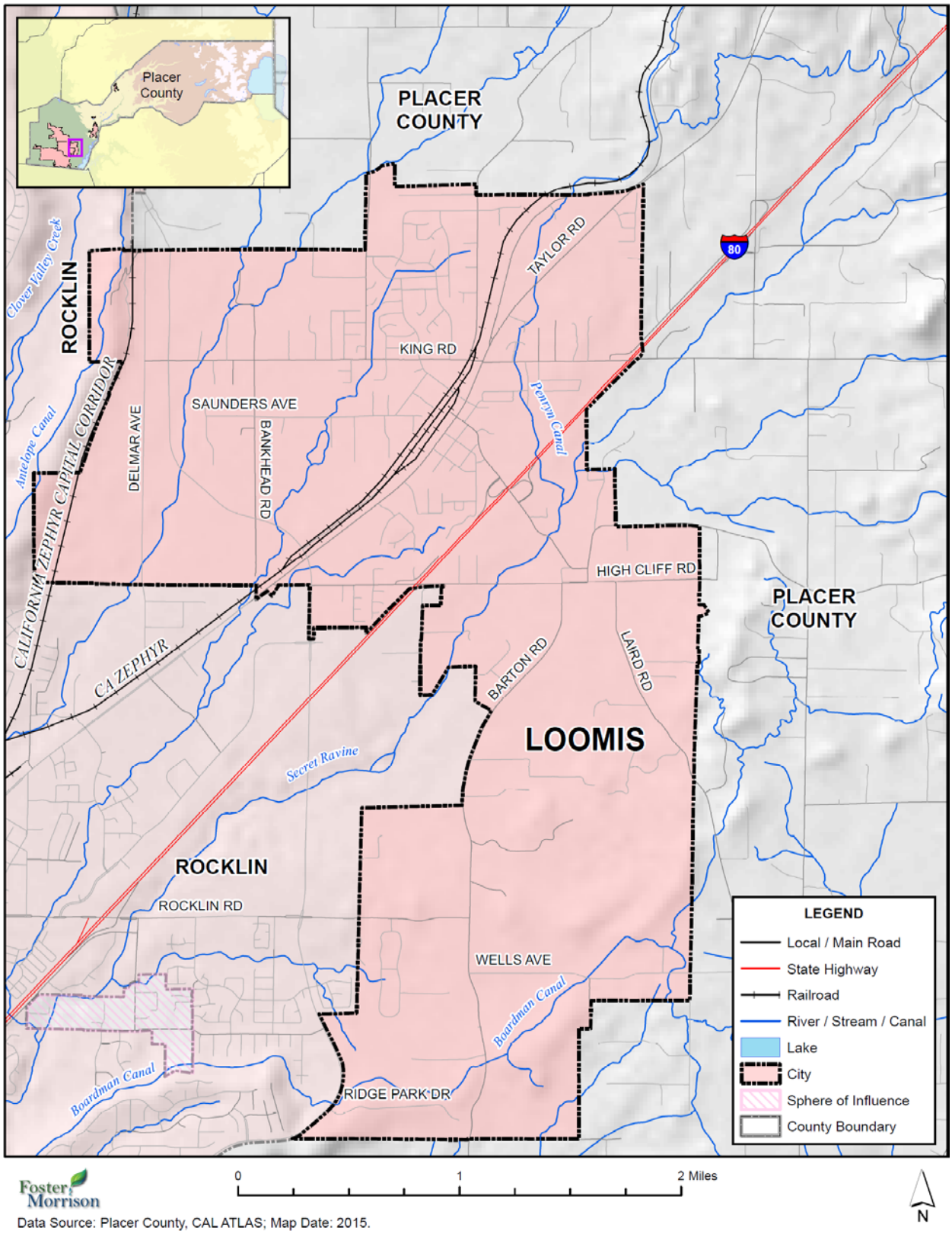
Table D-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Town of Loomis	The Town of Loomis has worked to achieve the goals of the 2010 LHMP goals and projects. The financial constraints of the past five years seriously affected the amount of money that the Town was able to dedicate to the previous LHMP's goals and projects. Thus the LHMP was not actively incorporated into other City plans over the last 5 years.
Town of Loomis	Although not specifically part of Town activities, implementation of regional planning efforts and associated projects, such as flood planning efforts and projects since 2010 provide a direct benefit to the Town of Loomis.
Town of Loomis	The LHMP is considered a supporting document to the General Plan that will be incorporated into the Safety Element during the next General Plan update.

D.3 Community Profile

Figure D-1 displays a map and the location of the Town of Loomis within Placer County.

Figure D-1 Town of Loomis Base Map



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

D.3.1. Geography and Climate

Loomis is a small, semi-rural community located in rapidly urbanizing western Placer County in California's Central Valley. The Town is located approximately 25 miles northeast of the Town of Sacramento, along Interstate 80. Loomis is in the western portion of the Loomis Basin, an 80-square mile area of the Placer County foothills. The town ranges in elevation from approximately 399 to 625 feet above msl and covers an area of about 7.3 square miles. Stream drainages in the area include Antelope Creek and Secret Ravine.

Interstate 80, traversing northeast through the center of Town, divides Loomis into two distinct areas. The area north of I-80 contains all the community's existing retail, office and industrial development, as well as higher density residential development, bounded by larger semi-rural residential lots. The area south of I-80 is almost exclusively rural and residential in character.

Loomis' average temperatures range from the mid 80°F to mid 90°F during the summer to the mid 30°F to high 40°F during the winter. Loomis receives an average of 36.51 inches of rain annually and only an occasional dusting of snow in the winter.

D.3.2. History

As early as 1825, trappers and hunters following the American River came into the Loomis basin. Like the beginnings of many cities in Placer County, Loomis began as a mining town, but soon became a booming center of the fruit-growing industry, supporting many packinghouses. During the 1850s miners worked along Secret Ravine and farmers and ranchers began to move into the Loomis area. The town was established in 1850, but not incorporated until 1984. The Central Pacific Railroad was constructed through Loomis in 1864. By 1872 the transcontinental link was completed and helped to expand the market for fruits, which were being produced on a commercial scale. For several years, fruit from the Loomis area was world renowned for its quality. Eventually disease destroyed many orchards established in the late 1800s and fruit production declined significantly. Today it is a very small part of the town's economy.

D.3.3. Economy

Loomis has a small employment base, with the largest employers in the office and retail sectors. According to Loomis's 2014 Housing Element, in 2010, Loomis had 3,328 jobs and projected job growth to reach 4,527 by 2020. Additional employment sectors include medical, educational, manufacturing and other.

Loomis is a community with median incomes higher than both the countywide and statewide averages. Also following this trend, the per capita income in Loomis was well above the national average.US Census estimates show economic characteristics for the Town of Loomis. These are shown in Table D-3.

Table D-3 Town of Loomis Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	0	0.0%

Industry	Estimated Employment	Percent
Construction	509	15.3%
Manufacturing	295	8.9%
Wholesale trade	155	4.7%
Retail trade	478	14.4%
Transportation and warehousing, and utilities	102	3.1%
Information	41	3.1%
Finance and insurance, and real estate and rental and leasing	312	9.4%
Professional, scientific, and management, and administrative and waste management services	236	7.1%
Educational services, and health care and social assistance	584	17.5%
Arts, entertainment, and recreation, and accommodation and food services	244	7.3%
Other services, except public administration	146	4.4%
Public administration	226	6.8%

Source: US Census Bureau 2010 American Community Survey Estimates

D.3.4. Population

The California Department of Finance estimated the January 1, 2014 total population for the Town of Loomis was 6,608.

D.4 Hazard Identification and Summary

The Town's planning team identified the hazards that affect the Town and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the Town (see Table D-4). In the context of the plan's planning area, there are no hazards that are unique to Loomis.

Table D-4 Town of Loomis Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Extensive	Occasionally	Negligible	Low
Earthquake	Significant	Occasional	Limited	High
Flood: 100/500 year	Significant	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Limited	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Likely	Negligible	Low
Severe Weather: Freeze and Snow	Limited	Occasional	Negligible	Low
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Significant	Likely	Limited	Medium
Soil Bank Erosion	Limited	Occasional	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Significant	Unlikely	Limited	Medium
Hazardous Materials Transport	Significant	Unlikely	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

D.5 Vulnerability Assessment

The intent of this section is to assess the Town's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

D.5.1. Assets at Risk

The following data from the Placer County Assessor's Office is based on the 2015 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the base plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table D-5 shows the 2015 Assessor's values (e.g., the values at risk) broken down by property type for the Town of Loomis.

Table D-5 Town of Loomis – Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	6	$977,980	2	$514,715	$1,492,695
Commercial	376	$54,637,154	97	$44,767,924	$99,405,078
Industrial	160	$13,163,007	111	$31,233,577	$44,396,584
Institutional	30	$2,152,934	16	$12,773,444	$14,926,378
Natural/Open	6	$1,106,600	1	$266,404	$1,373,004
Residential	2365	$210,836,420	2273	$440,833,092	$651,669,512
Total	**2,943**	**$282,874,095**	**2,500**	**$530,389,156**	**$813,263,251**

Source: Placer County 2014 Assessor's Data

Critical Facilities

For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

This definition was refined by separating out three classes of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the Town of Loomis from Placer County GIS is shown on Figure D-2 and detailed in Table D-6. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure D-2 Town of Loomis– Critical Facilities

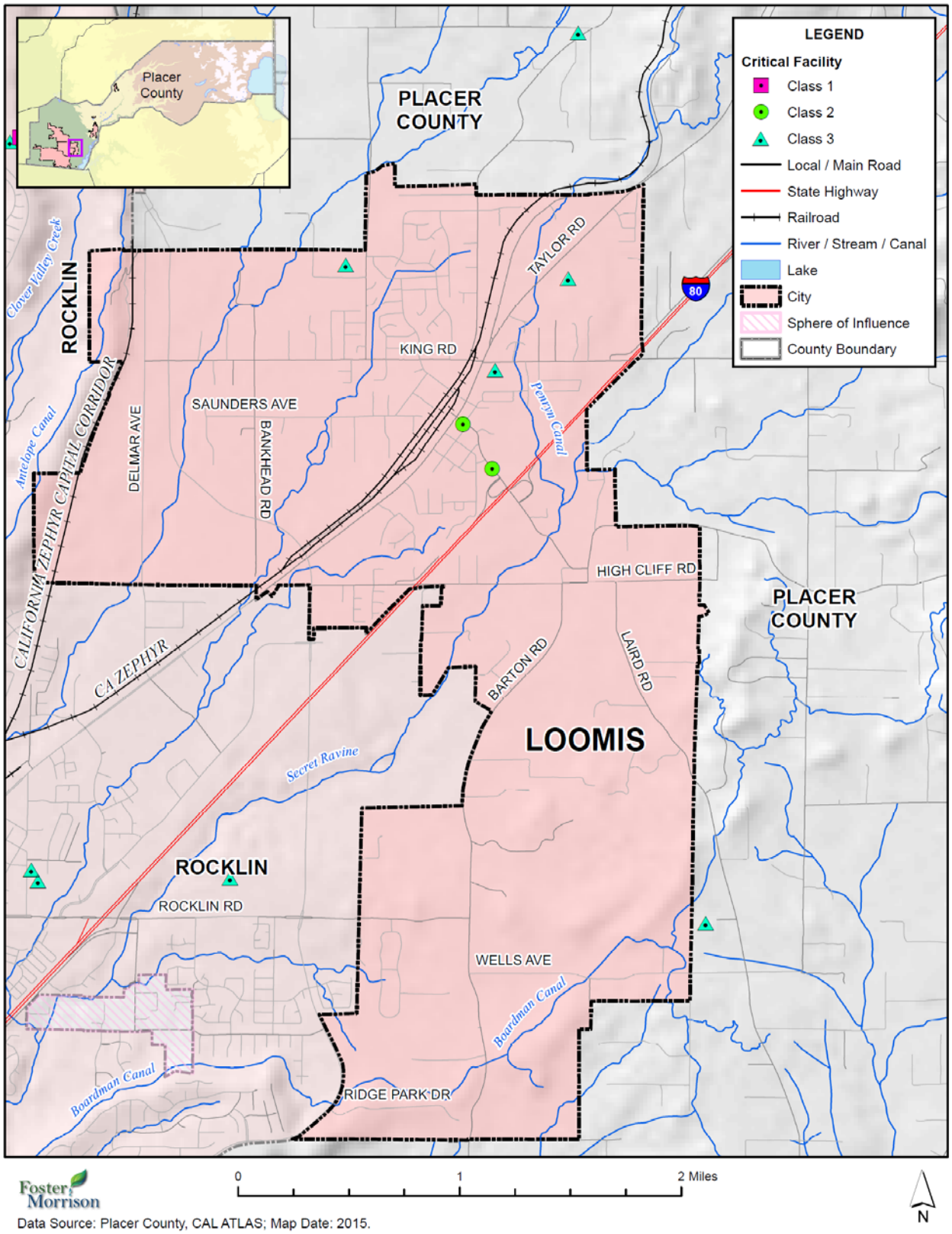


Table D-6 Town of Loomis – Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
Class 1	-	-
Class 2	Fire Station	1
	PCSO	1
Class 3	School	3
Total Town of Loomis		**5**

Source: Placer County GIS

Natural Resources

The Town of Loomis has a variety of natural resources of value to the community:

- Three sensitive plant communities: Oak Woodland and Savannah, Riparian and Stream habitat, and Wetlands.
- No vernal pools within the Town limits, but several just outside.
- One special status animal species known to occur: the Valley Elderbery longhorn Beetle.
- One special status animal species with the potential to occur based on habitat and behavioral patterns: Cooper's Hawk, Black-Shouldered Kite, and Western Pond Turtle.

Historic and Cultural Resources

The Town of Loomis does not have any registered federal historic sites.

Although Loomis does not have any sites on the National Register, there are several assets within Loomis that define the community and represent the Town's history. Some of the historical sites of importance to Loomis are listed below.

- Blue Goose (American Fruit Co.) - 3550 Taylor Road
- High Hand- Loomis Fruit Growers Assoc – 3750 Taylor Road
- New Town Hall of Loomis- was Bank of Loomis -3665 Horseshoe Bar Road
- Bradley House- on Barton Road
- Barton Rd. below Wells- Wells Fargo Stage stop- partial cobblestone wall
- Main Drug- built 1912 – 3685 Taylor Road
- Nelthorpes – 3650 Taylor Road
- Christiansen's which was Law Brothers – Taylor Road
- Horseshoe Bar Grill which was many different stores- 3645 Taylor Road
- Congregational Church/Koininia on Magnolia Street
- Loomis Mutual- 5827 Horseshoe Bar- flooring and G-Day Donut building.
- Most structures on Taylor Road between Walnut St. and Horseshoe Bar- all rebuilt shortly after 1915 fire.
- Nute/Barton Road house was built in 1891.
- Crossley/Turner cabin/barn- still upright were born way earlier than that

Growth and Development Trends

Since 1990, Loomis' population has increased by nearly 13 percent from 5,705 people to 6,427, based on 2000 Census data. In 2010, the US Census Bureau estimated the population to be 6,430, which is virtually no increase since 2000. The California Department of Finance estimated the January 1, 2014 total population for the Town of Loomis was 6,608

Development since 2010 Plan

Development within the Town Limits has been limited over the past five years. The Town does not track building permits by hazard risk areas. However, Loomis does have building codes and construction standards in place that effectively mitigate against hazards. Thus, the development that has occurred has not significantly increased the Town's vulnerability to hazards. With continued population growth anticipated, the City will need to continue to effectively manage future development in hazard-prone areas.

Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Loomis and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 6,443 and 8,463 respectively.

The Town of Loomis has identified sites in the Town that may be considered for future development. These areas are shown on Figure D-3.

Figure D-3 Town of Loomis Future Development Areas

Source: Loomis Planning Commission

D.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table D-4 as high or medium significance hazards. Impacts of past events and vulnerability of the Town to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County

planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the Town to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–High

The most significant effect of an earthquake would likely be to the transportation system in the Town. Local bridges may be susceptible earthquakes. The railroad and freeway may also be effected by earthquakes. Many of the buildings in Loomis are only one and two stories.

Future Development

All future development in the Town is at risk to future earthquake. The City enforces building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

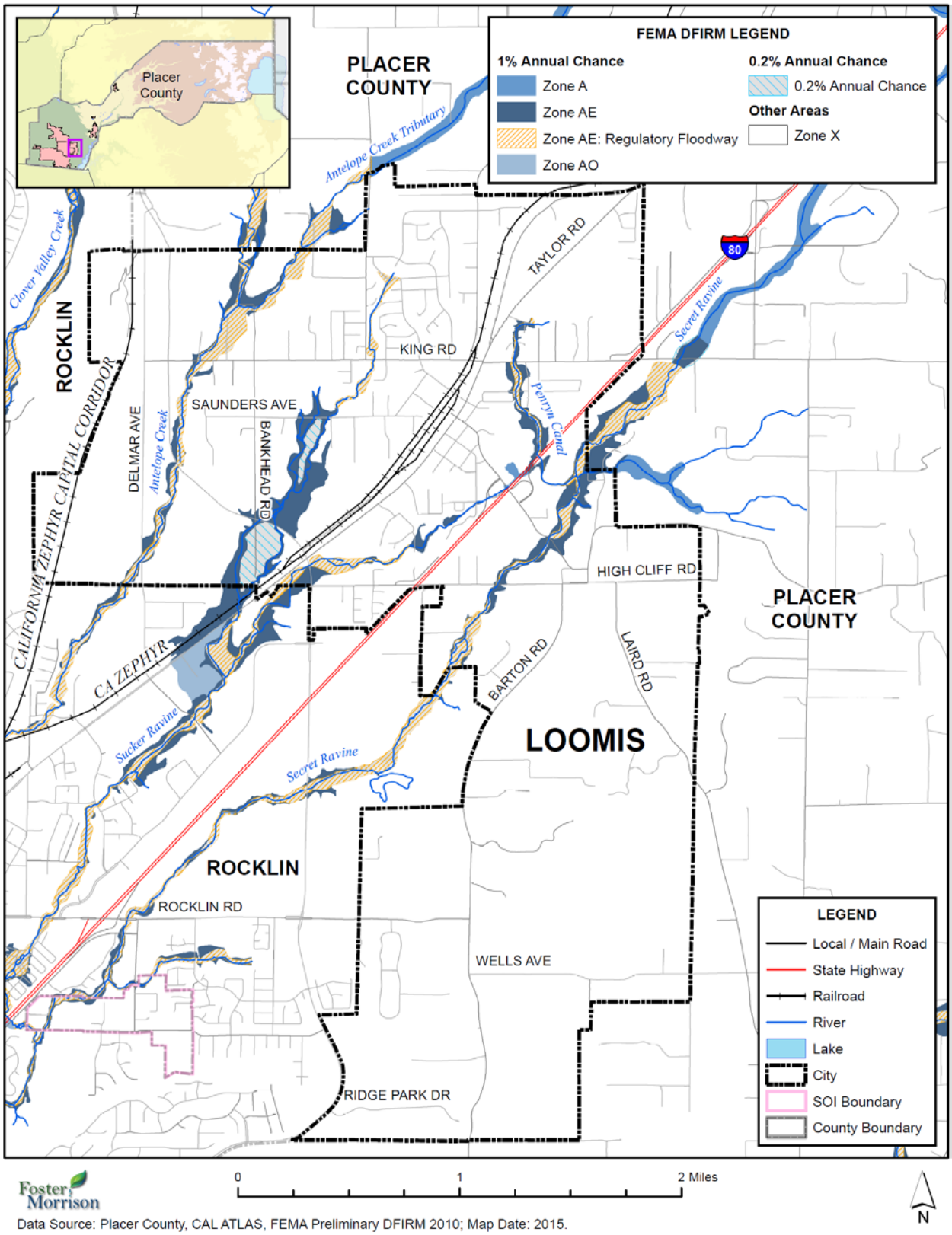
Loomis is traversed by several stream systems and is at risk to both the 100-year flood as well as to localized stormwater flooding. The Safety Element of Loomis' General Plan notes that flooding has been a minor hazard because of the Town's relatively elevated location compared to downstream localities. However, the 1998 Flood Insurance Rate Map does identify portions of Loomis that could be inundated in the event

of 100- and 500-year floods from several creeks that flow through the Town (Antelope Creek, Secret Ravine, and Sucker Creek and their tributaries).

Local drainage problems exist because of inadequately-sized culverts and bridges that impede high water flows, including culverts under Interstate 80; the Horseshoe Bar Road crossing over Secret Ravine; the railroad and Taylor Road crossing of Sucker Ravine; and crossings of Antelope Creek and its tributaries. In the 1995 floods, local flooding did cause damage to the floors of a few buildings. Most recently, the 2005 New Year's Eve flooding created significant problems in various areas of the Town.

A small portion of the City is located inside of the 100- and 500-year flood zone as defined by the Federal Emergency Management Agency (FEMA). This is seen in Figure D-4.

Figure D-4 Town of Loomis – FEMA DFIRM Flood Zones



Foster Morrison

Data Source: Placer County, CAL ATLAS, FEMA Preliminary DFIRM 2010; Map Date: 2015.

Values at Risk

GIS was used to determine the possible impacts of flooding within the Town of Loomis. The methodology described in Section 4.3.7 of the base plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table D-7 shows the property use, improved parcel count, improved values, estimated contents, total values and estimated loss of parcels that fall in a floodplain in the City.

Table D-7 Town of Loomis – Count and Improved Value by Property Use Detailed Flood Zone

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
A	Agricultural	0	$0	0	$0	$0
	Commercial	1	$2,265,000	1	$4,850,000	$7,115,000
	Industrial	0	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total Zone A	**1**	**$2,265,000**	**1**	**$4,850,000**	**$7,115,000**
AE	Agricultural	0	$0	0	$0	$0
	Commercial	20	$1,434,051	2	$3,121,681	$4,555,732
	Industrial	1	$0	0	$0	$0
	Institutional	1	$0	0	$0	$0
	Natural / Open	1	$0	0	$0	$0
	Residential	111	$7,704,457	111	$16,251,256	$23,955,713
	Total Zone AE	**134**	**$9,138,508**	**113**	**$19,372,937**	**$28,511,445**
AO	Agricultural	0	$0	0	$0	$0
	Commercial	0	$0	0	$0	$0
	Industrial	0	$0	0	$0	$0
	Institutional	0	$0	0	$0	$0
	Natural / Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total Zone AO	**0**	**$0**	**0**	**$0**	**$0**
Shaded X	Agricultural	0	$0	0	$0	$0
	Commercial	1	$54,799	0	$0	$54,799
	Industrial	0	$0	0	$0	$0

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
	Institutional	0	$0	0	$0	$0
	Natural / Open	0	$0	0	$0	$0
	Residential	13	$838,872	13	$1,991,622	$2,830,494
	Total Shaded X	**14**	**$893,671**	**13**	**$1,991,622**	**$2,885,293**
X	Agricultural	6	$977,980	2	$514,715	$1,492,695
	Commercial	354	$50,883,304	94	$36,796,243	$87,679,547
	Industrial	159	$13,163,007	111	$31,233,577	$44,396,584
	Institutional	29	$2,152,934	16	$12,773,444	$14,926,378
	Natural/Open	5	$1,106,600	1	$266,404	$1,373,004
	Residential	2,241	$202,293,091	2,149	$422,590,214	$624,883,305
	Total Zone X	**2,794**	**$270,576,916**	**2,373**	**$504,174,597**	**$774,751,513**
Grand Totals		**2,943**	**$282,874,095**	**2,500**	**$530,389,156**	**$813,263,251**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Table D-8 summarizes Table D-7 above and shows Town of Loomis loss estimates and shows improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table D-8 Town of Loomis – Flood Loss Summary

Jurisdiction	Flood Zone	Improved Parcel Count	Total Improved Value	Estimated Contents Value	Total Improved/ Contents Value	Loss Estimate	Loss Ratio
Loomis	1%	114	$24,222,937	$16,097,312	$40,320,249	$8,064,050	0.99%
	0.2%	13	$1,991,622	$995,811	$2,987,433	$597,487	0.07%

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

According to Table D-7 and Table D-8, the Town of Loomis has 114 improved parcels and $40,320,249 of structure and contents value in the 1% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.7, there is a 1% chance in any given year of a flood event causing roughly $8,064,050 in damage in the Town. A loss ratio of 0.99% indicates that losses in Town to flood would be relatively minor, as less than a percent of the total values in the Town would be damaged.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the Town in comparison to total area within the Town limits. The same methodology, as discussed in Section 4.3.7 of the base plan, was used for the Town of Loomis as well as for the County as a whole.

Table D-9 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table D-9 Town of Loomis – Flooded Acres

Flood Zone	Property Use	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
A	Agricultural	0	0	0.0%
	Commercial	5.28	5.28	100.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
AE	Agricultural	0	0	0.0%
	Commercial	34.13	3.27	9.6%
	Industrial	0.37	0	0.0%
	Institutional	0.20	0	0.0%
	Natural/Open	4.04	0	0.0%
	Residential	122.71	122.71	100.0%
AO	Agricultural	0	0	0.0%
	Commercial	0	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
Total 1%		**166.73**	**131.25**	**78.7%**
Shaded X	Agricultural	0	0	0.0%
	Commercial	0.62	0	0.0%
	Industrial	0	0	0.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	15.64	15.64	100.0%
Total 0.2%		**16.26**	**15.64**	**96.2%**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for Loomis. According to this analysis, there is a total population of 337 residents of the City at risk to flooding, 302 in the 1% and 35 in the 0.2% annual chance floodplains. This is shown in Table D-10.

Table D-10 Town of Loomis – Count of Improved Residential Parcels and Population by Flood Zone

Flood Zone	Improved Residential Parcels	Population*
A	0	0
AE	111	302
AO	0	0
Total 1% Annual Chance	**111**	**302**
Shaded X (0.2% Annual Chance)	13	35
D	0	0

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data, US Census Bureau
* Average household populations from the 2010 US Census were used: Loomis– 2.72.

Critical Facilities at Risk

There are no critical facilities at risk in the Town of Loomis in the flood zones.

Insurance Coverage, Claims Paid, and Repetitive Losses

The Town of Loomis joined the National Flood Insurance Program (NFIP) on December 29, 1986. The Town does not participate in CRS. NFIP Insurance data indicates that as of September 30, 2015, there were 71 flood insurance policies in force in the Town with $18,367,900 of coverage. Of the 71 policies, 63 were residential and 8 were nonresidential; 48 of the policies were in A zones (the remaining 23 were in B, C, and X zones). The GIS parcel analysis detailed above identified 114 improved parcels in the 100-year flood zone. 48 policies for 114 improved parcels in the 100 year floodplain equates to insurance coverage of 42.1 percent.

There have been 11 historical claims for flood losses totaling $365,985; seven of these were for policies located in the A zones and 4 were associated with standard policies located in B, C, or X zones. 9 of these were for pre-FIRM structures; 2 was for a post-FIRM structure. NFIP data further indicates that there are 4 repetitive loss (RL) buildings, with 3 RL buildings being insured. There have been a total of 9 RL losses, with 7 insured RL losses. No severe repetitive loss properties exist in the City. Three of the four RL buildings are located within the 100- and 500-year floodplain and the other one RL building is located outside the 100-and 500-year floodplain in the B, C, or X zones.

California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. The BAM map for Loomis is shown in Figure D-5.

Figure D-5 Town of Loomis Best Available Map

Source: California DWR

Future Development

Development in the Floodplain is discouraged and required to obtain approval from FEMA for modifications in the Floodplain.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

According to historical hazard data, severe weather is an annual occurrence in the Town of Loomis. Damage and disaster declarations related to severe weather have occurred and can be expected to occur in the future. Heavy rain and thunderstorms are the most frequent type of severe weather occurrence in the area. Wind and lightning often accompany these storms and have caused damage in the past. Problems associated with the primary effects of severe weather include flooding, pavement deterioration, washouts, high water crossings, landslide/mudslides, debris flows, and downed trees.

Future Development

The City enforces building codes and other ordinances, which regulate construction techniques that minimize damage from heavy storms and rain. Future development in the City is subject to these building codes. New critical facilities such as communications towers should be built to withstand hail damage, lightning, and heavy rains.

Wildfire

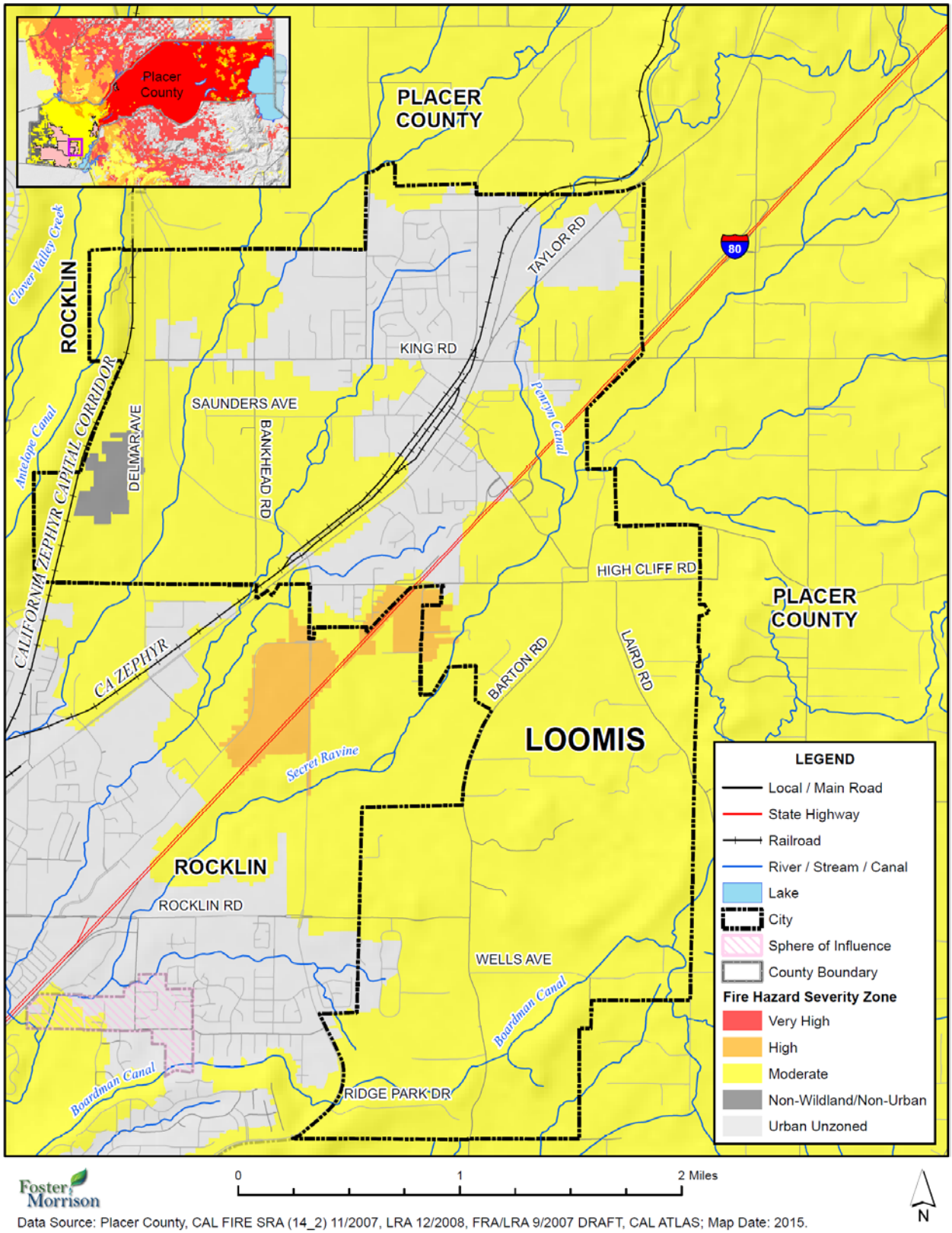
Likelihood of Future Occurrence–Likely
Vulnerability–High

According to the Safety Element of the General Plan, two types of fires are of concern to the Town of Loomis: wildland (including wildland urban interface) fires and structural fires. The topography, climate, and vegetation of Loomis are conducive to the spread of wildland fires. It contains extensive grasslands and oak woodlands in rolling terrain. The area is subject to hot, dry summers, with frequent wind gusts. However, prolonged summer heat spells often induce the delta breeze, a moist, cooling wind that temporarily reduces the high fire hazard condition common during the summer months.

Although small grass fires are common in the planning area, they have historically been limited in size by prompt emergency response. In 2002 the town was impacted by the Sierra Fire which burned 900 acres, including six structures. More than 100 homes were evacuated and over 1,000 homes were threatened in both Loomis and Granite Bay. The structural fire hazard, caused largely by human activities, is greatest in areas containing older buildings that do not meet current building codes.

Following the methodology described in Section 4.3.2 Vulnerability of Placer County to Specific Hazards, a wildfire map for the Town of Loomis was created (see Figure D-6). Wildfire threat within the Town is moderate.

Figure D-6 Town of Loomis's Fire Severity Zones



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Values at Risk

Analysis results for Loomis are shown in Table D-12, which summarizes total parcel counts, improved parcel counts and their structure values by occupancy type as well as the percentage of parcels affected by fire.

Table D-11 Town of Loomis – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
Very High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**0**	**$0**	**0**	**$0**	**$0**	**0.0%**
High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	5	$186,422	0	$0	$186,422	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	1	$0	0	$0	$0	0.0%
	Residential	32	$2,156,929	27	$5,827,719	$7,984,648	1.2%
	Total	**38**	**$2,343,351**	**27**	**$5,827,719**	**$8,171,070**	**1.1%**
Moderate	Agricultural	6	$977,980	2	$514,715	$1,492,695	100.0%
	Commercial	219	$35,378,507	33	$18,150,436	$53,528,943	34.0%
	Industrial	22	$1,537,020	5	$1,074,614	$2,611,634	4.5%
	Institutional	13	$1,095,687	10	$9,400,299	$10,495,986	62.5%
	Natural/Open Space	3	$1,106,600	1	$266,404	$1,373,004	100.0%
	Residential	1,014	$118,690,025	978	$249,218,906	$367,908,931	43.0%
	Total	**1,277**	**$158,785,819**	**1,029**	**$278,625,374**	**$437,411,193**	**41.2%**
Urban Unzoned	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	152	$19,072,225	64	$26,617,488	$45,689,713	66.0%

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
	Industrial	138	$11,625,987	106	$30,158,963	$41,784,950	95.5%
	Institutional	17	$1,057,247	6	$3,373,145	$4,430,392	37.5%
	Natural/Open Space	2	$0	0	$0	$0	0.0%
	Residential	1,312	$89,495,641	1,262	$185,141,914	$274,637,555	55.5%
	Total	**1,621**	**$121,251,100**	**1,438**	**$245,291,510**	**$366,542,610**	**57.5%**
Non-Wildland/Non-Urban	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	7	$493,825	6	$644,553	$1,138,378	0.3%
	Total	**7**	**$493,825**	**6**	**$644,553**	**$1,138,378**	**0.2%**
	Grand Total	**2,943**	**$282,874,095**	**2,500**	**$530,389,156**	**$813,263,251**	**100.0%**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
*Land and structure values

Population at Risk

The Fire Severity Zone dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for each jurisdiction and unincorporated area. Results were tabulated by jurisdiction. According to this analysis, there is a total population of 2,733 residents of Loomis at risk to moderate or higher wildfire risk. This is shown in Table D-13.

Table D-12 Town of Loomis – Count of Improved Residential Parcels and Population by Fire Severity Zone

Fire Severity Zone	Improved Residential Parcels	Population*
Very High	0	0
High	27	73
Moderate	978	2,660
Urban Unzoned	1,262	3,433
Non-Wildland/Urban	6	16
None	0	0
Total	**2,273**	**6,183**

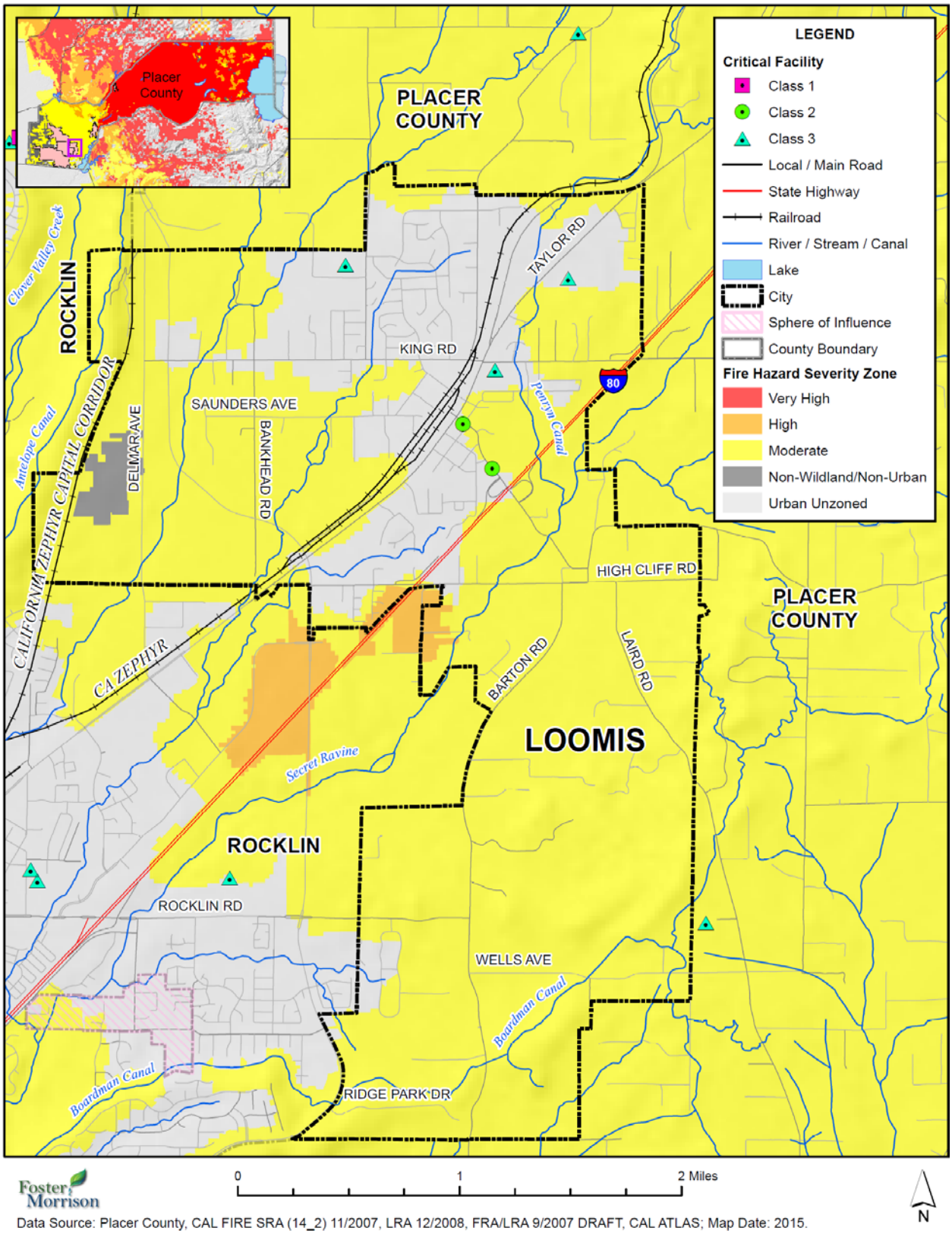
Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE

* Average household populations for Loomis (2.72) from the 2010 US Census were used

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a fire severity zone provided by CAL FIRE, and if so, which zone it intersects. There is one facility in the moderate or higher fire severity zone in the City. These are shown in Figure D-7 and detailed in Table D-14. Details of critical facility definition, type, name and address and jurisdiction by fire zone are listed in Appendix F.

Figure D-7 Town of Loomis – Critical Facilities in the Fire Severity Zones



Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Table D-13 Town of Loomis– Critical Facilities in the Fire Severity Zones

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	-	-
	Class 2	PCSO	1
	Class 3	-	-
		Total Moderate	**1**
Non-Wildland/Non-Urban	Class 1		-
	Class 2		-
	Class 3	School	1
		Total Non-Wildland/Non-Urban	**0**
Urban Unzoned	Class 1		
	Class 2	Fire Station	1
	Class 3	School	3
		Total Urban Unzoned	**4**
Total			**5**

Source: CAL FIRE, Placer County GIS

Future Development

All new development in the WUI is subject to Fire Department approval that requires adequate fire breaks for structures.

Hazardous Materials Transport

Likelihood of Future Occurrence–Likely
Vulnerability–High

The Union Pacific Railroad line passes through the Town of Loomis. Hazardous materials are regularly shipped via the rail line and, while unlikely, an incident involving a rail accident within the City could have devastating effects.

The City has little control over the types of materials that are shipped via the rail line. With regard to government activities, the content of shipments may be confidential for reasons of security and/or is

generally unknown to the City. While the City has little influence over the types of material transported via the rail line, the potential for rail incidents can be reduced by ensuring that at-grade crossings within the City are operating in a safe and effective manner.

Interstate 80 passes through the City as well. This is a designated Cal Trans haz-mat routes.

Populations at Risk

To determine the populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table D-15. This table shows total population that are within the proximity of this two-mile buffer of all the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel data. Those parcel centroids that intersect the buffered corridor were counted and multiplied by the 2010 Census Bureau average household factors for the City. According to this analysis, there is a total population of 6,425 in the buffered corridors.

Table D-14 Town of Loomis – Populations at Risk in Haz-Mat Corridors

Jurisdiction	Residential Parcels	Population
Loomis	2,362	6,425

Source: Cal Trans, Placer County GIS, US Census Bureau

* Average household populations from the 2010 US Census were used: Loomis– 2.72.

Critical Facilities at Risk

To determine the critical facilities at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table D-15. This table shows critical facilities located within the proximity of this two-mile buffer of all the highway and railroad corridors. Some facilities fall in the highway routes, some in the rail routes, and some fall in both the highway and rail routes. According to this analysis, there are five critical facilities in the buffered corridors.

Figure D-8 Town of Loomis – Critical Facilities at Risk in Haz-Mat Corridors

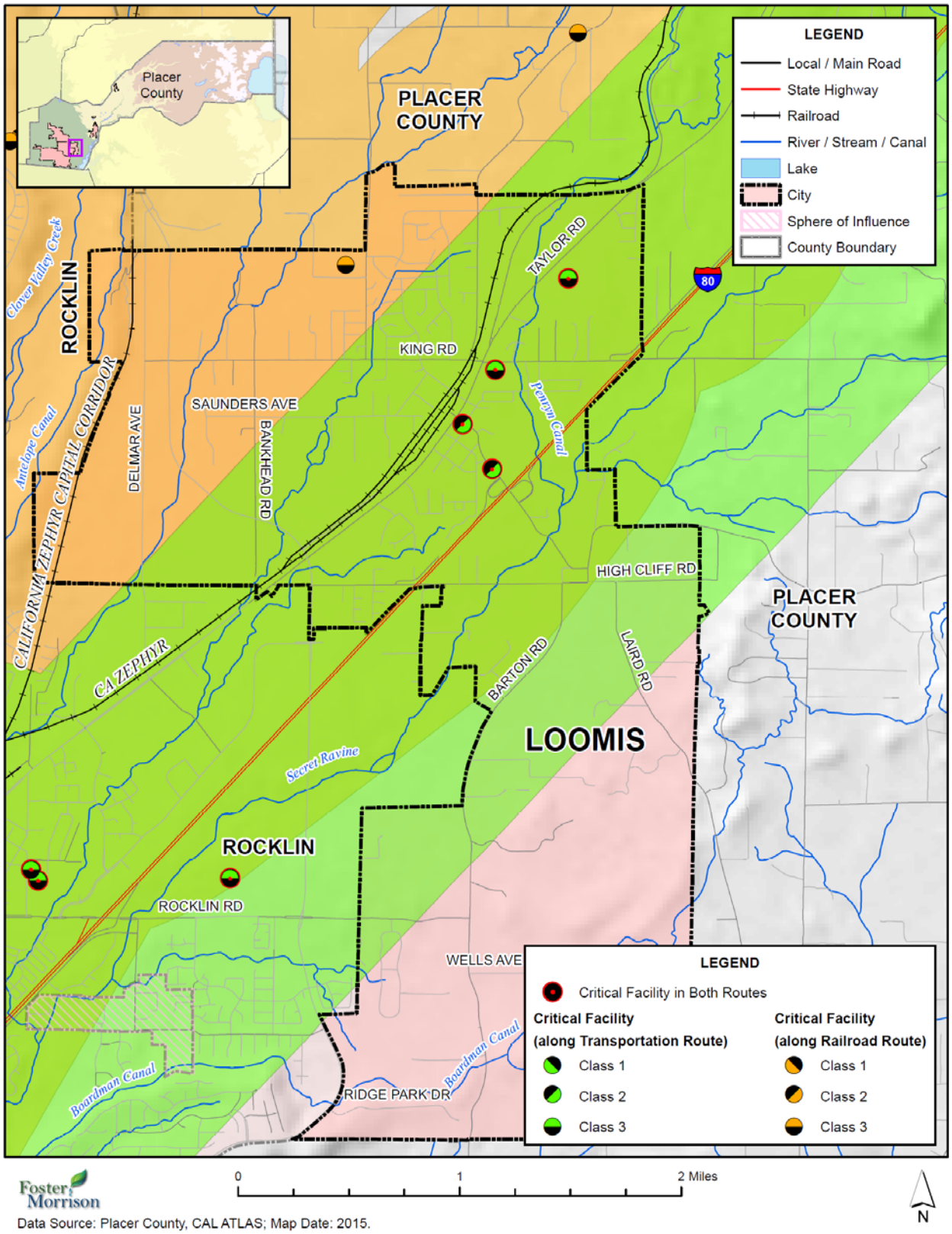


Table D-15 Town of Loomis– Critical Facilities at Risk in Haz-Mat Corridors

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Hazardous Materials Highway Route	**0**
Hazardous Materials Railroad Route	Class 1	-	-
	Class 2	-	-
	Class 3	School	1
		Total Hazardous Materials Railroad Route	**1**
Combined Hazardous Materials Highway and Railroad Route	Class 1	-	-
	Class 2	Fire Station	1
		PCSO	1
	Class 3	School	2
		Total Combined Routes	**4**
Total			**5**

Source: Cal Trans, Placer County GIS, US Census Bureau

Future Development

Development will continue to occur in hazmat affected areas. It is important that the City make residents who choose to live or develop in hazmat zones about the possibility of being affected by a hazmat spill.

D.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

D.6.1. Regulatory Mitigation Capabilities

Table D-17 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the Town.

Table D-16 Town of Loomis's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	
Capital Improvements Plan	Y	The Public Works Department looks for opportunities to improve/correct hazards that are within or adjacent to CIPs.
Economic Development Plan	N	The Town is working with Planning and the Chamber of Commerce to develop a plan
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	N	
Transportation Plan	Y	
Stormwater Management Plan/Program	Y	
Engineering Studies for Streams	Y	
Community Wildfire Protection Plan	Y	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	Y	Score:
Fire department ISO rating:	NA	Rating: (Loomis does not operate its fire department)
Site plan review requirements		
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	
Subdivision ordinance	Y	
Floodplain ordinance	Y	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	
Flood insurance rate maps	Y	
Elevation Certificates	Y	
Acquisition of land for open space and public recreation uses	Y	
Erosion or sediment control program	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the Town has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

As indicated above, the Town has several programs, plans, policies, codes and ordinances in place and/or that they follow. The General Plan for the Town of Loomis is the most comprehensive. The following section provides an overview of the General Plan and identifies specific policies related to hazard mitigation that are included in the plan.

The Town of Loomis General Plan Program, 2001

The Town of Loomis General Plan Program serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the Town is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The general plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the Loomis Planning Area. Identified hazards include fire, geologic/seismic, flooding, and hazardous materials. Mitigation-related issues, goals, policies, and actions are presented below.

Issues	
Issue 1:	The rural nature of the community and presence of large open space parcels increases the Town's risk of wildland and fire hazards at the urban edge.
Issue 2:	A number of properties along local creeks have been flooded during winter storms, despite flood preventative measures.

Goals	
Goal 1:	To reduce the risks associated with wildland and urban edge fires in the Town's rural areas.
Goal 2:	To reduce the risks associated with wildland and urban edge fires in the Town's rural areas.
Goal 3:	To reduce the potential for and damage resulting from storm flooding hazards within the community.
Goal 4:	To reduce the risks associated with potential seismic activity, including groundshaking, liquefaction, and landslides.

Policies	
Policy 1:	Loomis shall enforce building codes and other Town ordinances having an effect upon fire hazards and fire protection. The Town shall maintain adequate street widths and turning radii to accommodate fire protection equipment. New development shall ensure adequate water pressure and volume for firefighting.
Policy 2:	Engineering analysis of new development proposals shall be required in areas with possible soil instability, flooding, earthquake faults, or other hazards, and prohibit development in high danger areas.

Policies	
Policy 3:	Loomis shall comply with Placer County's Emergency Response Plan, as well as revise the Town Emergency Plan to address Town-specific issues.
Policy 4:	No new structures or additions to existing structures shall be permitted in areas identified by the federal Flood Insurance Rate Maps (FIRMs) or the Town Engineer as being subject to inundation in a 100-year or more frequent flood event. Exceptions may be granted for public facilities and utilities. New development shall also be prohibited in the future 100-year flood zone, based on buildout conditions as determined by FEMA and FIRM maps. Development will be required to adhere to Placer County Flood Control District policies and the Dry Creek Watershed Control Plan.
Policy 5:	New development near stream channels shall be designed so that reduced stream capacity, stream bank erosion, or adverse impacts on habitat values are avoided.
Policy 6:	Further channelization and/or banking of creeks or streams within the planning area shall be discouraged, unless no other alternative is available to minimize flood risk. Setbacks from flood sources shall be the preferred method of avoiding impacts.
Policy 7:	Site-specific recommendations of the Town's Drainage Master Plan, upon completion, shall be applied to individual development projects as appropriate.
Policy 8:	Loomis shall cooperate with Federal, State, and local authorities to ensure that loss due to seismic activity and other natural and man-made disasters is minimized.
Policy 9:	Loomis shall encourage compliance with State requirements for unreinforced masonry buildings and seismic safety.
Policy 10:	Loomis shall continue to train and equip Town personnel to cope with emergency disaster situations, including hazardous material incidents.
Policy 11:	A Street Address Ordinance shall be adopted to assist effective emergency response by requiring adequate street address identification.
Policy 12:	Application materials for residential subdivisions proposed within or near oak woodlands shall include Wildland fire protection plans showing how vegetation clearance will be maintained around structures while preserving oak trees.

D.6.2. Administrative/Technical Mitigation Capabilities

Table D-18 identifies the personnel responsible for activities related to mitigation and loss prevention in the Town.

Table D-17 Town of Loomis's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	
Mutual aid agreements	Y	
Other		

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	Y	Consultant
Floodplain Administrator	Y	Certified Floodplain Manager
Emergency Manager	Y	Town Manager
Community Planner	Y	Consultant
Civil Engineer	Y	Licensed Professional Engineer
GIS Coordinator	N	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	N	The Town relies on the County and Fire District that do have these services
Hazard data and information	Y	
Grant writing	N	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

D.6.3. Fiscal Mitigation Capabilities

Table D-19 identifies financial tools or resources that the Town could potentially use to help fund mitigation activities.

Table D-18 Town of Loomis's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Storm water utility fee	Y	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	Y	
Community Development Block Grant	Y	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Other federal funding programs	Y	
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

D.6.4. Mitigation Education, Outreach, and Partnerships

Table D-20 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table D-19 Town of Loomis's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	
Natural disaster or safety related school programs	Y	
StormReady certification	N	
Firewise Communities certification	Y	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Town of Loomis Code Enforcement works with the Loomis Fire Department to notify and remind residents and businesses within Loomis to provide the required fire protection buffer zone. The Town and Fire Department mail out letters to all that are in violation. Within this letter sections 7.04.010 – 7.04.190 of the Loomis Code are referenced.

D.6.5. Other Mitigation Efforts

The Town of Loomis has many other ongoing mitigation efforts that include the following:

- In 2000-2001 the Town replaced all old street signs with new larger and more reflective signs. The Town's construction standard was also changed so that all new developments within town are built to this standard. By increasing the size of lettering and requiring them to be made with a high intensity back ground will help emergency responders.
- The Town's Maintenance Department evaluates and then focuses efforts on the creeks and channels that have the highest probability to cause flooding.

D.7 Mitigation Strategy

D.7.1. Mitigation Goals and Objectives

The Town adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

D.7.2. NFIP Mitigation Strategy

The Town of Loomis joined the National Flood Insurance Program (NFIP) on December 29, 1986. As a participant of the NFIP, the Town of Loomis has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the Town. The Town of Loomis will continue to comply with the requirements of the NFIP in the future.

In addition, the Town of Loomis actively participates with the County of Placer to address local NFIP issues through a regional approach. Many of the program activities are the same for the Town of Loomis as for Placer County since participation at the County level includes all local jurisdictions. An elected official of the Town of Loomis is a designated representative on the Placer County Flood Control District Board.

The Town's regulatory activities apply to existing and new development areas of the Town; implementing flood protection measures for existing structures and new development, and maintaining drainage systems. The goal of the program is to enhance public safety, and reduce impacts and losses while protecting the environment. The Town has a Flood Damage Prevention Ordinance that regulates construction in the floodplain. The Town intends to continue to implement the ordinance and participate at the regional level with Placer County implementing appropriate measures to mitigate exposure and damages within designated flood prone areas.

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The Town of Loomis is not a current participant in the CRS program.

D.7.3. Mitigation Actions

The planning team for the Town identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: Town of Loomis Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 1. Local Bridges Evaluation Program

Hazard Addressed: Multi-hazard

Issue/Background Statement: Working with the local Fire Districts evaluate all the bridges in the Town limits and ensure they meet minimum requirements.

Other Alternatives:

Existing Planning Mechanisms through which Action Will be Implemented: Working with the local Fire Districts set minimum criteria, evaluate local bridges, seek funding to improve bridges to minimum standards.

Responsible Office: Town of Looms and Loomis Fire Protection District

Priority (H, M, L): M

Cost Estimate: To be determined.

Benefits (Losses Avoided): Reduced loss of life.

Potential Funding: To be determined

Schedule: To be determined

Action 2. Address Signage for Property Addresses

Hazard Addressed: Multi-hazard

Issue/Background: Finding addresses on rural roads with no street lights.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Get engineers estimate and propose to Town Council.

Responsible Office: Town of Loomis

Priority (High, Medium, Low): Low

Cost Estimate: $30,000

Benefits (Losses Avoided): Reduced loss of life.

Potential Funding: To be determined.

Schedule: To be determined.

Action 3. Delmar Avenue Headwall Reconstruction

Hazard Addressed: Flooding

Issue/Background: Headwall has cracked vertically.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Get Engineers estimate and propose to Town Council.

Responsible Office: Town of Loomis

Priority (High, Medium, Low): Medium

Cost Estimate: $100,000

Benefits (Losses Avoided): Road and Flood protection

Potential Funding: Town budgets, Grant funding

Schedule: 1-3 years

Action 4. Creek Maintenance Secret Ravine & Antelope Creek

Hazard Addressed: Flooding

Issue/Background: During winter, debris blocks creek.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Get Engineers estimate and propose to Town Council.

Responsible Office: Town of Loomis

Priority (High, Medium, Low): Medium

Cost Estimate: Unknown

Benefits (Losses Avoided): Flood prevention

Potential Funding: Town budgets

Schedule: 1-3 years

Action 5. Reconstruction of Brace Bridge at Secret Ravine

Hazard Addressed: Flooding

Issue/Background: Old bridge, not heavy truck rated. Creek has topped the bridge in the past due to flow restriction.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Get Engineers estimate and propose to Town Council.

Responsible Office: Town of Loomis

Priority (High, Medium, Low): High

Cost Estimate: $200,000

Benefits (Losses Avoided): Road and Flood protection

Potential Funding: Town budgets, Grand funding

Schedule: 2010

Action 6. Raise Flood-Prone Houses Along Loomis Creeks

Hazard Addressed: Flooding

Issue/Background: The Town has kept structure flooding data since 1984. Within the Town limits, there have been 16 homes and 4 buildings flooded in the 1986 flood and 10 homes flooded in the 1995 flood. All homes flooded in 1995 were flooded in 1986.

There are four significant creeks that flow north to south through Loomis; they are Antelope Creek, Sucker Ravine, Loomis Tributary and Secret Ravine. Antelope Creek is 9,000 feet long and runs along the west portion of the Town. The creek is a natural channel throughout Loomis. The creek crossed three important street systems (King Road, Sierra College Boulevard and Del Mar Road). There are three structures identified that are affected by flooding on Antelope Creek. Sucker Ravine is in the central portion of Loomis and is roughly 8,500 feet long. Flow in this system changes in character from the north to the south. The north area flow is gathered by surface runoff near the railroad tracks and enters into pipe systems in the industrial area of Swetzer Road. The flow then runs within pipes and concrete channels within the Sunrise-Loomix Subdivision and enters a naturally lined channel north of King Road. Once the flow crosses King Road, the remaining channel to the south Town limit is natural. The creek also crosses Saunders Avenue, Sierra College Boulevard, Bankhead Road, and Taylor Road (within Rocklin). One structure is identified as being effected by flooding on Sucker Ravine. The Loomis tributary is 10,000 feet long and collects flow from the central portion of Loomis. The flow runs through several piped systems within subdivisions to the north and south of Horseshoe Bar Road. The other segments are natural channel. No flooding of structures have been identified on this tributary. Secret Ravine runs parallel with Highway 80 and is 6,000 feet in length. The creek is a natural channel with two major street crossings at Horseshoe Bar Road and Brace Road. Most of the flooding occurs on this creek system due to the building of structures along the banks. Sixteen structures have been identified as flood prone within Secret Ravine.

Under the Town's updated General Plan, no new structures are allowed to be built within the 100 year floodplain. Existing structures can only be raised or extended to a second story. All information is taken from the FEMA FIRMs. Proposed projects adjacent to the 100-year floodplain must submit to the Town a drainage study report evaluating the drainage and verifying the location of the 100-year floodplain. Larger projects may be required to submit to FEMA, a Letter of Map Revision (LOMR) to update or amend the 100-year floodplain should it be affected by the project.

Other Alternatives: Relocate the structures out of the 100-year floodplain; purchase the property, remove structure and designate it as open space. Purchase the structure/land within the 100-year floodplain, designate it as open space/detention and leave the remaining land for property owner to develop.

Compensate property owner for removing structure and acquire a no-build easement of property within 100-year floodplain. No Action.

Existing Planning Mechanism(s) through which project will be implemented:

Responsible Office: Brit Snipes, Director of Public Works/Town Engineer, Town of Loomis

Priority (High, Medium, Low): High

Cost Estimate: In 2009 dollars, there is roughly $5 million dollars of structures within the flood prone areas. The cost of land was not factored into the calculation. Depending on the alternative that is used, the cost of construction and incidentals would need to be estimated at current dollar values.

Benefits (avoided Losses): With the cost of property and construction and material costs going up, the Town would alleviate much of the cost and flooding concerns by being proactive before future flooding occurs. Providing open space upstream of many of the effected properties may provide additional detention and relieve flooding downstream. As future development occurs in Placer County, in the Town and in Rocklin, the Town of Loomis will need to look for areas to detain floodwaters. This mitigation action works towards flood control in the Town.

Potential funding: FEMA, Town of Loomis, Affected Property Owner

Schedule: TBD, depending on funding

Annex E City of Rocklin

E.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Rocklin, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the City. This Annex provides additional information specific to the City of Rocklin, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

E.2 Planning Process

As described above, the City of Rocklin followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the City formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table E-1. Additional details on plan participation and City representatives are included in Appendix A.

Table E-1 City of Rocklin Planning Team

Name	Position/Title	How Participated
David Mohlenbrok	Environmental Services Manager	Attended planning meetings. Provided edits and updates to past annex. Provided updated hazard identification, vulnerability and capability information. Provided updated mitigation projects.
James Summers	City of Rocklin Fire Chief (retired)	Provided future development and capability information. Provided editing and review of draft work products. Attended planning meetings.
Kurt Snyder	City of Rocklin Fire Chief	Provided future development and capability information. Provided editing and review of draft work products.
Richard Holmes	City of Rocklin Fire Battalion Chief	Provided future development and capability information. Provided editing and review of draft work products.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the City integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table E-2.

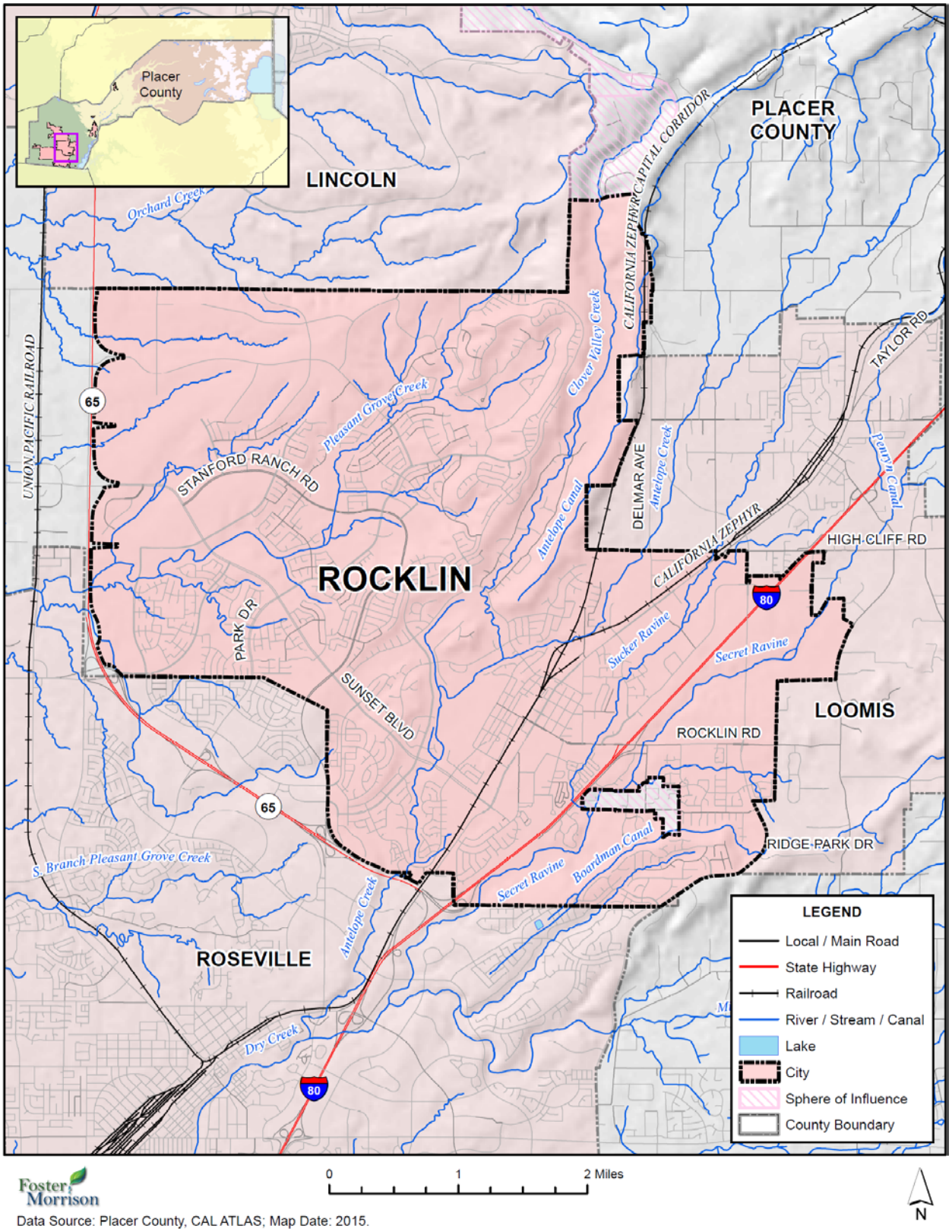
Table E-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
City of Rocklin	The previous LHMP was adopted by City Council in May of 2011, but the City did not incorporate the plan into other documents. There were several reasons why this did not occur and included, financial constraints of the City resulting in limited planning activities over the last five years and lack of consistent and available staff responsible for plan implementation.
City of Rocklin	Although not specifically part of City activities, implementation of regional planning efforts and associated projects, such as flood planning efforts and projects since 2010 provide a direct benefit to the City of Rocklin.
City of Rocklin	The 2010 LHMP was not directly incorporated into 2012 General Plan Update. However, the LHMP is considered a supporting document to the General Plan that will be incorporated into the Safety Element during the next General Plan update.

E.3 Community Profile

Figure E-1 displays a map and the location of the City of Rocklin within Placer County. The Planning Team for the City noted that the City of Rocklin is in the process of incorporating the "island" of Placer County that is shown in green just south of I-80 into the City limits.

Figure E-1 City of Rocklin Basemap



Foster Morrison

Data Source: Placer County, CAL ATLAS; Map Date: 2015.

E.3.1. Geography and Climate

The City of Rocklin is located in the rolling hills of southwestern Placer County at an elevation range of 150 to 525 feet above sea level. Rocklin encompasses 20 square miles in area and is situated at the junction of I-80 and Highway 65, 21 miles northeast of Sacramento and 80 miles northeast of San Francisco. The City is on the fringe of the California's Central Valley, with productive agricultural lands to the west and Folsom Lake State Recreation Area and the Sierra Nevada Range to the east. Bordering Rocklin are the cities of Lincoln to the north, Roseville to the south, and Loomis to the east.

The climate in Rocklin is similar to other cities in the Central Valley region, with hot, dry summers and moderately wet winters. The average high temperature in July is 98°F and the average low temperature in January is 37°F. Average annual rainfall is 21 inches, with 96 percent of that total (19.7 inches) typically falling in the months of October-April.

E.3.2. History

Rocklin began as a railroad town with the Central Pacific moving to the area in 1864. In 1866, a major locomotive terminal was established in Rocklin because of its location at the "bottom of the hill." Additionally, the town was a major granite producer for the Sacramento Valley. In 1893, Rocklin officially incorporated with a population of 1,050. The town bustled with granite production and the commercial fruit industries until about 1908 when the Central Pacific decided to move the railroad roundhouse terminal to Roseville.

With soils generally of poor quality, commercial agriculture activities were difficult to support with the exception of livestock grazing. The J.P. Whitney family, a major landholder in the Rocklin from the late 1850s to 1949, raised sheep and conducted other ranching activities. Ranching occurred well into the 1950s and 1960s in the Rocklin area when increased urbanization and expansion of suburban communities from Sacramento to the northeast, along I-80, led to growth of the housing market. Beginning in the 1980s, the low cost of land attracted industry to the region and the expansion of commercial and residential development in south Placer County began.

E.3.3. Economy

US Census estimates show economic characteristics for the City of Rocklin. These are shown in Table E-3.

Table E-3 City of Rocklin Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	169	0.6%
Construction	1,042	3.9%
Manufacturing	1,741	6.5%
Wholesale trade	1,011	3.8%
Retail trade	3,424	12.8%

Industry	Estimated Employment	Percent
Transportation and warehousing, and utilities	1,087	4.1%
Information	782	2.9%
Finance and insurance, and real estate and rental and leasing	2,654	9.9%
Professional, scientific, and management, and administrative and waste management services	3,422	12.8%
Educational services, and health care and social assistance	5,955	22.2%
Arts, entertainment, and recreation, and accommodation and food services	2,269	8.5%
Other services, except public administration	1,130	4.2%
Public administration	2,139	8.0%

Source: US Census Bureau American Community Survey 2009-2013 Estimates

E.3.4. Population

The California Department of Finance estimated the January 1, 2014 total population for the City of Rocklin was 59,672.

E.4 Hazard Identification and Summary

Rocklin's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Rocklin (see Table E-4). In the context of the plan's planning area, there are no hazards that are unique to Rocklin.

Table E-4 City of Rocklin—Hazard Summaries

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Occasional	Negligible	Low
Drought and Water Shortage	Extensive	Highly Likely	Critical	Low
Earthquake	Significant	Occasional	Limited	Low
Flood: 100/500 year	Significant	Occasional	Limited	Low
Flood: Localized Stormwater Flooding	Limited	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Limited	Low
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	Low
Severe Weather: Extreme Heat	Limited	Likely	Limited	Medium
Severe Weather: Freeze and Snow	Limited	Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Likely	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Likely	Critical	Medium
Soil Bank Erosion	Limited	Unlikely	Limited	Low
Subsidence	Limited	Unlikely	Limited	Low
Volcano	Limited	Unlikely	Negligible	Low
Wildfire	Significant	Highly Likely	Limited	Medium
Hazardous Materials Transport	Significant	Likely	Critical	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

E.5 Vulnerability Assessment

The intent of this section is to assess Rocklin's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. In addition, although ranked as low significance by the community, the 100-year flood hazard is also included in the below analysis. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

E.5.1. Assets at Risk

This section identifies Rocklin's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, and growth and development trends.

Values at Risk

The following data from the Placer County Assessor's Office is based on the 2015 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the base plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table E-5 shows the 2015 Assessor's values (e.g., the values at risk) broken down by property type for the City of Rocklin.

Table E-5 City of Rocklin – Total Assets at Risk by Property Use

Property Use	Parcels	Total Land Value	Improved Parcel Count	Improved Structure Value	Total Value
Agricultural	4	$1,946,450	0	0	$1,946,450
Commercial	1513	$395,275,204	457	$523,142,972	$918,418,176
Industrial	240	$58,893,048	153	$125,689,906	$184,582,954
Institutional	67	$17,218,965	22	$72,982,008	$90,200,973
Natural/Open	102	$,2993,739	6	$3,123,464	$6,117,203
Residential	18024	$1,621,943,518	17,373	$4,323,097,708	$5,945,041,226
Total	**19,950**	**$2,098,270,924**	**18,011**	**$5,048,036,058**	**$7,146,306,982**

Source: Placer County 2015 Parcel/Assessor's Data

Critical Facilities and Infrastructure

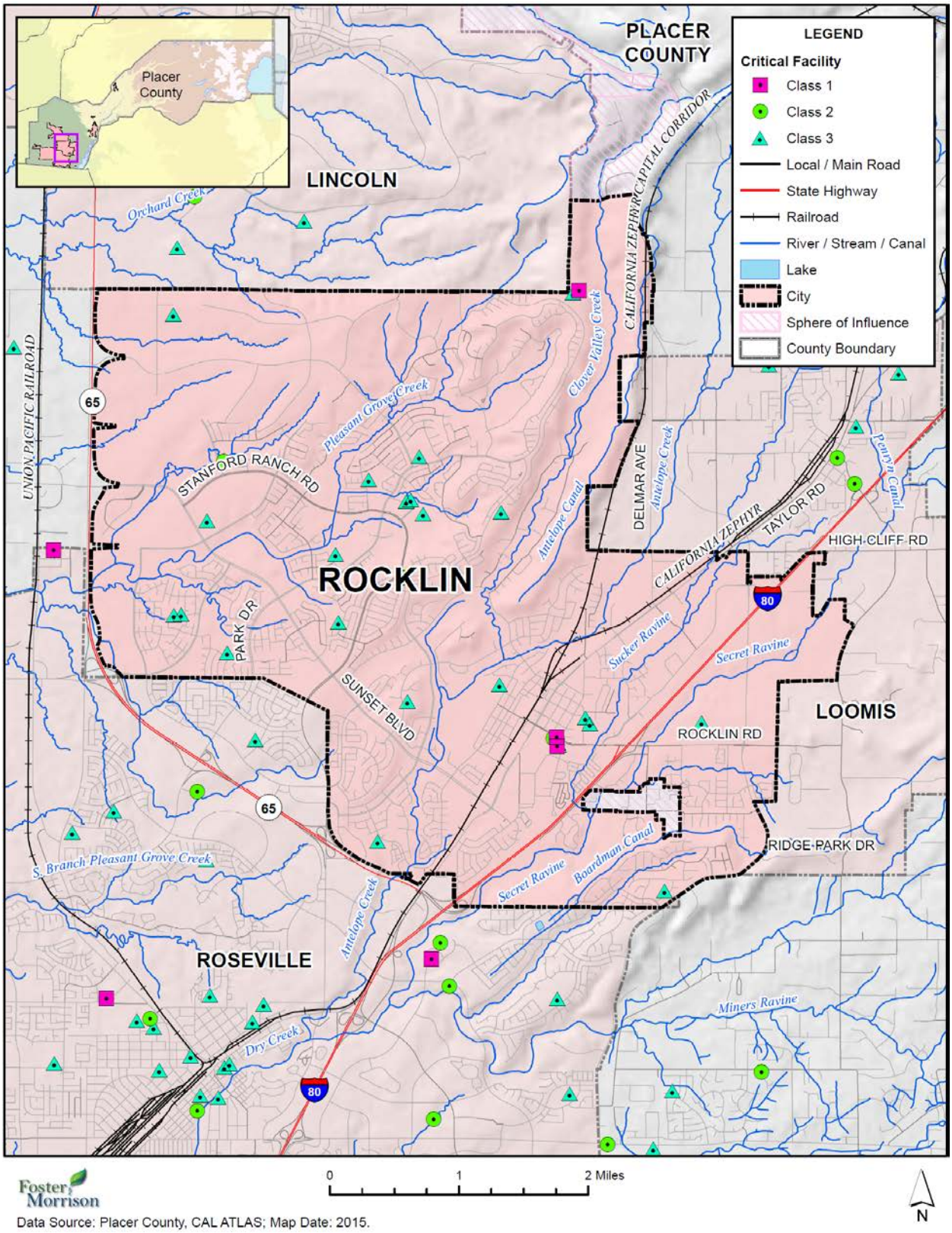
For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

This definition was refined by separating out three classes of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the City of Rocklin from Placer County GIS is shown on Figure E-2 and detailed in Table E-6. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure E-2 City of Rocklin – Critical Facilities



Data Source: Placer County, CAL ATLAS; Map Date: 2015.

Table E-6 City of Rocklin – Critical Facilities Inventory

Critical Facility Category	Facility Type	Facility Count
Class 1	Communication Transmission Sites	1
	Dispatch Center	1
Class 2	Emergency Operation Center	1
	Fire Station	3
	Police Station	1
Class 3	Hall	2
	Hazardous Materials Facility	1
	School	19
	Water Treatment Plant	1
Total City of Rocklin		**30**

Source: Placer County GIS

Natural Resources

The City of Rocklin has a variety of habitat types that include urban, annual grasslands, seasonal wetlands, riparian zones, and oak savannah woodlands. These environments support plant and wildlife that include protected and special status species listed in the Table E-7.

Table E-7 City of Rocklin's Protected and Special Status Species

Common Name	Reporting Agency	Protection Status	Habitat
Birds			
Aleutian Canada goose	USFWS	FD	Uses pastures and grain fields along the coasts of Oregon and California, and in California's Central Valley. Nest on maritime islands.
American peregrine falcon	USFWS	FD; CE	Wetlands, woodlands, forested areas, agricultural areas, and coastal habitats. Nesting sites on ledges.
Bank swallow	USFWS	CT	Riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soil. Nest in colonies in burrows dug into riverbanks.
Black tern	USFWS	FSC; SC	Spring and summer in fresh emergent wetlands while breeding. Common on bays, salt ponds, river mouths and pelagic waters in spring and fall.
Burrowing owl	CNNDB/USFWS	SC, S2	Open grassland and desert habitats, in open parts of pinyon-juniper and ponderosa pine habitats. Uses rodent or other burrows for cover and nesting.
Cooper's hawk	GL-DEIR	SC	Oak woodlands, riparian or other forest habitat near water

Common Name	Reporting Agency	Protection Status	Habitat
Ferruginous hawk	USFWS	FSC; SC	Open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats. Roosts in open area, usually in a lone tree or pole.
Golden eagle	GL-DEIR	SC, Fully Protected	Rolling hills, mountain areas, sage-juniper flats and deserts.
Grasshopper sparrow	USFWS	FSC	Tall and mixed grassland habitats including native prairies, hayfields, pastures, and fallow fields.
Greater sandhill crane	USFWS	CT	Wet meadows. Tend to nest in open habitat or in the cover of bulrush and bur reed.
Lawrence's goldfinch	USFWS	FSC	Open oak woodlands, mesquite, and riparian thickets.
Lewis' woodpecker	USFWS	FSC	Open pine-oak woodlands, coniferous forests, and riparian woodlands. Associated with burned and logged woodlands.
Little willow flycatcher	USFWS	CE	Wet meadows and montane riparian habitats with extensive willow thickets.
Loggerhead shrike	USFWS	FSC; SC	Open habitats with scattered shrubs, trees, utility lines or other perches. Lowlands and foothills throughout California.
Long-billed curlew	USFWS	FSC; SC	Wet meadow habitat, Coastal estuaries, upland herbaceous areas, and croplands.
Mountain plover	USFWS	FPT; SC	Short grasslands and plowed fields of the Central Valley.
Sharp-shinned hawk	GL-DEIR	SC	Deciduous riparian forest at mid-elevation, conifer forest, and oak woodlands.
Short-eared owl	USFWS	FSC; SC	Grasslands, prairies, dunes, meadows, irrigated lands and saline and fresh emergent wetlands. Nests in depression in dry ground concealed in vegetation.
Swainson's hawk	CNNDB/USFWS	CT	Open desert, grassland, or cropland with scattered, large trees or small groves.
Tricolored blackbird	CNNDB/USFWS	SC; S3	Emergent wetland vegetation with cattails, tules, and/or thickets.
Vaux's swift	USFWS	FSC; SC	Redwood and Douglas-fir habitats with nests in large hollow trees and snags.
Western spadefoot	CNNDB	SC	Primarily in grassland habitats, also found in valley-foothill hardwood woodlands.
White-faced ibis	USFWS	FSC; SC	Fresh emergent wetlands, shallow lacustrine waters, and the muddy ground or wet meadows and irrigated/flooded pastures and croplands.
White-tailed kite	CNNDB/USFWS	S3, Fully Protected	Lowland grasslands, agriculture, wetlands, oak-woodlands, savannah, and riparian habitats associated with open areas.

Common Name	Reporting Agency	Protection Status	Habitat
Reptiles			
California horned lizard	USFWS	FSC; SC	Wide range of habitats from gravelly-sandy substrate containing scattered shrubs, to clearing in riparian woodlands.
Giant garter snake	USFWS	FT; CT	Marshes, sloughs, and slow-moving creeks, with nocturnal retreats in holes and mammal burrows.
Northwestern Pond Turtle	USFWS	FSC; SC	Pacific slope drainages from Washington to Baja California.
Amphibians			
California red-legged frog	GL-DEIR	FT; SC	Pools, ponds, slow streams, and marshes.
Fish			
Central Valley fall/late fall-run Chinook salmon	USFWS	FC; SC	Wide range of habitats from gravelly-sandy substrate containing scattered shrubs, to clearing in riparian woodlands.
Central Valley steelhead	USFWS	FT	Marshes, sloughs, and slow-moving creeks, with nocturnal retreats in holes and mammal burrows.
Green sturgeon	USFWS	FSC; SC	Pacific slope drainages from Washington to Baja California.
Sacramento splittail	USFWS	FT; SC	Primarily in the Sacramento-San Joaquin estuary.
Winter-run Chinook salmon	USFWS	FE; CE	The ocean and the Sacramento River and its tributaries.
Invertebrates			
California Linderiella fairy shrimp	CNNDB/USFWS	S2/S3	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.
Vernal Pool Tadpole Shrimp	CNNDB/USFWS	FE; S2/S3	Vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.
Valley Elderberry Longhorn Beetle	CNNDB/USFWS	FT; S2	Only occurs in the Central Valley of California in association with Blue Elderberry (Sambucus mexicana).
Vernal Pool Fairy Shrimp	CNNDB/USFWS	FT; S2/S3	In a static rain-filled pools in the central valley grasslands and central and south coastal mountains.
Mammals			
Fringed myotis bat	USFWS	FSC	Roosts in caves, mines, and rock crevices within a variety of habitats.
Greater western mastiff-bat	USFWS	FSC; SC	Open, semi-arid to arid habitats, including conifer and deciduous woodlands, annual and perennial grasslands, chaparral, and urban.
Long-eared myotis bat	USFWS	FSC	Woodland and forest habitats, roosting in rock crevices, under bark, and tree snags.
Long-legged myotis bat	USFWS	FSC	Woodlands and forest habitats generally over 4,000 feet. Roosts in rock crevices, under bark, in tree snags, and cliffs.

Common Name	Reporting Agency	Protection Status	Habitat
Pacific western big-eared bat	USFWS	FSC; SC	All but alpine and sub-alpine habitats.
San Joaquin pocket mouse	USFWS	FSC	Dry, open grasslands or scrub area on fine textured soils in the Central and Salinas valleys.
Small-footed myotis bat	USFWS	FSC	Occurs in a variety of habitats, roosting in caves, crevices, and buildings.
Spotted bat	USFWS	FSC	Arid or ponderosa pine forests, and marshlands. Roosts in small cracks in cliffs and stony outcrops.
Yuma myotis bat	USFWS	FSC	Variety of habitats from juniper and riparian woodlands to desert regions near open water. Associates with water and roosts in caves, attics, under bridges, mines, and similar places.
Habitats			
Alkali Meadow	CNNDB	S2	
Alkali Seep	CNNDB	S2	
Northern Hardpan Vernal Pool	CNNDB	S3	
Northern Volcanic Mud Flow Vernal Pool	CNNDB	S1	
Plants			
Big-scale Balsamroot	CNNDB	S2	Valley and foothill grassland, cismontane woodland.
Boggs Lake Hedge-hyssop	CNNDB/USFWS	CE, S3	Clay soils in marshes, swamps and vernal pools.
Dwarf Downingia	CNNDB	S3	Valley and foothill grassland and several types of vernal pools.
Hispid Bird's-Beak	CNNDB/USFWS	FSC; S2	In damp alkaline soils in meadows, playas, and valley and foothill grassland.
Legenere	CNNDB/USFWS	FSC; S2	In beds of vernal pools.
Red Bluff Dwarf Rush	CNNDB	S2	Chaparral, valley and foothill grassland, cismontane woodlands, and vernal pools.

Source: Rocklin General Plan EIR, Appendix E, 2008

Historic and Cultural Resources

Numerous cultural and historic resources are located in the Rocklin area. Based on information from the Open Space, Conservation and Recreation Element of the Rocklin 2011 General Plan, these resources and historic sites include the following:

Prehistoric Resources Present in the Rocklin Area

- Bedrock grinding mortars
- House pits (sites of prehistoric houses)
- Grinding stones
- Chipped stone tools
- Bone tools

Historic Resources Present in the Rocklin Area

- Historic foundations
- Rock walls
- Well pits
- Ditches
- Historic mines and mining artifacts

The Rocklin Historical Society (RHS) and Rocklin History Museum are key historic resources for the City.

Growth and Development Trends

Based on information from the Bureau of Census, from 2000-2010, the City of Rocklin's population grew by 57 percent. Rocklin's growth rate is significantly higher than Placer County's growth rate for the same period, which was estimated to be 40 percent. Most of Rocklin's population growth since 2000 can be attributed to development in Whitney Oaks, Stanford Ranch, and Southeast Rocklin along with annexation and subsequent development in the Northwest Rocklin Annexation Area (Whitney Ranch).

The number of housing units increased from 14,421 in 2000 to 20,800 in 2010. It is expected that the number of dwelling units will further increase to beyond 29,300 units at residential build-out of the city.

The majority of future growth in Rocklin is anticipated to be concentrated in four areas: Clover Valley, the mid- to eastern portion of the Northwest Rocklin Annexation Area (Whitney Ranch), the Sierra College area and the Croftwood area, as these areas represent the last portions of the city with large tracts of vacant lands (see Figure 3.0-9, Neighborhood Areas, of the 2012 Rocklin General Plan Draft EIR). Because the City of Rocklin is surrounded by other jurisdictions on all sides, it is likely that the city boundaries will not expand beyond their current locations. The primary hazard in these undeveloped areas is wildland fires, as the areas contain extensive grasslands and oak woodlands. As these areas develop the majority of the grasslands and oak woodlands will be replaced with urban development and some of the current wildland hazards will be mitigated as a result of the development, but the development will also include the preservation of grassland and oak woodland areas that will create an urban/wildland fire hazard interface.

Special Populations

There are 55 and older age-restricted subdivisions in Rocklin and there are numerous congregate care/ assisted living facilities that are built or are being proposed to be built that have, or will have, elderly populations. Hazard-related concerns or issues regarding the vulnerability of elderly populations primarily relate to the potential need for evacuation of elderly citizens in the event of a hazard that creates a need for evacuations.

Development since 2010 Plan

New development in the City of Rocklin since the 2010 plan includes development adjacent to 100-year floodplains and potential wildfire areas. With the exception of new retail commercial development located around the Sierra College Boulevard interchange with Interstate 80, the majority of development since 2010 has been residential in nature. As noted in this annex, the primary hazard in the City's undeveloped areas

is wildland fires, and with the preservation of grassland and oak woodland areas adjacent to newly developing residential uses, there has been an increase in the size and scope of urban/wildland fire hazard interfaces and a potential corresponding increase in vulnerability to wildland fires. This potential increase is addressed through the removal of grassland and oak woodland areas as a function of urban development; Fire Department review of new development proposals, the identification and establishment of any necessary fire break areas and/or emergency access points; and regular maintenance of open space areas for fire fuel load reduction purposes using prescribed grazing and mechanical means.

For any growth within flood hazard areas, the City enforces the permit and construction standards of their floodplain ordinance. If any development were to have occurred in the floodplain, it would have conformed to the development and construction standards of the ordinance, thus effectively mitigating any increased vulnerability and future flood losses in the City.

With continued population growth, the City's vulnerability to natural hazards has a potential to increase. Continued enforcement of building codes and construction standards within the City will assist mitigating potential losses from any new development.

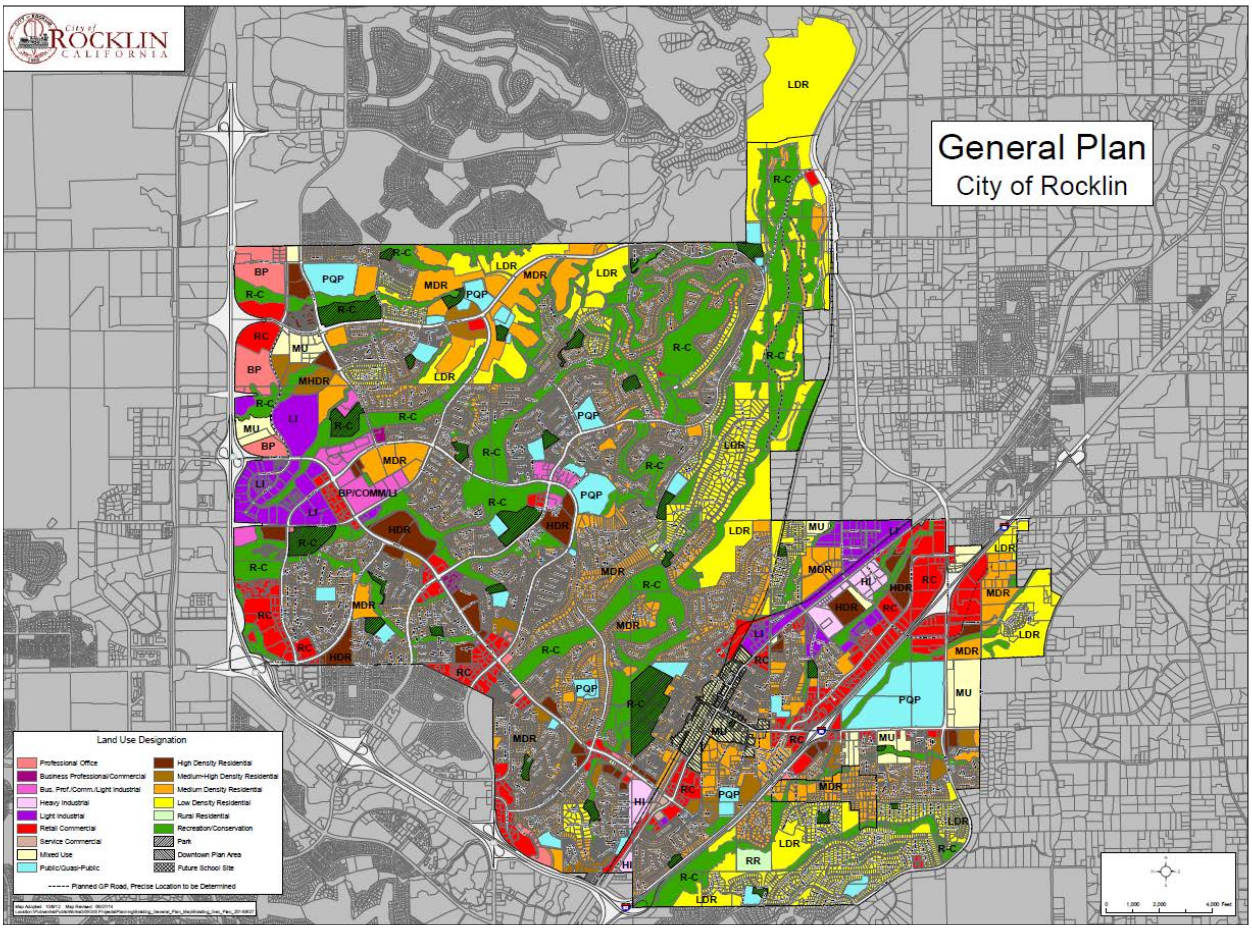
Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Rocklin and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 65,845 and 72,312 respectively.

As noted in the text above the basemap for the City, the City of Rocklin is in the process of incorporating the "island" of Placer County that is shown with crosshatches just south of I-80 into the City limits.

Figure E-3 shows the City of Rocklin's land use. While the map does not specifically identify future growth areas but some understanding of future growth areas can be obtained from the map by seeing areas that lack road infrastructure and individual lots versus those areas that show those features.

Figure E-3 City of Rocklin Future Development Map



Source: City of Rocklin General Plan

E.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table E-4 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the City to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

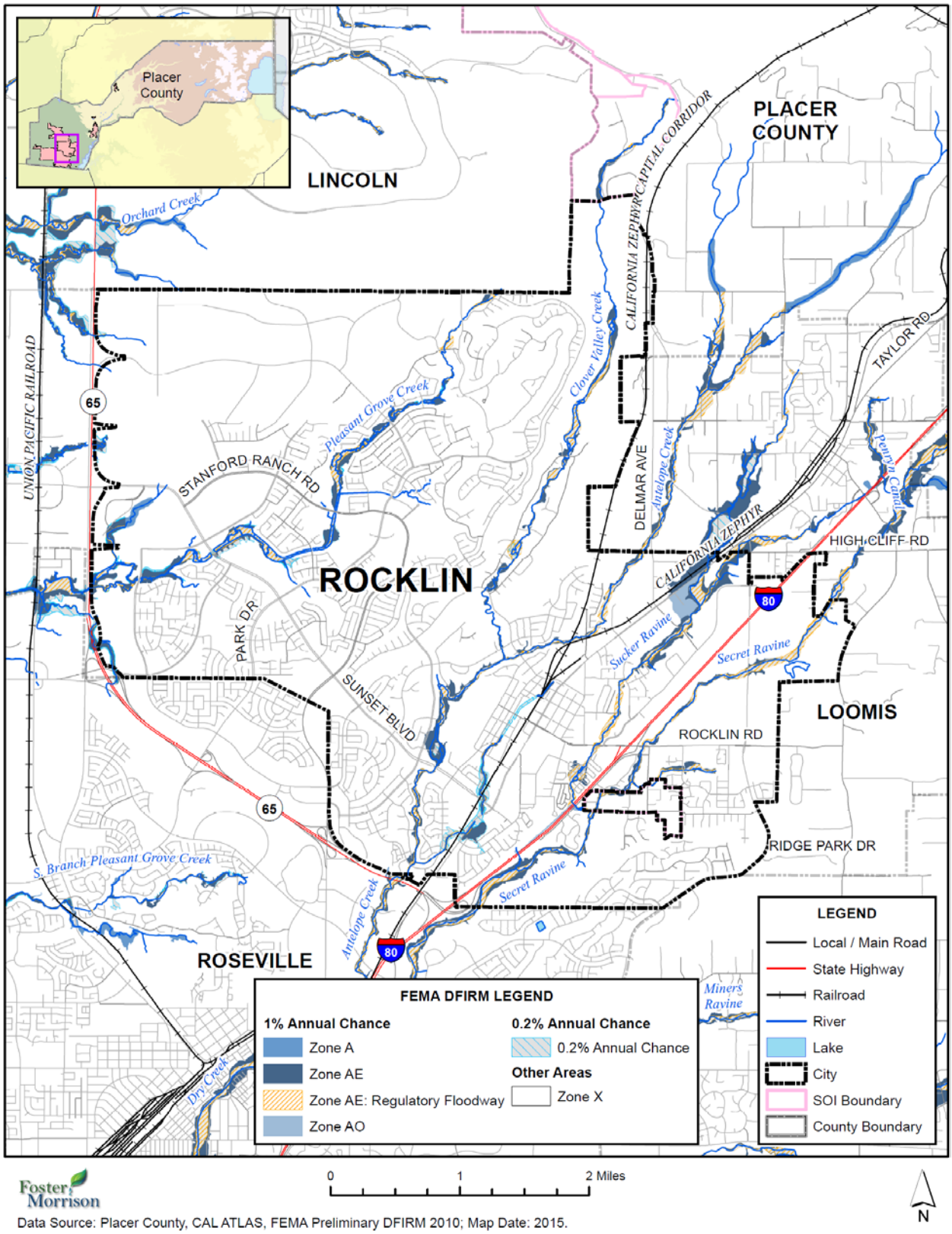
- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Low

Although rated as a low significance hazard, due to its importance in Placer County and in California, the flood hazard is included here. Rocklin is traversed by several stream systems and is at risk to both riverine flooding and localized stormwater flooding. As previously described in Section 4.2 of the main plan, the Placer County Planning Area and the City of Rocklin have been subject to previous occurrences of flooding. In the City of Rocklin, much of the flood damage occurs in the floodplains of Antelope Creek, Secret Ravine Creek, Clover Valley Creek, and Sucker Creek. Floodplains in the City are shown in Figure E-4.

Figure E-4 City of Rocklin – FEMA DFIRM Floodzones



Data Source: Placer County, CAL ATLAS, FEMA Preliminary DFIRM 2010; Map Date: 2015.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Rocklin. The methodology described in Section 4.3.7 of the base plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table E-8 shows the property use, improved parcel count, improved values, estimated contents, total values and estimated loss of parcels that fall in a floodplain in the City.

Table E-8 City of Rocklin – Count and Improved Value by Property Use by Detailed Flood Zone

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
A	Agricultural	0	$0	0	$0	$0
	Commercial	2	$850,145	1	$2,700,000	$3,550,145
	Industrial	2	$1,041,231	2	$3,684,763	$4,725,994
	Institutional	0	$0	0	$0	$0
	Natural/Open	0	$0	0	$0	$0
	Residential	0	$0	0	$0	$0
	Total Zone A	**4**	**$1,891,376**	**3**	**$6,384,763**	**$8,276,146**
AE	Agricultural	0	$0	0	$0	$0
	Commercial	43	$5,075,011	3	$1,025,141	$6,100,152
	Industrial	14	$3,803,954	4	$4,204,090	$8,008,044
	Institutional	1	$0	0	$0	$0
	Natural / Open	12	$168,490	0	$0	$168,490
	Residential	154	$17,622,695	149	$39,820,721	$57,443,416
	Total Zone AE	**224**	**$26,670,150**	**156**	**$45,049,952**	**$71,720,102**
AO	Agricultural	0	$0	0	$0	$0
	Commercial	1	$30,523	1	$71,232	$101,755
	Industrial	7	$3,051,414	6	$11,329,996	$14,381,410
	Institutional	0	$0	0	$0	$0
	Natural / Open	0	$0	0	$0	$0
	Residential	2	$175,853	2	$244,501	$420,354
	Total Zone AO	**10**	**$3,257,790**	**9**	**$11,645,729**	**$14,903,519**
Shaded X	Agricultural	0	$0	0	$0	$0
	Commercial	10	$1,265,544	3	$2,253,714	$3,519,258
	Industrial	2	$0	0	$0	$0

Flood Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Total Improved Value	Total Value*
	Institutional	1	$70,704	1	$88,383	$159,087
	Natural / Open	0	$0	0	$0	$0
	Residential	76	$4,616,865	75	$10,108,571	$14,725,436
	Total Shaded X	**89**	**$5,953,113**	**79**	**$12,450,668**	**$18,403,781**
X	Agricultural	4	$1,946,450	0	$0	$1,946,450
	Commercial	1,457	$388,053,981	449	$517,092,885	$905,146,866
	Industrial	215	$50,996,449	141	$106,471,057	$157,467,506
	Institutional	65	$17,148,261	21	$72,893,625	$90,041,886
	Natural/Open	90	$2,825,249	6	$3,123,464	$5,948,713
	Residential	17,792	$1,599,528,105	17,147	$4,272,923,915	$5,872,452,020
	Total Zone X	**19,623**	**$2,060,498,495**	**17,764**	**$4,972,504,946**	**$7,033,003,441**
Grand Totals		**19,950**	**$2,098,270,924**	**18,011**	**$5,048,036,058**	**$7,146,306,982**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Table E-9 summarizes Table E-8 above and shows City of Rocklin loss estimates and shows improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table E-9 City of Rocklin – Flood Loss Summary

Jurisdiction	Flood Zone	Improved Parcel Count	Total Improved Value	Estimated Contents Value	Total Improved/ Contents Value	Loss Estimate	Loss Ratio
Rocklin	1%	168	$63,080,444	$52,657,253	$115,737,697	$23,147,539	0.32%
	0.2%	79	$12,450,668	$7,396,383	$19,847,051	$3,969,410	0.06%

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

According to Table E-8 and Table E-9, the City of Rocklin has 168 improved parcels and $115,737,697 of structure and contents value in the 1% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.7 of the base plan, there is a 1% chance in any given year of a flood event causing roughly $23,147,539 in damage in the City of Rocklin. A loss ratio of 0.32% indicates that losses in Rocklin to flood would be relatively minor, as less than an eighth of a percent of the total values in the City would be damaged.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the City in comparison to total area within the City limits. The same methodology, as discussed in Section 4.3.7 of the base plan, was used for the City of Rocklin as well as for the County as a whole. Table

E-10 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table E-10 City of Rocklin – Flooded Acres

Flood Zone	Property Use	Total Flooded Acres	Improved Flooded Acres	% of Improved Flooded Acres
A	Agricultural	0	0	0.0%
	Commercial	4.54	4.36	96.0%
	Industrial	5.67	5.67	100.0%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	0	0	0.0%
AE	Agricultural	0	0	0.0%
	Commercial	338.38	2.17	0.6%
	Industrial	58.92	4.63	7.9%
	Institutional	21.68	0	0.0%
	Natural/Open	95.31	0	0.0%
	Residential	118.10	115.30	97.6%
AO	Agricultural	0	0	0.0%
	Commercial	0.60	0.60	100.0%
	Industrial	16.39	14.97	91.4%
	Institutional	0	0	0.0%
	Natural/Open	0	0	0.0%
	Residential	2.08	2.08	100.0%
Total 1%		**661.68**	**149.78**	**22.6%**
Shaded X	Agricultural	0	0	0.0%
	Commercial	12.95	3.06	23.7%
	Industrial	0.03	0	0.0%
	Institutional	0.29	0.29	100.0%
	Natural/Open	0	0	0.0%
	Residential	13.08	12.92	98.8%
Total 0.2%		**26.34**	**16.27**	**61.8%**

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for Rocklin. According to this analysis, there is a total population of 628 residents of the City at risk to flooding, 422 in the 1% chance, and 206 in the 0.2%. This is shown in Table E-11.

Table E-11 City of Rocklin – Count of Improved Residential Parcels and Population by Flood Zone

Flood Zone	Improved Residential Parcels	Population*
A	0	0
AE	154	417
AO	2	5
Total 1% Annual Chance	**156**	**422**
Shaded X (0.2% Annual Chance)	76	206
D	0	0

Source: FEMA DFIRM, Placer County 2015 Parcel/Assessor's Data, US Census Bureau
* Average household populations from the 2010 US Census were used: Rocklin– 2.71.

Critical Facilities at Risk

There are no critical facilities at risk in the City of Rocklin in the flood zones.

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Rocklin joined the National Flood Insurance Program (NFIP) in 2001. The City does not participate in CRS. NFIP Insurance data indicates that as of September 30, 2015, there were 239 flood insurance policies in force in the City with $68,461,500 of coverage. Of the 239 policies, 226 were residential and 13 were nonresidential; 151 of the policies were in A zones (the other 88 were in B, C, and X zones). The GIS parcel analysis detailed above identified 168 improved parcels in the 100-year flood zone. 151 policies for 168 parcels in the 100-year floodplain equates to insurance coverage of 89.9 percent.

There have been 20 historical claims for flood losses totaling $252,514; although, details were only provided on 15 of the losses. Of the 15 losses, eight were in the A zones and seven were standard policies located in B, C, or X zones. Ten of these were for pre-FIRM structures; five were for post-FIRM structures. NFIP data further indicates that there are three repetitive loss (RL) buildings, with two RL buildings being insured. There have been a total of 5 RL losses, with 3 insured RL losses. There are no severe repetitive loss buildings within the City.

The Planning Team for the City did further research:

- One of the 3 RL properties is located in another jurisdiction (community of Granite Bay in unincorporated Placer County).
- The second of the 3 RL properties is on Cimerron Court. The property includes both X and AE zones.
- The final of the 3 RL properties is on Rocklin Road. It is a mobile home park in both the X and AE Zone. This is a mobile home park. The City could not identify a particular property as FEMA provided only the generic address for the park. A small portion of this mobile home park was subject to a FEMA LOMR in 2015, but the majority of the park was not.

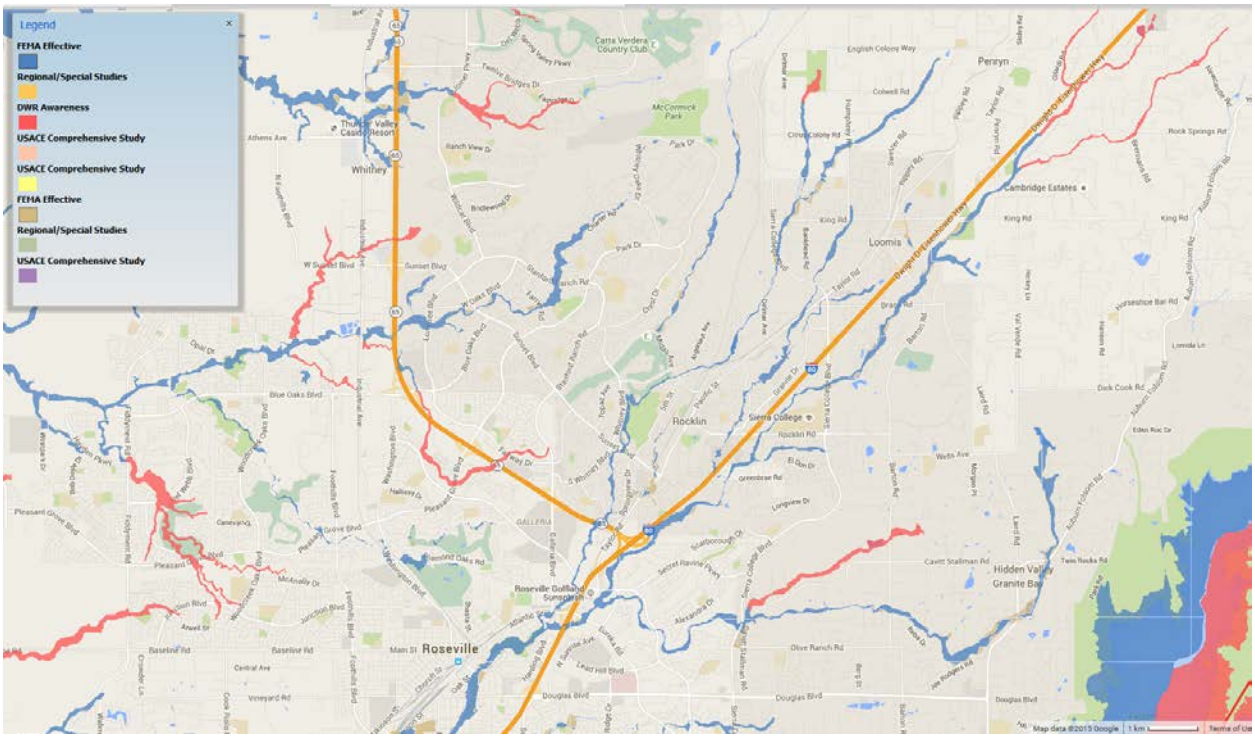
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Placer County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Sacramento-San Joaquin (SAC-SJ) Valley watershed. SB 5 requires that these maps contain the best available information on flood hazards and be provided to cities and counties in the SAC-SJ Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-, and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications. They are for the same flood frequency, however, they may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 100-year floodplain, it also supports identification of the need and requirement for flood insurance. The BAM map for Rocklin is shown in Figure E-5.

Figure E-5 City of Rocklin Best Available Map



Source: California DWR

Future Development

The City evaluates each proposed development project to determine if it is in or near a floodplain. It if it is, the City requires that any structure by constructed out of the floodplain and have a first floor at least two feet above the 100-year floodplain elevation. The City also continues to explore ways to address floodplain issues through the use of drainage studies, drainage improvements, elevation certificates and other available strategies. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

As noted in the text before the basemap, the City of Rocklin is in the process of incorporating the "island" of Placer County that is shown with crosshatches just south of I-80 into the City limits.

Flood: Localized Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Localized/stormwater flood issues specific to the City of Rocklin have historically affected several locations throughout the City, typically older parts of the City that were developed with infrastructure that is inadequate to accommodate stormwater flows from heavy rain/severe weather events. In some locations improvements have been installed in an effort to add additional capacity to the storm drain system, but these

improvements may not have completely resolved flooding occurrences. These locations are shown in Table E-13.

Table E-12 City of Rocklin – Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Second Street	X						
Cimerron Court	X						
Farrier Drive				X			
Paragon Court	X						
El Don Drive	X			X			
Aguilar Road	X	X	X	X			
Fleet Circle	X						
Bryce Court	X						

Source: City of Rocklin

Future Development

Future development in the City will add more impervious surfaces and need to drain those waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Extreme heat occurs on an annual basis, most commonly at the peak of the summer season. As Rocklin is located in the western portion of Placer County at relatively low elevation, extremely high temperatures are a more common occurrence than cold temperatures. From late spring through fall, it is not unusual for temperatures to exceed 90°F and higher. Provided by the Western Regional Climate Center, Table E-14 illustrates historical temperature patterns for Rocklin.

Table E-13 Rocklin Record High Temperatures and Days above 90 Degrees by Month

Month	Temperature (F)	Year	Number of Days >= 90°F
May	107°	1910	5.4
June	115°	1961	14.7

Month	Temperature (F)	Year	Number of Days >= 90°F
July	115°	1933	26.0
August	118°	1933	24.6
September	114°	1950	15.4
October	105°	1910	3.4
Totals			**89.5**

Source: Western Regional Climate Center

Based on this historic data, there are typically 89 days per year in excess of 90 degrees Fahrenheit.

Future Development

Vulnerability to extreme heat will increase as the average age of the population in the City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the City. The elderly are more at risk to the effects of extreme heat, especially those without proper air conditioning. However, many of the residents of the City are accustomed to living with extreme heat and take precautions to guard against the threat of extreme heat. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Freeze and snow occurs on an annual basis, most commonly at the peak of the winter season. The record low temperature in Rocklin is 14°F, recorded on January 21, 1937, though temperatures below freezing are not uncommon. Data for the following table were provided by the Rocklin Weather Station for the period of record from 1904 to 1976 illustrating historical temperature patterns in the Rocklin area. Table E-16 illustrates historical temperatures in Rocklin.

Table E-14 Rocklin Record Low Temperatures and Days below Freezing by Month

Month	Temperature (F)	Year	Number of Days <= 32°F
January	14°	1937	12.7
February	20°	1929	6.7
March	23°	1944	3.6
April	27°	1929	1.0
May	19°	1928	0.1
October	25°	1917	0.7
November	20°	1921	5.6
December	14°	1932	12.1
Totals			**42.5**

Source: Western Regional Climate Center

Future Development

Like extreme heat, vulnerability to freeze will increase as the average age of the population in the City shifts. Greater numbers of future senior citizens will result from the large number of baby boomers in the City. The elderly are more at risk to the effects of freeze. However, many of the residents of the City are accustomed to living with freeze and take precautions to guard against the threat of freeze. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Information is limited regarding the severe weather events that impact the City of Rocklin. In general, any severe storm that affects Placer County has local affects in Rocklin as well. Thunderstorms, high winds, hail, and lightning can each have localized impacts on infrastructure, properties, and public safety. Transportation and commerce are also affected in Rocklin when severe storms occur, mirroring impacts countywide as described in Section 4.2.5.

Future Development

The City enforces the state building code and other ordinances, which regulate construction techniques that minimize damage from heavy storms and rain. Future development in the City is subject to these building codes. New critical facilities such as communications towers should be built to withstand hail damage, lightning, and heavy rains. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

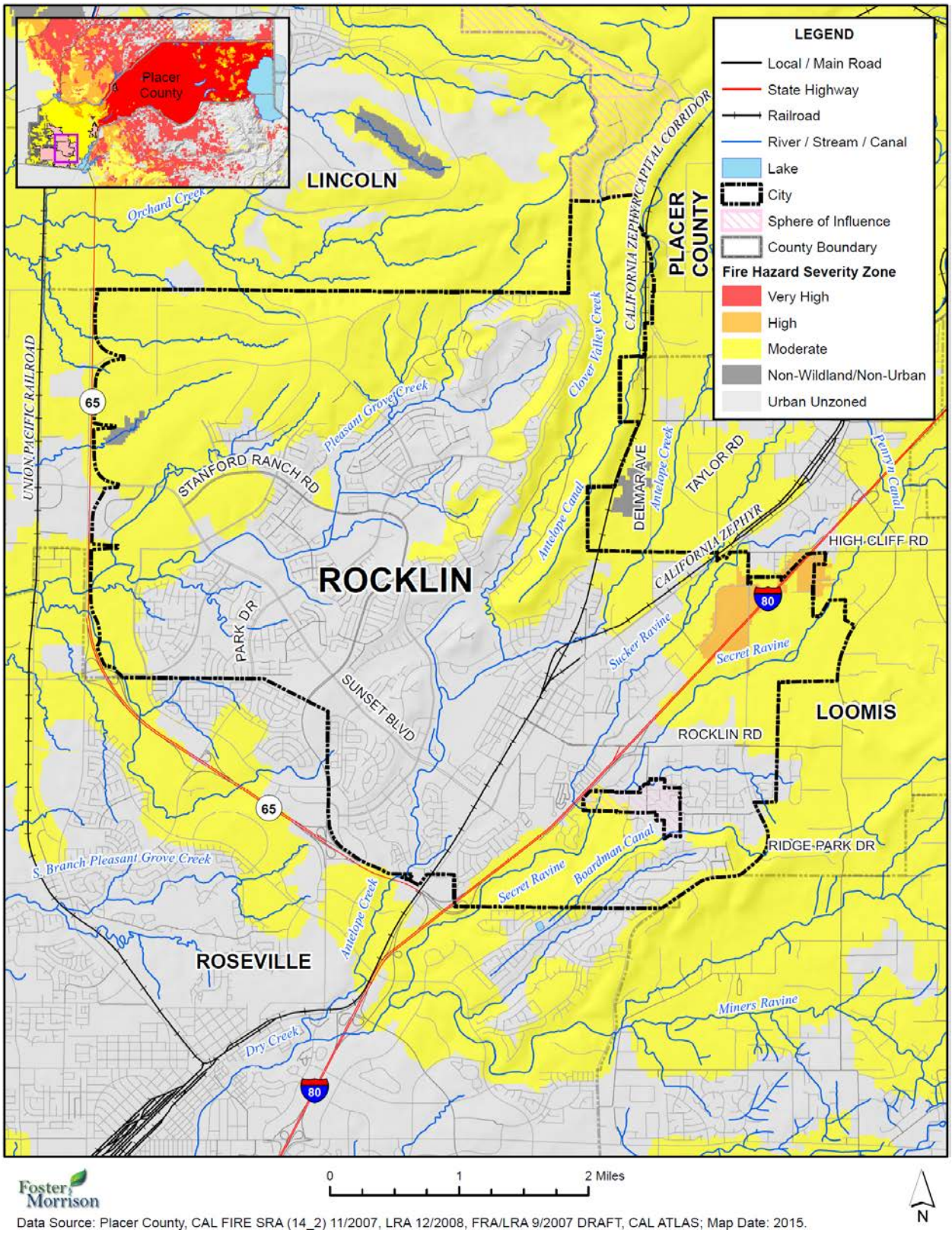
Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Wildfire is a present concern for all communities in California. According to the Community Safety Element of Rocklin's General Plan, while the major fire threat in the city is related to urban development, annexations in recent decades incorporated large areas of grassland subject to wildfire. These areas include Clover Valley Lakes, the southern end of China Garden Road, portions of Whitney Oaks, the Croftwood/Dias Lane area, the Sunset Ranchos and various open-space easements and recreational properties. Following the methodology described in Section 4.3.2 Vulnerability of Placer County to Specific Hazards, a wildfire map for the City of Rocklin was created that shows areas of fire hazard risk by category (see Figure E-6).

The Planning Team for the City noted that the large orange area (High Risk) located to the north of I-80 and to the east of Sierra College Boulevard has now been mostly developed with shopping centers. Updated mapping may not deem this a high risk area. Also, the Plannng Team noted that the City of Rocklin is in the process of incorporating the "island" of Placer County just south of I-80 into the City limits.

Figure E-6 City of Rocklin's Fire Severity Zones



Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Values at Risk

Analysis results for Rocklin are shown in Table E-16, which summarizes total parcel counts, improved parcel counts and their structure values by occupancy type as well as the percentage of parcels affected by fire.

Table E-15 City of Rocklin – Count and Value of Parcels by Property Use and Fire Severity Zone

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
Very High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	0	$0	0	$0	$0	0.0%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**0**	**$0**	**0**	**$0**	**$0**	**0.0%**
High	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	42	$15,198,603	8	$12,379,069	$27,577,672	1.8%
	Industrial	0	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	4	$657,401	4	$528,147	$1,185,548	0.0%
	Total	**46**	**$15,856,004**	**12**	**$12,907,216**	**$28,763,220**	**0.1%**
Moderate	Agricultural	4	$1,946,450	0	$0	$1,946,450	0.0%
	Commercial	592	$197,326,613	116	$201,513,709	$398,840,322	25.4%
	Industrial	95	$26,480,763	57	$41,221,645	$67,702,408	37.3%
	Institutional	17	$2,826,714	3	$2,716,065	$5,542,779	13.6%
	Natural/Open Space	50	$247,799	1	$225,418	$473,217	16.7%
	Residential	4,439	$407,209,184	3,967	$1,157,812,163	$1,565,021,347	22.8%
	Total	**5,197**	**$636,037,523**	**4,144**	**$1,403,489,000**	**$2,039,526,523**	**23.0%**
Urban Unzoned	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	877	$182,749,988	333	$309,250,194	$492,000,182	72.9%

Fire Severity Zone	Property Use	Total Parcel Count	Total Land Value	Improved Parcel Count	Improved Value	Total Value*	% of Affected Parcels to Total
	Industrial	144	$32,412,285	96	$84,468,261	$116,880,546	62.7%
	Institutional	50	$14,392,251	19	$70,265,943	$84,658,194	86.4%
	Natural/Open Space	52	$2,745,940	5	$2,898,046	$5,643,986	83.3%
	Residential	13,581	$1,214,076,933	13,402	$3,164,757,398	$4,378,834,331	77.1%
	Total	**14,704**	**$1,446,377,397**	**13,855**	**$3,631,639,842**	**$5,078,017,239**	**76.9%**
Non-Wildland/Non-Urban	Agricultural	0	$0	0	$0	$0	0.0%
	Commercial	2	$0	0	$0	$0	0.0%
	Industrial	1	$0	0	$0	$0	0.0%
	Institutional	0	$0	0	$0	$0	0.0%
	Natural/Open Space	0	$0	0	$0	$0	0.0%
	Residential	0	$0	0	$0	$0	0.0%
	Total	**3**	**$0**	**0**	**$0**	**$0**	**0.0%**
	Grand Total	**19,950**	**$2,098,270,924**	**18,011**	**$5,048,036,058**	**$7,146,306,982**	**100.0%**

Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE
*Land and structure values

Population at Risk

The Fire Severity Zone dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the severity zones were counted and multiplied by the 2010 Census Bureau average household factors for each jurisdiction and unincorporated area. Results were tabulated by jurisdiction. According to this analysis, there is a total population of 10,762 residents of Rocklin at risk to moderate or higher wildfire risk. This is shown in Table E-17.

Table E-16 City of Rocklin – Count of Improved Residential Parcels and Population by Fire Severity Zone

Fire Severity Zone	Improved Residential Parcels	Population*
Very High	0	0
High	4	11
Moderate	3,967	10,751
Urban Unzoned	13,402	36,319
Non-Wildland/Urban	0	0
None	0	0
Total	**17,373**	**47,081**

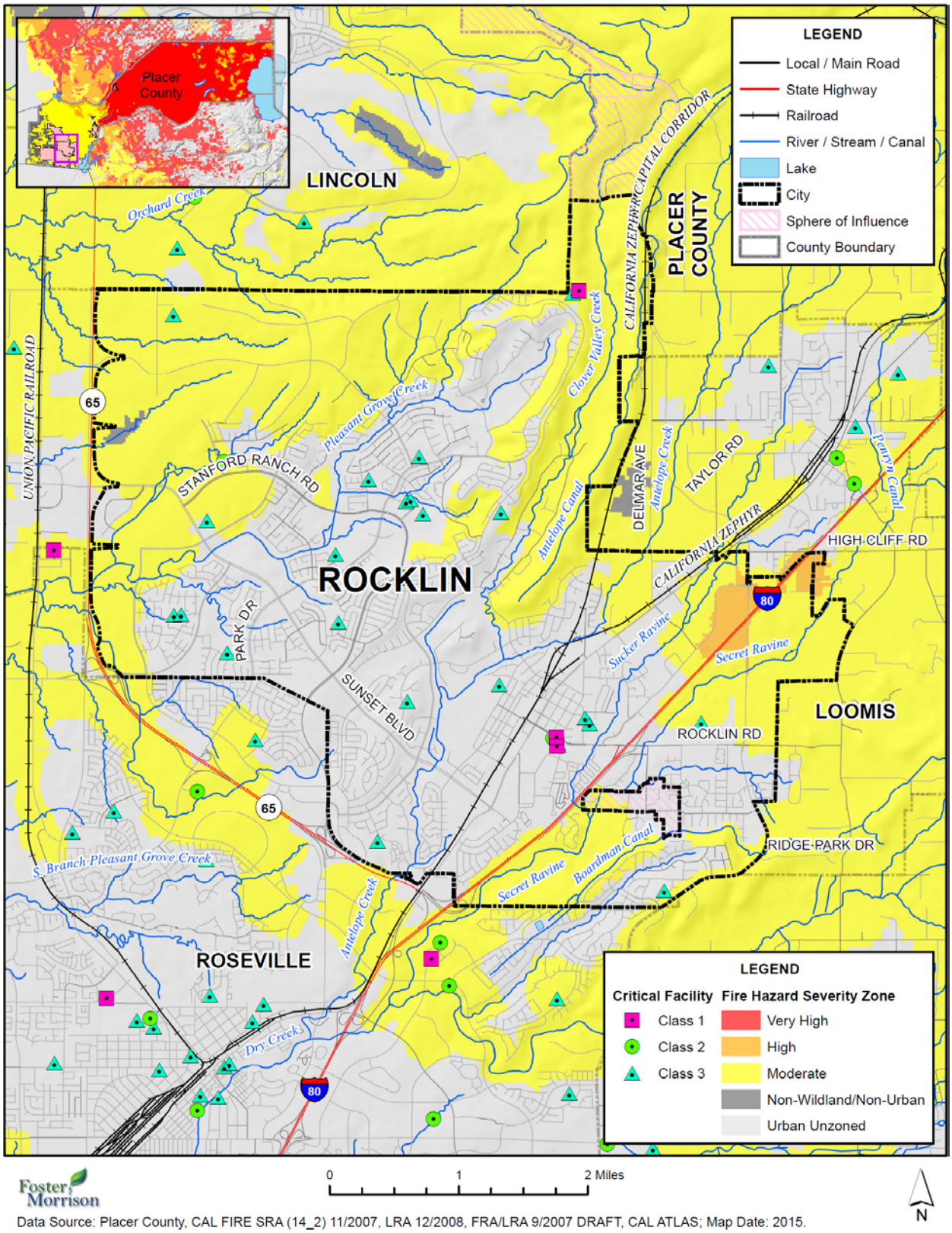
Source: Placer County 2015 Parcel/Assessor's Data, CAL FIRE

* Average household populations for Rocklin (2.71) from the 2010 US Census were used

Critical Facilities at Risk

Wildfire analysis was performed on the critical facility inventory in Placer County and all jurisdictions. GIS was used to determine whether the facility locations intersect a fire severity zone provided by CAL FIRE, and if so, which zone it intersects. There are 30 facilities in the moderate or higher fire severity zone in the City. These are shown in Figure E-7 and detailed in Table E-18. Details of critical facility definition, type, name and address and jurisdiction by fire zone are listed in Appendix F.

Figure E-7 City of Rocklin – Critical Facilities in the Fire Severity Zones



Foster Morrison

Data Source: Placer County, CAL FIRE SRA (14_2) 11/2007, LRA 12/2008, FRA/LRA 9/2007 DRAFT, CAL ATLAS; Map Date: 2015.

Table E-17 City of Rocklin – Critical Facilities in the Fire Severity Zones

Fire Hazard Severity Zone	Critical Facility Class	Facility Type	Facility Count
Very High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Very High	**0**
High	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total High	**0**
Moderate	Class 1	Communication Transmission Sites	1
	Class 2	Fire Station	1
		School	1
	Class 3	Water Treatment Plant	1
		Total Moderate	**4**
Non-Wildland/Non-Urban	Class 1	-	-
	Class 2	-	-
	Class 3	-	-
		Total Non-Wildland/Non-Urban	**-**
Urban Unzoned	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	2
		Police Station	1
	Class 3	Hall	2
		Hazardous Materials Facility	1
		School	18
		Total Urban Unzoned	**26**
Total			**30**

Source: CAL FIRE, Placer County GIS

Future Development

The City has implemented prescribed grazing, weed abatement and fire fuel load reduction efforts to help reduce the risks associated with potential wildfires. The City has a GIS Division which assists in the development of GIS-based mapping of pertinent information. This data can be used by all departments and agencies for emergency pre-planning and during emergency incidents.

Hazardous Materials Transport

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

The Union Pacific Railroad line passes through the City of Rocklin. Hazardous materials are regularly shipped via the rail line and, while unlikely, an incident involving a rail accident within the City could have devastating effects.

The City has little control over the types of materials that are shipped via the rail line. With regard to government activities, the content of shipments may be confidential for reasons of security and/or is generally unknown to the City. While the City has little influence over the types of material transported via the rail line, the potential for rail incidents can be reduced by ensuring that at-grade crossings within the city are operating in a safe and effective manner.

State Route 65 and Interstate 80 pass through the City as well. These are designated Cal Trans hazardous materials routes. The HMPC also noted that petroleum distribution lines and storage tanks are located in the City.

Populations at Risk

To determine the populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table E-19. This table shows total population that are within the proximity of this two-mile buffer of all the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel data. Those parcel centroids that intersect the buffered corridor were counted and multiplied by the 2010 Census Bureau average household factors for the City. According to this analysis, there is a total population of 48,249 in the buffered corridors.

Table E-18 City of Rocklin – Populations at Risk in Haz-Mat Corridors

Jurisdiction	Residential Parcels	Population
Loomis	17,804	48,249

Source: Cal Trans, Placer County GIS, US Census Bureau
* Average household populations from the 2010 US Census were used Rocklin– 2.71.

Critical Facilities at Risk

To determine the critical facilities at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS. A one mile buffer was applied to both sides of Highways 20, 49, 65, 80, 89, 174, 193, and 267, as well as the BNSF and Union Pacific

Railroads. The result is a two-mile buffer zone around each transportation corridor that is used for risk-analysis.

Analysis was done for jurisdictions found in Table E-19. This table shows critical facilities located within the proximity of this two-mile buffer of all the highway and railroad corridors. Some facilities fall in the highway routes, some in the rail routes, and some fall in both the highway and rail routes. According to this analysis, there are 25 critical facilities in the buffered corridors.

Figure E-8 City of Rocklin– Critical Facilities at Risk in Haz-Mat Corridors

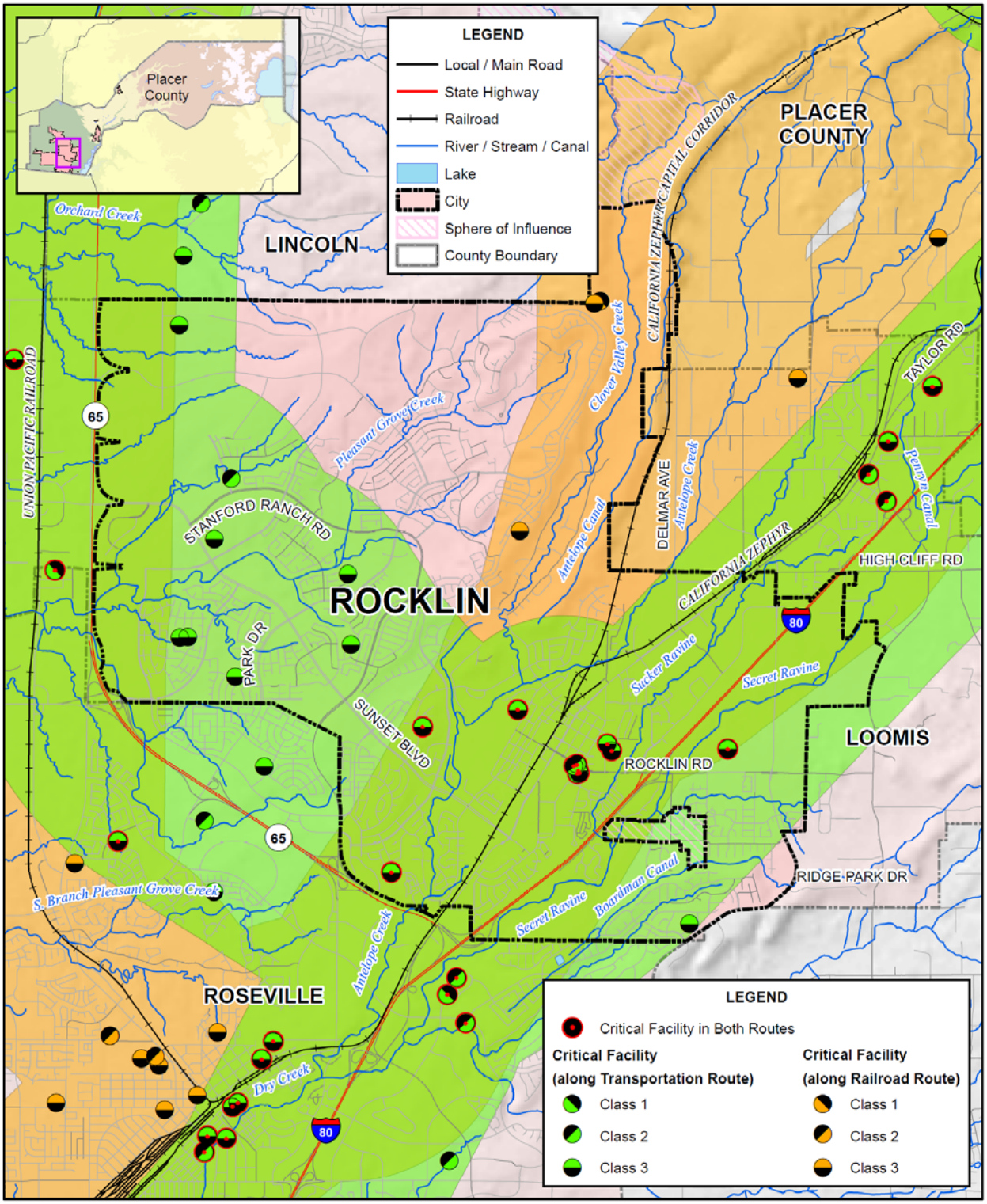


Table E-19 City of Rocklin – Critical Facilities at Risk in Haz-Mat Corridors

Hazardous Materials Route	Critical Facility Class	Facility Type	Facility Count
Hazardous Materials Highway Route	Class 1	-	-
	Class 2	Fire Station	2
	Class 3	Fairground	1
		School	7
		Total Hazardous Materials Highway Route	**10**
Hazardous Materials Railroad Route	Class 1	Communication Transmission Sites	1
	Class 2	-	-
	Class 3	School	1
		Water Treatment Plant	1
		Total Hazardous Materials Railroad Route	**3**
Combined Hazardous Materials Highway and Railroad Route	Class 1	Dispatch Center	1
		Emergency Operation Center	1
	Class 2	Fire Station	1
		Police Station	1
	Class 3	Hall	2
		School	6
		Total Combined Routes	**12**
Total			**25**

Source: Cal Trans, Placer County GIS

Future Development

Development will continue to occur in hazardous materials affected areas. It is important that the City make residents who choose to live or develop in hazmat zones about the possibility of being affected by a hazardous materials spill.

E.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

E.6.1. Regulatory Mitigation Capabilities

Table E-21 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Rocklin.

Table E-20 City of Rocklin's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	2012 City of Rocklin General Plan Update contains a Community Safety Element which addresses hazards through goals and policies but it does not identify specific projects. The Community Safety Element can be used to support mitigation actions provided they are consistent with the goals and policies.
Capital Improvements Plan	Y	Capital Improvement Plan last updated in 2007. The Plan identifies capital improvement projects such as street and roadway improvements but does not directly address hazards, although some projects when built will indirectly address hazards.
Economic Development Plan	Y	The Rocklin City Council includes a Strategic Plan as part of its annual budget adoption process, but it does not specifically address hazards or mitigation actions.
Local Emergency Operations Plan	Y	Emergency Operations Plan last updated in 2014. Addresses planned response to emergencies associated with disasters, technological incidents or other dangerous conditions created either by man or nature but does not identify specific mitigation projects.
Continuity of Operations Plan	Y	See Local Emergency Operations Plan above.
Transportation Plan	Y	See Capital Improvement Plan above.
Stormwater Management Plan/Program	Y	Conditions listed in City's standard improvement requirements and standard list of conditions.
Engineering Studies for Streams	Y	Hydraulic analyses are required for new development projects
Community Wildfire Protection Plan	Y	Wildfire hazards included in City's Emergency Operations Plan
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC. The building code is adequately enforced.
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 2

Site plan review requirements	Y	Required prior to issuance of engineering, building, or planning permits. This is adequately enforced.
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	Indirectly reduces hazard impacts through building setback, size and height requirements as well as lot coverage requirements. Adequately administered and enforced.
Subdivision ordinance	Y	Indirectly reduces hazard impacts through policies, standards, requirements and procedures that regulate the design and improvement of all subdivisions. Adequately administered and enforced.
Floodplain ordinance	Y	Reduces flooding hazards by applying regulations throughout the City for development within or near flood prone areas. Adequately administered and enforced.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	Y	FEMA flood insurance rate maps (FIRM) are applicable and are an effective measure for reducing hazard impacts. Adequately administered and enforced.
Elevation Certificates	Y	Obtained by private property owners, does not directly reduce hazard impacts. Adequately administered and enforced.
Acquisition of land for open space and public recreation uses	Y	Open space and recreation uses identified in City's General Plan and created as part of development review process, assists in reduction of hazard impacts by preserving lands that may contain hazards. Adequately administered and enforced.
Erosion or sediment control program	Y	Erosion and Sediment Control Ordinance adopted, reduces hazard impacts related to water quality. Adequately administered and enforced.
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Rocklin

As indicated above, the City has several programs, plans, policies, codes and ordinances in place and/or that they follow. The General Plan for the City of Rocklin is the most comprehensive. The following section provides an overview of the General Plan and identifies specific policies related to hazard mitigation that are included in the plan

The City of Rocklin General Plan (2012 General Plan Update)

The City of Rocklin General Plan provides a vision for the future of the City. The plan discusses existing conditions and creates a framework of policies that encourage progress toward the agreed upon goals for the community.

The general plan includes a Community Safety Element that focuses on potential natural and human-created hazards. It describes activities and services that provide protection from these hazards and considers the

potential impact of hazards to present and future development of the Rocklin Planning Area. Identified hazards include: geologic hazards, seismic safety, flood hazards, hazardous materials handling, emergency preparedness, and fire hazards. The action plan component of the Summary of Goals & Policies & Action Plan section of the Rocklin General Plan (October 2012) has been incorporated into the final version of the General Plan. Public safety and mitigation-related policies from the General Plan that have been developed are presented below in Table E-22 and Table E-23.

Table E-21 Rocklin General Plan Community Safety Element Goals and Policies

Safety Element Goals & Policies	
Goal for Community Safety	To minimize danger from hazards and to protect residents and visitors from earthquake, fire, flood, other natural disasters, and human-created hazards such as train derailment, industrial accidents, acts of war or terrorism, and accidental release of harmful materials.
General Policies	
S-1	Require engineering analysis of new development proposals in areas with possible soil instability, flooding, earthquake faults, or other hazards, and to prohibit development that cannot mitigate the applicable hazard.
S-2	Maintain a City Emergency Operations Plan, to include the National Incident Management System (N.I.M.S.).
S-3	Coordinate with local and State Emergency Management agencies utilizing the Standardized Emergency Management System (S.E.M.S.) and National Incident Management System (N.I.M.S.) in order to facilitate multi-agency emergency response.
S-4	Identify in the Emergency Operations Plan evacuation routes and shelter locations for use in case of disasters or emergencies.
S-5	Maintain appropriate standards for minimum road widths and turnarounds.
S-6	Coordinate with State and Federal agencies regarding homeland security, recognizing the City's role as first responder to local incidents.
Flooding Policies	
S-7	Consult with the Placer County Flood Control and Water Conservation District and other appropriate entities regarding regional approaches for the planning, construction, operation and maintenance of drainage and flood control facilities.
S-8	Maintain and implement the City's Ordinance regarding "Flood Hazard Areas."
S-9	Ensure that the City's Regulatory Floodplain, based upon the most current information, both upstream and downstream, and is not adversely affected by new development.
S-10	Require that new development detain on-site drainage such that the rate of runoff flow is maintained at pre-development levels, except where detention is not recommended in plans and policies adopted by the Placer County Flood Control and Water Conservation District (PCFCWCD), and to require coordination with other projects' master plans to ensure no adverse cumulative effects. In lieu of detention, the City may require retention and/or off-site drainage improvements that are more beneficial to the community's overall drainage system.
S-11	Ensure that new development does not result in on-site flooding or increase flooding of off-site properties.
S-12	Require new development to annex into an existing drainage maintenance district where warranted.
Hazardous Materials/Contaminated Sites Policies	

Safety Element Goals & Policies	
S-13	Require existing and new commercial and industrial uses involving the use, handling, transport or disposal of hazardous materials within the City to disclose their activities in accordance with Placer County guidelines and the requirements of State law.
S-14	Require that construction activities cease if contamination is discovered on construction projects until the contamination is reported, and its extent is assessed, delineated, and isolated, as appropriate. Remediation shall occur to the satisfaction of the appropriate responsible agency (such as the Placer County Environmental Health Services, the Central Valley Regional Water Quality Control Board, the Department of Toxic Substances Control, or the City of Rocklin, depending on the type of contamination).
S-15	Require site-specific hazard investigations to be conducted, if determined to be necessary by the City, to confirm potentially contaminated soils prior to approval of new discretionary development projects.
Fire Hazards Policies	
S-16	Require new development and projects proposing land use changes to annex into existing or new Community Facilities Districts for fire prevention/suppression and medical response, or to create other financing mechanisms as necessary.
S-17	Require substantially vacant newly annexed areas containing wildland fire potential to bear additional costs associated with contracting to CalFire for fire suppression or provide other means of mitigation approved by the Fire Department until such time as urban services become available.
S-18	Incorporate fuel modification/fire hazard reduction planning (e.g., weed abatement, open space management plans, firebreaks, planting restrictions) on lands (both public and private) that contain terrain and vegetative features such as grass, woodlands and severe slopes
S-19	Maintain inter-jurisdictional cooperation and coordination, including automatic aid agreements with fire protection/suppression agencies in Placer County.
Seismic and Geologic Hazards Policies	
S-20	Provide for seismic safety and structural integrity in residential, commercial, industrial and public facilities through Building Code enforcement.
S-21	Require site-specific geotechnical studies of development proposals in areas subject to landslide potential, erosion, and/or slope instability.
Other Hazards Policies S-22 Require a risk analysis, as appropriate, when reviewing new projects located in close proximity to bulk hazardous material facilities, bulk petroleum transmission pipelines, and railroad travel routes. S-23 Require quarry safety protection measures prior to the development of any property containing or bordering on an existing quarry. The quarry safety protection measures shall identify public safety hazards associated with quarries and shall specify the protection methods that will be implemented to ensure public safety. S-24 Reduce the exposure of sensitive receptors to potential health risks from toxic air contaminants (TACs).	

Source: Rocklin Draft General Plan Update, Chapter 4D – Community Safety Element

Table E-22 Rocklin General Plan Mitigation Related Policies (Various Elements)

General Plan: Various Elements Goals & Policies	
Land Use Policies	
LU-19	Require projects that are approved on severe slopes (25 percent or greater) to establish grading design guidelines with their development application.
Conservation, Development, and Utilization of Natural Resources Policies	

General Plan: Various Elements Goals & Policies	
OCR-46	Participate as appropriate in a regional approach to the management of drainage basins and flood plains with regional agencies such as the Placer County Flood Control and Water Conservation District.
OCR-47	Protect the designated City Regulatory Floodplains from encroachment by development that would impede flood flows or pose a hazard to occupants.
OCR-49	Minimize the degradation of water quality through use of erosion control plans and Best Management Practices.
OCR-50	Maintain a grading ordinance that minimizes erosion and siltation of creeks and other watercourses.
OCR-51	Evaluate development along stream channels to ensure that it does not create any of the following effects in a significant manner: reduced stream capacity, increased erosion or deterioration of the channel.
OCR-60	Work with the Placer County Water Agency to ensure that available methods and techniques to conserve potable water supplies are applied in Rocklin.
Public Facilities and Services Policies (Law Enforcement, Fire Protection, and Emergency Response)	
PF-12	Identify certain types of development, such as assisted living facilities and group homes that may generate higher demand or special needs for emergency services and require developer participation to mitigate the needs/demands.
PF-15	Require City-approved automated entry access to gated communities for emergency vehicles
PF-23	Require special fire suppression mitigation (such as sprinklering) for any new residential development located more than two road miles from a fire station and for any new commercial development located more than one and one-half road miles from a fire station.
PF-24	Support public education concerning fire and life safety.
PF-25	Require new development to meet fire flow requirements based on standards codified in the Uniform Fire Code.
Public Facilities and Services Policies (Utilities)	
PF-32	Request utility companies to expedite undergrounding of existing above ground utility lines.
PF-33	Require undergrounding of utility lines in new development, except where infeasible for financial and/or operational reasons.
PF-34	Coordinate with utility companies regarding the location of new high voltage transmission lines, seeking undergrounding wherever possible.
PF-41	Assist the Placer County Water Agency in implementing water conservation practices.
PF-43	Require that new development proposals include Drainage Master Plans unless waived by the City Engineer.
PF-44	Acquire easements to creeks and waterways to allow for maintenance, inspection, and construction of storm drainage facilities.

Source: 2012 City of Rocklin General Plan

City of Rocklin Emergency Operations Plan

The City of Rocklin Emergency Operations Plan (EOP) and Resources Guide addresses the planned response for the City of Rocklin to emergencies associated with disasters, technological incidents, or other dangerous conditions created by either man or nature. It provides an overview of operational concepts,

identifies components of the City emergency management organization, and describes the overall responsibilities of local, state, and federal entities.

E.6.2. Administrative/Technical Mitigation Capabilities

Table E-24 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Rocklin.

Table E-23 City of Rocklin's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	Makes recommendations and/or final decisions on development proposals. Coordination is effective
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	Public Services Department conducts tree trimming, weed abatement/grazing and drainage channel maintenance activities. Coordination is effective.
Mutual aid agreements	Y	Rocklin Fire Department belongs to statewide mutual aid system. Coordination is effective.
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y FT	Through a combination of City staff and contracting with outside firms, staffing is adequate to enforce regulations and staff is trained on hazards and mitigation. Coordination between agencies and staff is effective.
Floodplain Administrator	Y FT	Economic and Community Development Department has Floodplain Administrator.
Emergency Manager	Y FT	Fire Chief or Police Chief as designated by City Manager. Staffing is adequate to enforce regulations and staff is trained on hazards and mitigation. Coordination between agencies and staff is effective.
Community Planner	Y FT	Planning staff in Economic and Community Development Department. Staffing is adequate to enforce regulations and staff is trained on hazards and mitigation. Coordination between agencies and staff is effective.
Civil Engineer	Y FT	Engineering staff in Economic and Community Development Department. Staffing is adequate to enforce regulations and staff is trained on hazards and mitigation. Coordination between agencies and staff is effective.
GIS Coordinator	Y	GIS Division in Public Services Department. Staffing is adequate to enforce regulations and staff is trained on hazards and mitigation. Coordination between agencies and staff is effective.
Other		

Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Police and Fire Departments
Hazard data and information	Y	Police, Fire, Economic and Community Development and Public Services Departments.
Grant writing	N	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Rocklin

E.6.3. Fiscal Mitigation Capabilities

Table E-25 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table E-24 City of Rocklin's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
Authority to levy taxes for specific purposes	Y (requires 2/3 voter approval)	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
Fees for water, sewer, gas, or electric services	N	Water, sewer, gas and electric services in Rocklin are provided by others (non-City).
Impact fees for new development	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
Incur debt through private activities	N	
Community Development Block Grant	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Other federal funding programs	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
State funding programs	Y	Has not been used in past for direct hazard mitigation activities, could be used to fund future mitigation actions.
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: City of Rocklin

E.6.4. Mitigation Education, Outreach, and Partnerships

Table E-26 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table E-25 City of Rocklin's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	Local citizen groups and non-profit organizations focused on environmental protection are active in Rocklin and region, but rarely focus on disaster mitigation. City could seek their assistance in helping to implement future mitigation activities.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	The City staffs an environmental education outreach booth at some special events, could assist with implementing future mitigation activities.
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N?	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

The City of Rocklin works cooperatively with the State Regional Board, the Central Valley Regional Water Quality Control Board, the Placer County Flood Control and Water Conservation District, Cal Fire, and the neighboring jurisdictions of Colfax, Lincoln, Loomis, Roseville, Auburn, and Placer County.

E.6.5. Other Mitigation Efforts

The City of Rocklin has many other ongoing mitigation efforts that include the following:

- Weed Abatement Program
- Annual Drainage Maintenance Program
- Managed Grazing Program (see Figure E-9)

Figure E-9 Managed Grazing Program

Source: City of Rocklin

E.7 Mitigation Strategy

E.7.1. Mitigation Goals and Objectives

The City of Rocklin adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

E.7.2. NFIP Mitigation Strategy

The City of Rocklin joined the National Flood Insurance Program (NFIP) in 2001. As a participant of the National Flood Insurance Program (NFIP), the City of Rocklin has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Rocklin will continue to comply with the requirements of the NFIP in the future.

In addition, the City of Rocklin actively participates with the County of Placer to address local NFIP issues through a regional approach. Many of the program activities are the same for the City of Rocklin as for

Placer County since participation at the County level includes all local jurisdictions. An elected official of the City of Rocklin is a designated representative on the Placer County Flood Control District Board.

The City's regulatory activities apply to existing and new development areas of the City; implementing flood protection measures for existing structures and new development and maintaining drainage systems. The goal of the program is to enhance public safety, and reduce impacts and losses while protecting the environment. The City has a Flood Damage Prevention Ordinance that regulates construction in the floodplain. The City intends to continue to implement the ordinance and participate at the regional level with Placer County implementing appropriate measures to mitigate exposure and damages within designated flood prone areas.

The NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Rocklin does not participate in the CRS.

E.7.3. Mitigation Actions

The planning team for the City of Rocklin identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: All hazards

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: City of Rocklin Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 1. Federal Emergency Management Agency (FEMA) Floodplain/Community Rating System (CRS)

Hazards Addressed: Flood/Severe Weather (Heavy Rain)

Issue/Background: The City of Rocklin has been subject to previous occurrences of flooding and there are improved and un-improved parcels within the City that are located within the 100- and 500- year floodplains. The City is exploring ways to address floodplain issues through the use of drainage studies, drainage improvements, elevation certificates, consideration of participation the Community Rating System and other available strategies.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: See below.

Responsible Office/Partners: City of Rocklin Public Services Department and Economic and Community Development Department

Project Priority: Medium

Cost Estimate: It is estimated that the cost of drainage studies, drainage improvements, elevation certificates and consideration of participation in the Community Rating System and other available strategies ranges between $200,000.00 and $500,000.00, depending upon the costs of the selected method(s).

Benefits (Losses Avoided): Possible reductions in the number of properties impacted by the 100- and 500-year floodplains which can provide savings in potential property damage from flood events. Possible reductions in the cost and need for flood insurance by private property owners.

Potential Funding: Possible grant opportunities, public-private partnerships and possible General Fund monies. No grant funding has been utilized for this project to date.

Timeline: In process, dependent upon funding.

Action 2. Creek Channel and Drainage Way Clearing and Maintenance

Hazards Addressed: Flooding

Issue/Background: The City of Rocklin's stormwater runoff is channeled through drainage ways and numerous small creeks throughout the City. These drainage ways and creeks require regular maintenance

to remove vegetation (including invasive plant species) and debris which helps to provide additional drainage capacity and reduce localized flooding.

Other Alternatives: Continue creek channel and drainage way clearing and maintenance as funding becomes available.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The City of Rocklin Public Services Department conducts creek channel and drainage way clearing and maintenance throughout the City on an annual basis. Locations of these efforts vary from year to year based on available funding, known problem areas and timing of last treatment.

Responsible Office/Partners: City of Rocklin Public Services Department

Project Priority: Medium

Cost Estimate: $50,000.00-100,000.00.

Benefits (Losses Avoided): Decreases in localized flooding and decreases in potential property damage and/or loss.

Potential Funding: Possible grant opportunities and General Fund monies. No grant funding has been utilized for this project to date.

Timeline: In process, dependent upon funding.

Action 3. High Water Use Landscape and Irrigation Retrofit

Hazards Addressed: Drought, Fire Risk

Issue/Background: The City of Rocklin has some park and open space areas and roadway landscaping that contain high water use plants and/irrigation systems that could be considered inefficient and wasteful from a water conservation standpoint. These areas are in need of retrofit to reduce water use.

Other Alternatives: Reduce or eliminate water use and allow landscaping to die.

Existing Planning Mechanism(s) through which Action Will Be Implemented: In response to mandated water restrictions in 2015 the City initiated a retrofit program that consisted of retrofitting existing irrigation systems with water efficient irrigation systems and replacing high water use landscape with low water use landscape. In addition the City identified areas of parks and open space that were not critical for public use and allowed these areas to “brown out”.

Responsible Office/Partners: City of Rocklin Public Services Department

Project Priority: Medium

Cost Estimate: Unknown.

Benefits (Losses Avoided): Decreased water usage and fire risk reduction.

Potential Funding: Possible grant opportunities and General Fund monies. No grant funding has been utilized for this project to date.

Timeline: In process, dependent upon funding.

Action 4. Open Space Fire Prevention & Vegetation Management Prescribed Grazing

Hazards Addressed: Wildfire and Agriculture (Invasive Plant Species Removal)

Issue/Background: Historically, vegetation management in Rocklin was limited to partial hand and chemical perimeter treatment on parcels accessible with equipment, which does nothing to address the build-up of fire fuels in open space areas where terrain ranges from gentle slopes to steep, rocky hillsides. A large portion of the open space areas in the City are regulated by the U.S. Army Corps of Engineers and as such fuel load mitigation methods are very limited. Because most of Rocklin's open space areas are adjacent to residential and commercial developments, wildfires can jeopardize life and property and limited natural resources. Additionally, many open space preserves contain invasive plant species that continue to spread and out-compete native plant species. Prescribed grazing represents a transition to a more area-wide, holistic management approach to hazard mitigation and invasive species removal in open space areas prone to wildfire and invasive plant species infestation. Additional open space areas are added to the City as development occurs.

Other Alternatives: No action or hand and small tool removal.

Existing Planning Mechanism(s) through which Action Will Be Implemented: See below.

Responsible Office/Partners: City of Rocklin Public Services Department, Environmental Services Division and City of Rocklin Fire Department

Project Priority: High

Cost Estimate: It is estimated that annual grazing costs for the City's open space areas range between $100,000.00 - $150,000.00, depending upon the rate of growth, the length of the growing season and the number of passes that are necessary.

Benefits (Losses Avoided): The reduction of fire fuel loads which decreases the intensity of wildfires, which in turn can provide savings in potential property and natural resource damage. It also reduces the need for mechanical means of fuel reduction, is an environmentally friendly approach to fuel load management and helps to mitigate invasive plant species.

Potential Funding: The City has pursued grant opportunities in the past to help fund the transition that will serve as the catalyst that establishes a balanced, maintainable open space ecosystem so that vegetation can be controlled through routine, scheduled maintenance grazing. The grazing program is currently funded through Community Facilities Districts which are financing districts that allow for the collection of special

taxes on individual properties; they are incurred annually and collected at the same time as property taxes. No grant funding has been utilized for this project to date.

Timeline: In process. Managed prescribed grazing begins in the early spring and is geared towards completion in June/July, prior to the onset of fire season. Weather and the condition of vegetation can influence grazing periods.

Action 5. GIS Based Mapping of Pertinent Information that can be used by All Agencies in the Development of Plans and During Emergency Incidents

Hazards Addressed: Multi-hazard

Issue/Background: The City of Rocklin is in the process of creating and continuously updating a GIS based mapping system that provides information of various infrastructure as well as systems and areas that are of benefit in pre-planning for emergencies or mitigation of such emergencies. Some of these obtained and desired data include: water system, sewer system, storm water system, fire hazard zones, emergency evacuation routes, fire response zones, fire hydrant locations and flow information, police beats and response times, street names and addresses, zoning information, property ownership and as-built improvement plans.

Other Alternatives: Continue to use existing technology and hard copy information that must be accessed through multiple locations and methods.

Existing Planning Mechanism(s) through which Action Will Be Implemented: See below.

Responsible Office/Partners: City of Rocklin Public Services Department, GIS Division

Project Priority: High

Cost Estimate: It is estimated that an additional $100,000.00 is needed. The funds will be used to add to City General Fund dollars to expand the GIS system and database, including infrastructure and pre-emergency data. On-going maintenance costs will be covered by the City of Rocklin.

Benefits (Losses Avoided): The City of Rocklin has been gathering infrastructure and pre-emergency related data for many years. Additional funding would allow the gathering of more data and the migration of such information into a GIS system sooner. It is difficult to put an exact cost benefit from such a project. Identification of critical infrastructure and use in pre-planning for emergencies would be the greatest benefit. A GIS system is more cost effective in maintenance and updating since it will only require data entry to an already established system. Such a system could also interface with other regional agencies and provide easy access for critical information sharing.

Potential Funding: The City's General Fund has now funded a full-time GIS Analyst position and several part-time positions to expand its GIS system and database, including infrastructure and pre-emergency data. No grant funding has been utilized for this project to date.

Timeline: In process. Multiple shape files/layers have been created since the implementation of this plan in 2005 for the Fire Department, Police Department and Public Services Department. As resources become available to create new layers, the system will continue to become more dynamic and comprehensive.

Annex F Alta Fire Protection District

F.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the Alta Fire Protection District (Alta FPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Alta FPD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

F.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table G-1. Additional details on plan participation and District representatives are included in Appendix A.

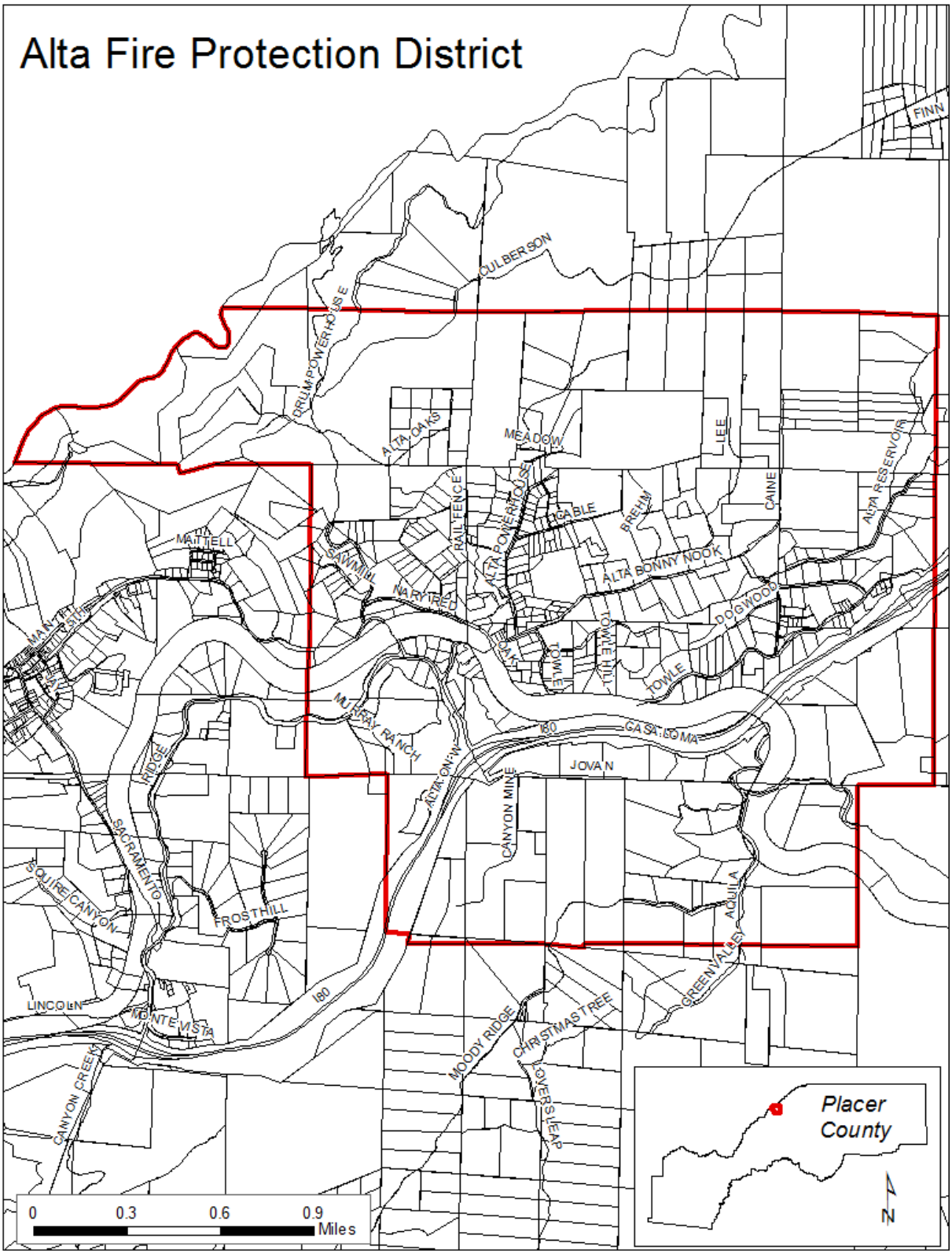
Table G-1 District Planning Team

Name	Position/Title	How Participated
Rich Thickens	Fire Chief	Attended meetings. Provided hazard identification table and updated hazard data. Provided new mitigation actions and updated old mitigation actions. Provided vulnerability and capability data.
Karen Calvert	Director – Alta Fire Protection District	Validated hazard identification table and data. Provided mitigation actions. Validated vulnerability and capability data.
Ed Snider	Alta Fire Protection District Board Member	Validated hazard identification table and data. Provided mitigation actions. Validated vulnerability and capability data.

F.3 District Profile

The Alta FPD service area is illustrated in Figure G-1.

Figure G-1 Alta Fire Protection District



Source: Alta FPD

F.3.1. District Information and Background

The Alta Fire Department formed in 1948 to provide fire protection and public safety services for the residents of Alta. The Alta FPD was established after an election of voters, within the boundaries of the proposed District, and by a resolution put forth by the Placer County Board of Supervisors in 1958 to administer and govern the business and affairs of the Alta Fire Department. The District is a California Independent Non-enterprise Special District governed by California Health and Safety Code, Section 13800-13970 et seq. (Cited as the Fire District Law of 1987).

The Alta FPD services a 4.12 square mile area that houses approximately 640 full time residents. The District services the community of Alta.

F.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence; spatial extent, potential magnitude, and significance specific to the District (see Table G-2).

Table G-2 Alta Fire Protection District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Limited	Low
Dam Failure	Limited	Occasional	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Limited	Unlikely	Negligible	Low
Flood: 100/500 year	Limited	Occasional	Negligible	Low
Flood: Localized Stormwater Flooding	Extensive	Highly Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Limited	Highly Likely	Negligible	Medium
Soil Bank Erosion	Limited	Unlikely	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Extensive	Highly Likely	Catastrophic	High
Hazardous Materials Transport	Extensive	Highly Likely	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

F.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

F.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table G-3 lists District assets identified by representatives from the District as important to protect in the event of a disaster.

Table G-3 Alta Fire Protection District—Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Station 98	Fire Department	33950 Alta Bonnynook Rd Alta, CA 95701	$502,783	Wildfire Hazardous Materials spill zone for railroad
Alta-Dutch Flat Elementary School	School	34050 Alta Bonnynook Rd Alta, CA 95701		Wildfire, Landslide, Hazardous Material Spill Zone for Railroad
Sierra First Baptist Church	Religious / Historical	33990 Alta Bonnynook Rd Alta, CA 95701	$600,000	Wildfire, Hazardous Material Spill Zone for Railroad
Camp Alta	Religious / Historical	794 Alta Powerhouse Rd Alta, CA 95701	$2,000,000	Wildfire
Cal Fire Station 33	Fire Department	33752 Alta Forestry Rd Alta, CA 95701	$2,975,000	Wildfire, Hazardous Material Spill Zone for Railroad
Alta Powerhouse and Substation	Infrastructure – Historical	Alta Powerhouse Rd, Alta CA 95701	.	Oldest hydroelectric power-producing unit in the PG&E system, first produced electricity in 1902. Wildfire
PCWA Hydrants	Infrastructure / Water Supply	Various	>$2 million	Many structures protecting these are wooden, at risk in wildfire
Alta Powerhouse After-bay and Dam	Infrastructure / Water Supply	Alta Powerhouse Road	>$100 million	Failure would cause major flooding
Lake Alta	Recreation / Water	Alta Bonny Nook	Unknown	Public Water Supply

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
	Supply	Road		In Railroad Hazardous materials spill zone
Alta Reservoir	Infrastructure / Water Supply	Alta Reservoir Road	>$50 Million	Public Water Supply
PCWA Boardman Canal	Infrastructure / Water Supply	Canal Rd Alta CA 95701	>$20 million	Key component for PCWA raw water transportation system, runs from Alta to Rocklin
UP Railroad	Infrastructure / Commercial Corridor	Various	>$100 million	Hazardous / flammable materials transportation
Kinder Morgan Pipeline	Infrastructure / Critical Utility	Various	>$100 million	Hazardous/ flammable materials transportation
Interstate 80	Infrastructure / Commercial Corridor	Various	>$500 million	Critical primary ingress / egress access for multiple communities

It is important to note that there are several elderly, disabled, and low income people in the Alta community. In the case of a wildfire evacuation, these people may not have transportation. Likewise, in the event of a power outage during the winter months, these special populations may not be able to get to a shelter for warmth. Alta FPD has a Local Community Special Needs Citizen Network that is working to compile a database of these individuals.

Natural Resources

Population growth and development trends within District boundaries are covered in Section 4.3.2 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District.

Growth and Development Trends

Population growth and development trends within District boundaries are covered in Section 4.3.2 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District**.**

F.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table G-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County

Planning Area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Drought is a significant hazard to this forested District. Recent years of drought stress have resulted in high mortality levels, leaving the forest susceptible to disease and insect infestation. As a result of recent drought conditions throughout California, infestations of the Pine Beetle are on the rise and pockets of mortality are rapidly spreading. Several areas within the District forests show signs of Pine Beetle and thus will become more vulnerable to wildfire. Drought conditions also may impact the water supply of people residing within District boundaries.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Heavy rains occur on an annual basis in the Alta FPD service area. Impacts to the area usually include mild flooding and damage to infrastructure roads. The District experiences localized flooding annually. Though a drought was affecting much of California, heavy rains caused mild to moderate damages in the area and increasing hazards on Highway 80, a critical commercial corridor that goes through the District.

Landslide and Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

There have been landslides within the District, historically the E. Towle/W. Towle landslide which removed the historic town of Towle. Old historic underground mining operations have caused fatal events within the District as well. The combination of large underground spring water sources and abandoned unmapped mining tunnels are common within the district.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Extreme heat is a concern to the District. Extreme hot weather within the region, accompanies low humidity and increased risk of wildfire ignition and extreme fire behavior. Ignition potential is further increased due to critically low fuel moistures resulting from years of drought. Also vulnerable to the effects of extreme hot weather is the elderly population located within District boundaries. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Freeze and snow is an annual occurrence within the District. This severe weather severely impacts the Highway 80 commercial corridor and compromises resident and emergency responder's ingress and egress. Infrastructure road surface damage and pavement deterioration are also concerns during winter. The elderly and special needs population located within District boundaries also require monitoring during severe weather episodes. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures. The Districts newly formed CERT team trains specifically for cold weather events, staffing evacuation centers, traffic control and assisting with health and welfare checks on remote citizens within the community.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Heavy rains, wind, thunderstorm, hail lightening and storms are an annual occurrence within the District. The heavily forested district has many homes around large trees. Wind and heavy rain events will bring trees down, and occasionally onto homes. This severe weather severely impacts the Highway 80

commercial corridor and compromises resident and emergency responder's ingress and egress. Infrastructure road surface damage and pavement deterioration are also concerns during winter. The elderly and special needs population located within District boundaries also require monitoring during severe weather episodes. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures. The District's newly formed CERT team trains specifically for cold weather events, staffing evacuation centers, traffic control, and assisting with health and welfare checks on remote citizens within the community.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

All four of the communities that the Alta FPD is responsible for or provide mutual aid to are listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.1 of the main plan. These include the communities of: Alta, Dutch Flat, Casa Loma, Emigrant Gap and Gold Run.

The state fire data classifies the entire district as an area of extreme fire hazard. Using state fuel models, the types of fuels present within District boundaries tend to dry out during summer months creating the extreme fire conditions.

The District has experienced direct wildfire threat annually, often deriving from the North Fork of the American River canyon, which experiences heavy recreational usage. The landscape along this canyon is densely vegetated and exists in a mixed mosaic of ownerships which makes landscape scale fuel reduction difficult. The District is also intersected by Highway 80 and the Union Pacific railroad, both of which increase the probability of roadside, railway ignition sources. The most recent threat to the community of Alta was the 2015 Lowell fire that burned 2,304 acres of forestland. The District is actively working with the community to install shaded fuel breaks in strategic locations.

Hazardous Materials Transport

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Highway 80, a Cal-Trans identified hazardous material route, intersects the Alta FPD response area. Also crossing the district is the Union Pacific Railroad which transports Hazardous Materials. The quantity of hazardous materials travelling this rail route in the coming years is expected to increase dramatically. The District actively trains with cooperating agencies for hazardous material response and works closely with the Placer County Hazardous Materials Team. Hazardous materials transportation poses a significant risk to the public and to District staff.

F.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections:

regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

F.6.1. Regulatory Mitigation Capabilities

Table G-4 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table G-4 Alta Fire Protection District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N/A	
Capital Improvements Plan	N	
Economic Development Plan	N/A	
Local Emergency Operations Plan	N	
Continuity of Operations Plan	N	
Transportation Plan	N/A	
Stormwater Management Plan/Program	N/A	
Engineering Studies for Streams	N/A	
Community Wildfire Protection Plan	Y / 2012	Western Placer Community Wildfire Protection Plan. Yes, the plan identifies hazards and contains a list of mitigation projects that is reviewed annually.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Enforced by Placer County
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 6Y
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N/A	Responsibility of Placer County
Subdivision ordinance	N/A	Responsibility of Placer County

Floodplain ordinance	N/A	Responsibility of Placer County
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N/A	Responsibility of Placer County
Flood insurance rate maps	N/A	Responsibility of Placer County
Elevation Certificates	N/A	Responsibility of Placer County
Acquisition of land for open space and public recreation uses	N/A	Responsibility of Placer County
Erosion or sediment control program	N/A	Responsibility of Placer County
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

F.6.2. Administrative/Technical Mitigation Capabilities

The Board is comprised of 5 members and is selected by registered voters within the District. The Board serves as the governing body for the District's residents. The Board of Directors approves District Rules and Regulations and, through the Fire Chief, ensures adherence to District policies. The Alta FPD provides service through one primary station in Alta.

Alta FPD's dispatch services are provided by the Placer County Sheriff's Office 911 center in Auburn. The 911 center uses computer aided dispatching to ensure optimal resource monitoring and management utilizing the closest resource backed up by station cover assignments in a multi-tiered alarm structure. Table G-5 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table G-5 Alta Fire Protection District's Administrative and Technical Mitigation Capabilities

Administration	**Y/N**	**Describe capability Is coordination effective?**
Planning Commission	Y	In coordination with Placer County
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	
CERT Team	Y	Newly formed in 2013, the Alta FPD CERT team has already received federal recognition and certification.
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**

Chief Building Official	Y	In coordination with Placer County
Floodplain Administrator	N	
Emergency Manager	Y	In coordination with Placer County
Community Planner	N	
Civil Engineer	Y	In coordination with Placer County
GIS Coordinator	Y	In coordination with Placer County
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	In coordination with Placer County
Hazard data and information	Y	In coordination with Placer County
Grant writing	Y	In coordination with Placer County
Hazus analysis	Y	Placer County GIS personnel.
Other		
How can these capabilities be expanded and improved to reduce risk?		

F.6.3. Fiscal Mitigation Capabilities

Table G-6 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table G-6 Alta Fire Protection District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Other federal funding programs	N	
State funding programs	N	
Other	Y	Local community fundraising
How can these capabilities be expanded and improved to reduce risk?		

F.6.4. Mitigation Outreach and Partnerships

Table G-7 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. Additional information can be found after the table.

Table G-7 Alta Fire Protection District Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	CERT Team formed in 2013. Nationally recognized. Focusing on building qualified instructors to expand program capabilities.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	CERT team activities, participation in the National Night Out Community Block Party program, cooperate with Cal Fire for fire prevention activities and events.
Natural disaster or safety related school programs	Y	School programs
StormReady certification	N	
Firewise Communities certification	Y	Process has been started in multiple AFPD communities.
Public-private partnership initiatives addressing disaster-related issues	N	
Other	Y	Inland waters hazmat trailer funded by Grant
How can these capabilities be expanded and improved to reduce risk?		

The Alta FPD has automatic aid agreements with bordering Districts and mutual aid agreements with other fire agencies throughout the area. The District relies heavily upon this aid from neighbors.

The District also works with other agencies on wildfire-related matters. Working with professional fire experts from the U.S. Forest Service and California Department of Forestry and Fire Protection helps ensure that the District's work complements state and federal work and is up to standard for controlling wildfires.

F.6.5. Other Mitigation Efforts

F.7 Mitigation Strategy

The District is involved in a variety of mitigation activities including public education, fuels management projects, and other activities to reduce fuel loads and fire risk. These mitigation activities include:

- Public Education and Fire Safety
  - ✓ A variety of public outreach activities are conducted throughout the district on an annual basis.
  - ✓ The District maintain an active educational presence in the community and the Alta – Dutch Flat School
  - ✓ The District also coordinates the use of the County Chipper for local fuel reduction activities.

- Fuels Management Activities.
  - ✓ The District has been partnering with Cal Fire and PG&E to actively pursue fuel reduction opportunities. Several miles of shaded fuel break and roadside shaded fuel break have been recently installed and efforts to extend these breaks continue.
  - ✓ The District has worked together with Cal Fire, the Placer County RCD and the USFS to plan and develop strategic fuel breaks that will protect the community. Federal, State and Private Grants continue to support the planning and implementation.
  - ✓ Cooperation between Caltrans and Cal Fire is resulting in fuels reduction work and demonstration of proper fuels reduction implementation.

- Defensible Space
  - ✓ In recent years due to lack of funding, the district has limited involvement in the enforcement of the defensible space program. When funding has been available, the District provides annual defensible space inspections of area residents.
  - ✓ The District currently operates an elderly assistance program where they coordinate volunteers to clear properties.

- Community Response
  - ✓ The District supports a growing CERT team and continues to seek out funding opportunities to enhance training and capabilities of community members.

F.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

F.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Apparatus Water Fill & Drafting Location Improvements

Hazards Addressed: Wildfire

Issue/Background: There are numerous hydrants, within the Alta District Boundary, that rely on a fully functioning and limited potable water supply. The water supply is from 2 water tanks located at the geographical high point of the District, Alta Reservoir, located on Alta Reservoir Road. This facility is operated by PCWA to provide drinking water and hydrant water supply. Tank capacity is less than 100,000 gallons for the entire system. Should the facility lose power or a problem in the canal system arises in an emergency, there is no guarantee that the tanks will be refilled.

Given the limited supply of potable water, the District apparatus and firefighters are prepared to draft form the numerous lakes and canals that are located within the District. However, access to these locations is generally less than ideal. No turn around locations, or access is just out of reach of apparatus requiring hose lays and pumps to fill apparatus which can require a lot of time to setup and refill and engine or tender.

Ideal location examples:

- The Meadow on Alta Bonny Nook Road – Excellent road and freeway access, large area to line up apparatus, reliable water source (Lake Alta) is higher in elevation that the roadway so gravity feed is possible.
- Nary Red Road next to PCWA Flume over roadway – Good road access from 2 directions, good turn around at the post office (less than ¼ mile down the road), good reliability of water source, gravity feed is possible.

Other Alternatives: Setup several permanent fill locations in the District that would provide for good access from multiple directions, good turnaround spots, parking for multiple apparatus such that roads are not blocked by apparatus that are awaiting a refill and preferably gravity feed, so no pumps are required.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: PCWA, Alta FPD, Placer County Fire, CALFire

Project Priority: High

Cost Estimate: Low to Moderate

Benefits (Losses Avoided): With Gravity systems and large diameter in-ground pipe 4”-6” fire apparatus can be refilled in a fraction of the amount of time now required.

Potential Funding: County, State and Federal Funding

Timeline: Within 5 year plan

Action 2. Evacuation / Reunification Center Improvements

Hazards Addressed: Multi-hazard. Critical need for a full service evacuation location within the Alta FPD that is handicap / special needs accessible for all members of the community. Central community location for information sharing.

Issue/Background: The construction of the Alta FPD Community Hall was in coordination with the construction of the Alta FPD’s Fire Station and was financed through the use of District assessments on properties. There is a critical need within the Alta community for a full service evacuation / reunification location. The aging facility is in desperate need of facility improvement to meet ADA standards so that it can service all residents of the District in case of emergency.

Critical elements that need addressing are a generator system to run the building, enhancing communication capabilities within the community from this building, and upgrading the community service that it can provide such as ADA access, restrooms and showers.

Other Alternatives: The alternative to seeking grant opportunities is to continue operating the facility and relying on volunteers to contribute their time and skill to upgrading the facility when funding is available. This alternative allows for maintenance of current use standards, but makes expansion unlikely.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Community Hall is currently rented out for a minimal fee to cover operation and maintenance costs. These fees will continue to support maintenance and utility expenses for the facility.

Responsible Office/Partners: Alta FPD

Project Priority: High

Cost Estimate: Moderate

Benefits (Losses Avoided): Create a safe evacuation center location for all residents, including elderly and special needs residents.

Potential Funding: County, State and Federal funding.

Timeline: Within 5 year plan

Action 3. Natural Systems Protection / Education and Awareness Programs and Community Fuel Breaks

Hazards Addressed: Wildfire. Installation of a number of fuel breaks surrounding the community served by the Alta FPD. The North Fork of the American River Canyon directly east of Alta, is federally listed as a Wild and Scenic River and has numerous management and suppression restrictions on it in case of a fire. The North Fork American River is a primary source of domestic water from Auburn, downstream to the San Francisco Bay Area. Wildfire threat is constant and continual thereby justifying the investment in protection of these vital resources.

The area has an active large fire history most recently being threatened by the 2015 Lowell Fire burning 2,304 acres and directly threatening the communities of Alta and Dutch Flat. The community was also threatened by the Government Fire in 2008/

Potential economic impact from closure of the economic corridor of Highway 80 has been estimated at 1 million dollars per closure hour of lost revenue to the economy of the state. The transcontinental railroad also weaves throughout these communities and project area. Closure of that system can equal 1 million dollars per minute of lost revenue to the economy.

Issue/Background: The Alta FPD aligns with multiple densely populated WUI areas throughout the Interstate 80 corridor. These communities are at high risk to wildfire from the North Fork American River Canyon, interstate and rail ignitions. Multiple years of drought and high rates of tree mortality and bark beetle infestation and created a catastrophic level of risk for residents of these communities.

The installation of strategic fuel break on the outskirts of these communities will provide a strong anchor point for suppression action. Implementation of these fuel breaks also provides an invaluable education opportunity for responsible fire prevention and forest management.

Other Alternatives: Rely on the individual property owner or land manager to develop strategic fuel breaks to protect resources and assets that may be outside of their ownership or responsibility. This is the current practice which has led to a disjointed arrangement of small fuel treatments that make strategic utilization difficult.

Existing Planning Mechanism(s) through which Action Will Be Implemented: These projects are identified in the Nevada Yuba Placer CAL FIRE Fire Plan and the Western Placer CWPP. Continued development of funding opportunities and on the ground implementation will be completed through an interagency partnership fostered by the Placer County Fire Alliance.

Responsible Office/Partners: Alta FPD / Placer County Fire / CAL FIRE Nevada Yuba Placer Unit / Placer County RCD / Placer OES / PG & E

Project Priority: High

Cost Estimate: Moderate

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire.

Potential Funding: County, State and Federal funding.

Timeline: These projects are active and ongoing.

Action 4. Natural Systems Protection / Education and Awareness Programs

Hazards Addressed: Multi-hazard. The current drought and bark beetle infestation is rapidly creating large pockets of dead and dying pine trees throughout the Alta FPD area of responsibility. Large quantities of infested treats dramatically increase wildfire threat within the wildland urban interface area. The infestation across Placer County is increasing and reaching a critical threat to forestland and ecosystem health.

The area has an active large fire history most recently being threatened by the 2015 Lowell Fire burning 2,304 acres and directly threatening the communities of Alta and Dutch Flat. The community was also threatened by the Government Fire in 2008.

Issue/Background: The Alta FPD aligns with multiple densely populated WUI areas throughout the Interstate 80 corridor. Multiple years of extreme drought have stressed the forest environment and weakening trees creating an optimal condition for infestation by bark beetles. Recent aerial imagery assessments show a rapidly spreading mortality problem within Placer and Nevada Counties with new pockets of infestation appearing daily. Recent large fire activity has overwhelmed regional sawmills and timber values have declined dramatically. Removal of dead and dying trees is an incredibly expensive feat for the residents of Alta.

Other Alternatives: Rely on the individual property owner or land manager to remove dead trees and properly dispose of material. With the current market, this option is extremely expensive and the scale of infestation and mortality is overwhelming for small land owners.

Existing Planning Mechanism(s) through which Action Will Be Implemented: These projects are identified in the Nevada Yuba Placer CAL FIRE Fire Plan and the Western Placer CWPP. Continued development of funding opportunities and on the ground implementation will be completed through an interagency partnership fostered by the Placer County Fire Alliance.

Responsible Office/Partners: Alta FPD / Placer County Fire / CAL FIRE Nevada Yuba Placer Unit / Placer County RCD / Placer OES / PG & E

Project Priority: High

Cost Estimate: High

Benefits (Losses Avoided): Reduced risk of loss of life and property from catastrophic wildfire, protection of forestland.

Potential Funding: County, State and Federal funding.

Timeline: These projects are active and ongoing.

Action 5. Emergency Communications and Information System Improvements.

Hazards Addressed: Responder and resident life safety.

Issue/Background: The community of Alta exists within the wildland urban interface of the Sierra Foothills. Steep canyons and heavy timber provide a challenging environment for communications among first responders. Many of the residences are in remote locations: winter weather can be extreme in this small community that exists in the 3,800 ft elevation zone. The community in transected by the UP Railroad, Highway 80 and the Kinder Morgan Pipeline, all which increase its hazard potential. The current EMS radio system has significant gaps and holes. The District desires to upgrade fire station communications, including a repeater system to help alleviate gaps in the current system.

Other Alternatives: No current recommendations.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: Alta FPD

Project Priority: High

Cost Estimate: Moderate

Benefits (Losses Avoided): Improving communication capabilities within the District, allowing for more efficient response and enhanced life safety for responders and residents of the District.

Potential Funding: County, State and Federal funding.

Timeline: Within 5 year plan

Action 6. Alta Fire Protection District CERT Team

Hazards Addressed: A qualified team of volunteers that can be used to support all-risk incidents within the community.

Issue/Background: The Alta FPD CERT team is currently trained to support wildfire response, cold weather events, staffing of evacuation centers, traffic control, assisting with health and welfare checks on remote citizens, and other assigned duties when firefighters are tasked elsewhere. Recently team participation has been expanded to the communities of Colfax, Weimar, Applegate and Meadow Vista.

As the team develops, many members are becoming qualified instructors, allowing for the expansion of team capabilities and abilities. The community that Alta FPD serves is high risk for weather, wildfire,

drought and hazardous materials events. Enhanced training and equipment will allow the CERT team to better service its community and surround mutual aid area.

Other Alternatives: Continue to operate with current training and volunteers.

Existing Planning Mechanism(s) through which Action Will Be Implemented: This team was initiated in February of 2013 and has successful earned national recognition and certification for 27+ volunteers. Additional grant funds will be sought to expand training opportunities and team capabilities.

Responsible Office/Partners: Alta FPD / Placer OES

Project Priority: High

Cost Estimate: Low

Benefits (Losses Avoided): Preparing a community to support all-risk events and reducing reliance on mutual aid. Empowering residents to take an active prevention and education role in their community.

Potential Funding: County, State and Federal funding.

Timeline: This project is active.

Action 7. Reflective Addressing

Hazards Addressed: Many home in the district have poor address markings for emergency access which delays response time to 911 calls.

Issue/Background: The community of Alta is in an unincorporated area of Placer County. There are many residences with insufficient address markings. The Alta FPD has limited green signs and numbers available to the community at cost, but it is difficult to advertise this service with limited volunteer help available. Because of this, many homes are poorly marked for emergency access, which delays response time trying to find an address in this very rural community. Ideally uniform reflective address signs on metal posts community wide would help alleviate this problem.

Other Alternatives: Continue to provide reflective addressing supplies to the community at cost to residents who actively seek to have this done. Residents provide their own posts.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Alta FPD has a very active volunteer base.

Responsible Office/Partners: Alta FPD

Project Priority: Medium

Cost Estimate: Low

Benefits (Losses Avoided): Improvement of location of residents by emergency personnel.

Potential Funding: District, County, State and Federal Funding

Timeline: Within 5 year plan

Annex G Alpine Springs County Water District

G.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Alpine Springs County Water District, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Alpine Springs County Water District, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

G.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table G-1. Additional details on plan participation and District representatives are included in Appendix A.

Table G-1 District Planning Team

Name	Position/Title	How Participated
John Collins	District Manager	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Paul "Buz" Bancroft	Operations Supervisor	Provided input on past hazards, current field conditions and utility system operations, facilities and equipment available in an emergency.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table G-2.

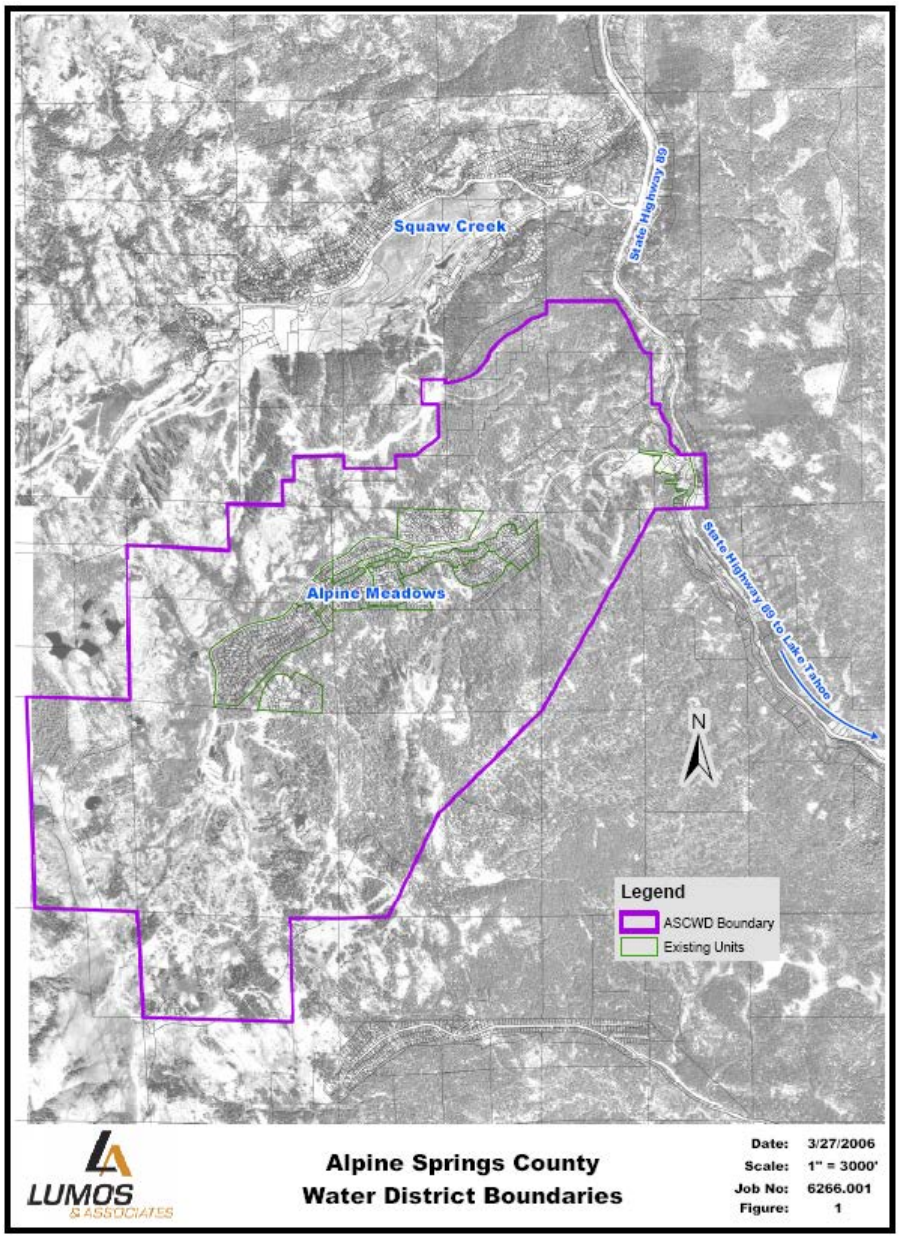
Table G-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Alpine Springs County Water District	Alpine Springs County Water District participated in the 2015 North Tahoe CWPP planning process. Relevant items from the last plan for the District were incorporated into the CWPP planning process and into the annual update of the Capital Improvement Plan of the District.

G.3 District Profile

The Alpine Springs Water District service area is illustrated in Figure G-1.

Figure G-1 Alpine Springs Water District's Service Area



Source: Alpine Springs County Water District

G.3.1. District Information and Background

Alpine Springs County Water District is located in Alpine Meadows just northwest of Lake Tahoe, along California State Highway 89, just outside of the Lake Tahoe Basin. The Alpine Meadows area encompasses approximately one square mile within Placer County and contains about 770 private parcels, interspersed among a few open space parcels. Bear Creek runs through the community, creating a riparian area near many of the homes. Most homes are situated along the creek or other riparian areas. The elevation of Alpine Meadows ranges from 6,185 feet at the mouth of the canyon to 6,835 feet at the ski area lodge and the top of the inhabited area. Mountain peaks above the community are at 8,637 feet. The private lands are

surrounded by United States Forest Service (USFS) owned lands. The Alpine Meadows Ski Area is on USFS lands and is operated under a seasonal use agreement.

The Alpine Springs County Water District provides water, sewer, fire protection, parks, and garbage service to the residents of Alpine Meadows. The mission of Alpine Springs County Water District is to serve the residents of Alpine Meadows with:

- Clean, safe, and dependable drinking water;
- Safe, efficient and non-hazardous collection of waste water;
- Protection of lives and property; and
- Protection, preservation and enhancement of the urban forest setting with consideration for the property owner's continued use and enjoyment.

G.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table G-3).

Table G-3 Alpine Springs Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Significant	Likely	Limited	High
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Limited	Medium
Earthquake	Extensive	Likely	Catastrophic	High
Flood: 100/500 year	Limited	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Limited	Occasional	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Limited	Unlikely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Catastrophic	High
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Occasional	Catastrophic	High
Soil Bank Erosion	Limited	Likely	Limited	Medium
Subsidence	Limited	Occasional	Negligible	Low
Wildfire	Extensive	Occasional	Catastrophic	High
Hazardous Materials Transport	Limited	Occasional	Negligible	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

G.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

G.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table G-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster. The District's physical assets, valued at over $6.5 million, consist of the flood control and local drainage structures and real property, the operations center, and equipment.

Table G-4 Alpine Springs Water District's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Horizontal Well 1	Water Supply	No address	$100,000	wildfire, earthquake, landslide
Horizontal Well 2	Water Supply	No address. Off of ski run "Hot Wheels"	$150,000	wildfire, earthquake, landslide
Horizontal Well 3	Water Supply	No address	$150,000	earthquake, landslide wildfire
Horizontal Well 4	Water Supply	No address. Off of ski run "Hot Wheels	$150,000	wildfire
Vertical Well R-1	Water Supply	270 Alpine Meadows Road	$550,000	earthquake, wildfire
Vertical Well R-2	Water Supply	270 Alpine Meadows Road	$550,000	earthquake, wildfire
AME Well	Water Supply	0 Beaver Dam Trail	$755,850	wildfire
Storage Tank 1	Water Storage Tank	Off Chalet Road	$175,000	wildfire, earthquake
Storage Tank 2	Water Storage Tank	2040 Chalet Road	$175,000	wildfire, earthquake
Storage Tank 3	Water Storage Tank	1691 Upper Beach Road	$175,000	wildfire, earthquake
Storage Tank 5	Water Storage Tank	Behind Alpine Meadows Apartments	$175,000	wildfire, earthquake
Storage Tank 4	Water Storage Tank	2600 Alpine Meadows Road	$175,000	wildfire, earthquake
Storage Tank 4 A	Water Storage Tank	2600 Alpine Meadows Road	$1,000,000	wildfire, earthquake
Office Building	Administrative Office	270 Alpine Meadows Road	$500,000	wildfire, earthquake
Shop & Vehicle Storage Building	Utility, Shop & Vehicle Storage Building	270 Alpine Meadows Road	$870,000	wildfire, earthquake

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Fire House	Fire Station	270 Alpine Meadows Road	$825,000	wildfire, earthquake
Standby Generator	Standby Generator	270 Alpine Meadows Road	$55,000	wildfire, earthquake

Source: Alpine Springs County Water District

Natural Resources

In 2006, a wildlife and habitat analysis was done within the District boundaries to evaluate the potential for sensitive animal and plant species to be present. The results of the assessment indicate that areas within the District boundaries have the potential for the following:

- The mountain yellow-legged frog (Rama muscosa, which is federally listed as endangered);
- The willow flycatcher (Empidonax traillii, which is State listed as endangered);
- The northern goshawk (Accipiter gentilis, which is not listed);
- The Sierra Nevada mountain beaver (Aplidontia rufa californica, which is not listed);
- The Sierra marten (Martes Americana sierrae, which is not listed); and
- The western white-tailed jackrabbit (Lepus townsendii, which is not listed).

Growth and Development Trends

Alpine Meadows is a popular ski resort and summer recreational area that also holds over 650 private residences, another 100 private parcels, and a few open space parcels. Most existing homes are situated along Bear Creek or other riparian areas. Multiple organizations own these private lands and are responsible for future development. The private lands are surrounded by United States Forest Service (USFS) owned lands. As such, additional growth is limited to the private lands within the District boundaries.

Development Since 2010

It is estimated that 8 to 10 new residential homes have been built in the District borders since 2010. None are in the floodplain, but all are in wildfire risk areas. There has also been one recent (single home) development allowed through a zoning change in the Alpine Meadows area in an avalanche area. With increased development and more people living in the wildfire risk areas, the wildfire vulnerability of the District continues to increase. Adherence to and enforcement of building codes and construction standards will help to mitigate the risk and vulnerability of new development and the people who live here. Also, any development in Avalanche areas increase the risk and vulnerability to the property and people living there. However, Placer County will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

G.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table G-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County

planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, within other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Avalanche

Likelihood of Future Occurrence–Likely
Vulnerability–High

The District services Alpine Meadows, a large ski resort located on both private and USFS lands. According to the 2004 Placer Operational Area, Emergency Operations Plan, areas of particular concern include the Alpine Meadows and Bear Creek area. As previously described in the main plan, in 1982, a 30 foot wall of snow plowed through the Alpine Meadows ski lodge and other ancillary buildings at 80 mph, killing seven people.

Given the known potential for avalanches in the area, avalanche areas have been well defined and avalanche control work is conducted as needed on a regular basis. Additional mitigation measures are in place through county ordinances and the building permit process.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

A major portion of the Districts' water supply is produced from horizontal wells located at an elevation above the Districts' service area. The source of water supply for these horizontal is water store in the mountains above the wells. The wells have not shown any major reduction is production (about 6 to 8%) during the recent drought. If the horizontal wells were to lose production the other source of supply would be from deep vertical well located at the bottom, or lowest elevation in the service area. These wells are not

equipped to pump water to any of the three higher water service zones within the District. Any loss of production in the higher elevation horizontal wells would leave approximately 75% of the Districts' water customer out of water.

Earthquake

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

The seismic hazard within the ASCWD service area is relatively low compared to many other parts of California. However, the area is considered to have a higher risk of an earthquake occurring due to the presence of several faults systems located in the area. As indicted on the Earthquake Shaking Map in Section 4.2.10 of the main plan, the shaking potential is greatest in the eastern portion of the County, including the ASCWD service area. There may be a lack of un-reinforced masonry buildings, compared to a more urban setting, however the ASCWD service area water storage tanks are circular prestressed concrete. In a report prepared for the ASCWD in 2013 by DN Tanks, the tanks do not meet design criteria, especially seismic criteria. The impact of an earthquake upon these water storage tanks would be very vulnerability to damage from severe ground shaking.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Bear Creek is the main drainage channel which runs the length of Alpine Meadows. The channel is fairly well defined and would be subject to flooding in selected area during a 100 or 500 year event. The creek does have several crossings of local streets which are privately maintained. Based upon observations of these crossing it would appear that one or more of these creek crossing would be subject to wash out during a 100 and or 500 flood event. The District is not aware of any specific studies which would confirm that flooding would or would not occur.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Heavy rains occur on an annual basis in the District service area. Often during these events, the local stormwater drainage system can be impacted. However, the District did not identify any past events resulting in significant damage.

Bear Creek is the main drainage channel which runs the length of Alpine Meadows, the District's service area. The Bear Creek channel crosses several different local street and roadways. Several of the crossings are within areas where the streets are privately maintained. During past events the streets have not been subject to over topping. Based upon visual observations of these crossing it would appear that one or more of these creek crossing would be subject to wash out during a major rain event. The District is not aware of any specific studies which would confirm that flooding would or would not occur.

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

There have been three landslides and debris flow events in the Alpine Meadows area. All events occurred in 1997. There was a landslide and debris flow out of East Gully which flow out of the gully and across Alpine Meadows Road. There was a landslide and debris flow event down an unnamed creek at the ski resort. The flow came down slope adjacent to the Kangaroo Lift. The flow entered the electric room and pump room of the ski resort. The third event was on the west side of Scott Peek. The event ran out without causing any damage.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Winter storms in the form of freezing temperatures and snow also occur on an annual basis in the District. The potential magnitude of these storms can be significant, with snowfall exceeding 168 inches in one storm. However, because this area is home to a premier ski area, not only is an abundance of snow good for the economy, but the area has historically been developed to accommodate big snow seasons.

The District reported a recent incident related to the winter snow season. In February of 2007, water service lines from the distribution main to service boxes froze, causing water service to be interrupted to five homes. The homeowners purchased bottled water for drinking and cooking and hauled water for toilet flushing. No other damages were reported. Incidents of this type will likely occur again during extreme periods of frigid temperatures during the winter season.

Severe Weather: Fog and Freezing Fog

Likelihood of Future Occurrence–Occasional
Vulnerability–High

The Alpine Meadows, the Districts' service area, experiences fog and freezing fog any number of times each winter. The freezing fog turns the trees within the Meadows into a white wonder land while the roads get coated with deadly ice.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the District service area. Often during these events, the local stormwater drainage system can be impacted. However, the District did not identify any past events resulting in significant damage.

Soil Bank Erosion

Likelihood of Future Occurrence–Likely
Vulnerability–High

Soil bank erosion is occurring along Bear Creek in the vicinity of 1432 and 1440 Mineral Springs Trail. During the 1997 and 2006 flooding events Bear Creek eroded and undercut the 40 to 50 foot high bank approximately 30 feet. Continued erosion and undercutting of 20 to 30 feet by Bear Creek will result in the loss of Mineral Springs Trail and the water and sewer utilities located within the street right of way.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–High

Wildfire is a significant concern for the communities within District boundaries. The Alpine Meadows area contains about 770 private parcels, interspersed among a few open space parcels and surrounded by USFS owned lands. The risk and vulnerability of this area to a catastrophic wildfire is continually increasing due to the buildup of forest fuel loads at dangerous levels. Like many Sierra alpine communities, the fir trees in Alpine Meadows have a fairly high mortality rate, primarily due to drought and disease, leaving a large number of dead and dying fir trees contributing to the wildfire fuel loads. Wildfire loadings within the Alpine Meadows communities contain a significant amount of dead material, ladder fuels, and brush. Fire behavior in these fuel types can be difficult to control. The difficult terrain in Alpine Meadows further contributes to the difficulties in controlling and suppressing fires.

Because of the lack of natural fires and proper forest management, the forests of the Lake Tahoe area have more trees, surface fuels, and overall greater biomass than ever before. Recent fires in the Tahoe area, such as the Angora fire, highlight the potential for these catastrophic wildfires.

According to the Community Wildfire Protection Plan (CWPP) for the Alpine Meadows area, lightning is the most common ignition source. However, most lightning strikes are accompanied by rain so ignitions do not usually expand to wildfires. Human ignitions are the greatest concern. They often occur during the worst fire weather conditions and near populated areas creating the potential for damaging fires. Vehicle and home fires that spread to the wildland pose the greatest ignition risk in Alpine Meadows.

Once an ignition expands into a wildfire, weather and topography usually dictate how devastating the fire will be. According to the CWPP, the high elevation of Alpine Meadows allow for lower temperatures and better moisture recovery during the night. Southwest winds do blow down the canyon but are not very dry. Further, the topography of the canyon is open enough that there would not be a significant chimney effect during a fire. Therefore the CWPP concludes that the fire weather and topography risk in Alpine Meadows is low as evidenced by the fire history data for this area. While there have been a number of ignitions, none of the ignitions have resulted in large fires in recorded time.

The CWPP concludes that the overall fire threat around the Alpine Meadow neighborhoods is low to moderate. The areas of highest threat are on the south facing slopes above the Juniper Mountain neighborhood. The overall risk of a catastrophic fire moving through the community is considered low,

with the greatest risk to homes in the area from a structural fire spreading to one or more neighboring homes.

G.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

G.6.1. Regulatory Mitigation Capabilities

Table G-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table G-5 Alpine Springs Water District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	No	Placer County
Capital Improvements Plan	Yes	Update each budget cycle.
Economic Development Plan	No	Placer County
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan	Yes	
Transportation Plan	No	Placer County
Stormwater Management Plan/Program	No	Placer County
Engineering Studies for Streams	No	Placer County
Community Wildfire Protection Plan	Yes 2015	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	No	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	No	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	Score:
Fire department ISO rating:	Yes	Rating: 4
Site plan review requirements	Yes	

Land Use Planning and Ordinances	Y/N	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	No	Placer County
Subdivision ordinance	No	Placer County
Floodplain ordinance	No	Placer County
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No	Placer County
Flood insurance rate maps	No	Placer County
Elevation Certificates	No	Placer County
Acquisition of land for open space and public recreation uses	No	Placer County
Erosion or sediment control program		
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District in conjunction with Placer County has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Voluntary Water Conservation Program

The objectives of the voluntary water conservation program are to:

1. increase the awareness of valley residents as to the need to conserve water;
2. educate valley residents as to how they can conserve water; and
3. decrease household and commercial use of water, including water used for irrigation, during the months of June through October.

Other Programs

Other programs within the District include the following:

- Wildfire Prevention Program
  - ✓ Community Chipper program
  - ✓ Defensible space reviews for homeowners
  - ✓ Building material reviews for homeowners

Water Conservation Plan

The District has a limited supply of water, and sometimes the demand for water exceeds the supply. To maintain reserve water supply capacity for the health and safety responsibilities of the District, the District has implemented a Water Conservation Plan.

Emergency Response Plan

The District has developed a policy to establish parameters by which the District shall plan for and respond to District-related emergency situations that include:

- Acts of God
  - ✓ Earthquake
  - ✓ Flood
  - ✓ Earth Slide
  - ✓ Avalanche
- Extended power outage
- Computer system failure, including SCADA
- Communication system failure
- Catastrophic infrastructure failure
- Loss of vehicle access to the valley
- Fire
- Pervasive water supply contamination

Community Wildfire Protection Plan, 2015

The CWPP was updated in 2015 as part of the Lake Tahoe Basin Community Wildfire Protection Pan. The Alpine Meadows area is included under the North Tahoe Fire Protection District (NTFPD). Alpine Springs County Water District is responsible for fire protection and Emergency Medical Transport (EMT) services. The District contracts with NTFPD for these services. The CWPP summarizes wildfire dangers and issues within the community, catalogs community wildfire protection needs, and identifies corrective action and community projects that will mitigate some of the problems.

Water Resource Policy

The District has developed a water resource policy to establish parameters by which the District will manage its water resources. This policy includes parameters for the protection of water sources, water quality, water quantity, and environmental considerations.

Watershed Management Policy

Water in the Bear Creek Valley is a precious and limited resource. It is therefore necessary for the protection of all life in the Valley – human and native flora and fauna – to establish parameters under which the District will protect and preserve the natural resources of the Bear Creek watershed.

Codes and Ordinances

Avalanche

Placer County's avalanche management program defines Potential Avalanche Hazard Areas (PAHAs) where the minimum probability of avalanche occurrence is 1 in 100 per year or where avalanche damage has already occurred. According to the Placer County Avalanche Ordinance the following information must be disclosed in PAHAs:

- Identification that a structure is within a PAHA;
- A warning that avalanche control work is conducted in the area and avalanche warnings will be provided as feasible; and
- Identification of sources that provide weather information and general information on avalanches.

In addition, the County limits construction as necessary in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

Wildfire

The District and Placer County have a number of standards and ordinances, based on California Public Resources Code 4290, in place to address community design issues regarding wildfire hazard preparedness. Ordinances specify details such as:

- Road, driveway and turnaround dimensions to provide safe ingress and egress for the public and fire suppression resources during a fire event;
- Emergency water supply for sustained firefighting operations; and
- Use of flame-resistant building materials in home construction, specifically in roofing and siding materials.
- The banning of open burning, including campfires during high fire hazard periods.

In addition to the codes and ordinances for community design, the District has adopted Planned Community Development Guidelines and Conditions for subdivisions based on the codes and ordinances. The document provides developers guidelines on mitigation measures and community design guidelines for subdivision construction in the District, streamlining the approval process by illustrating approved community design elements in the District.

G.6.2. Administrative/Technical Mitigation Capabilities

The District operates under the supervision of an elected five member Board of Directors. Board members are elected by the residents of Alpine Meadows for a term of four years. Table G-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table G-6 Alpine Springs Water District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	No	Placer County
Mitigation Planning Committee	No	Placer County
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Tree removal as part of annul budget
Mutual aid agreements	Yes	
Other		

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	No	
Floodplain Administrator	No	
Emergency Manager	No	
Community Planner	No	
Civil Engineer	No	
GIS Coordinator	No	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	No	
Hazard data and information	No	
Grant writing	No	
Hazus analysis	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		

G.6.3. Fiscal Mitigation Capabilities

Table G-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table G-7 Alpine Springs Water District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	
Authority to levy taxes for specific purposes	No	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	Yes	
Storm water utility fee	No	
Incur debt through general obligation bonds and/or special tax bonds	No	
Incur debt through private activities	No	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Community Development Block Grant	No	
Other federal funding programs	No	
State funding programs	No	
Other	Yes	Sierra Nevada Conservation District
How can these capabilities be expanded and improved to reduce risk?		

G.6.4. Mitigation Outreach and Partnerships

Table G-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table G-8 Alpine Springs Water District's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.		
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)		
Natural disaster or safety related school programs		
StormReady certification		
Firewise Communities certification	Yes	Holds an annual clean up day.
Public-private partnership initiatives addressing disaster-related issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		

The District has contracted with the North Tahoe Fire Protection District (NTFPD) to provide fire suppression and emergency medical services within the Alpine Meadows community. The Squaw Valley

Fire Department (part of the Squaw Valley Public Service District) also provides automatic aid services to Alpine Meadows through agreement with the NTFPD.

The entire water district is classified by the State of California as State Responsibility Area (SRA). The means the responsibility for prevention and suppression of wildland fires is the responsibility of CAL FIRE. The USFS, Tahoe National Forest, and Truckee Ranger District provide these direct protection responsibilities on behalf of the State of California through an exchange of acres agreement.

Wildfire protection services are provided at the local level by the NTFPD. Through the NTFPD, Alpine Meadows is also covered by the Lake Tahoe Regional Chiefs Association mutual aid agreement, providing simplified access to Lake Tahoe Basin fire departments upon request. The NTFPD is also a signatory to the California Master Mutual Aid System. As a system participant, NTFPD has access to free firefighting resources throughout the State of California.

G.6.5. Other Mitigation Efforts

The District currently has other ongoing and proposed mitigation efforts as described in this section.

Alpine Meadows Consolidated Defensible Space Project

The project being proposed by ASCWD is to reduce dangerous forest fuel loading on 50 acres in the Alpine Meadows area (This project was completed in August 2012). The District has offered free residential chipping services and defensible space inspections to approximately 200 private properties over the last two (2) years. The project consisted of two elements. The first element was the reduction of overgrown forest fuels on common properties owned by three homeowners associations and the water district that intertwine between private homes along the valley. The second element is funding a community chipper program to the residents of the district for many years.

G.7 Mitigation Strategy

G.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

G.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Emergency Electrical Generator Replacement Project

Hazards Addressed: Earthquake and Wildfire

Issue/Background: This project would replace the District's single, fifty plus year old emergency diesel electrical generator. The District has a single emergency electrical generator. The generator was placed in service in 1961 and has reached the end of its useful life. The current generator serves only the office building, which is the designated Emergency Operation Center for the Valley. The new generator will be sized to supply emergency power to the office, fire station and vehicle storage building. It will also be equipped with an automatic transfer switch.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: ASCWD Long Range Capital Improvement Program

Responsible Office/Partners: Alpine Springs County Water District

Project Priority: High

Cost Estimate: $55,000

Benefits (Losses Avoided): Protection of property and life safety.

Potential Funding: ASCWD Long Range Capital Improvement Program

Timeline: 2017 to 2021

Action 2. Water Storage Tank Replacement Project

Hazards Addressed: Earthquake and Wildfire

Issue/Background: This project would replace the District's four circular prestressed concrete and one redwood water storage tanks. A recent inspection of the tanks found that "they clearly would not meet current design criteria, especially seismic criteria" and based up the tanks dimensions the tanks are subject to overturning in an earthquake. The District has four (4) 100,000 gallon prestressed concrete tanks and one (1) 500,000 gallon redwood tank. This project would replace one (1) 100,000 gallon concrete tank and the one (1) 500,000 gallon redwood tank with a single 600,000 gallon buried reinforce concrete water storage tank. Each of the three remaining 100,000 gallon tanks would be replaced by buried reinforced concrete water storage tanks. This project would provide the District with water storage facilities protected from earthquake and fire hazards.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: ASCWD Long Range Capital Improvement Program

Responsible Office/Partners: Alpine Springs County Water District

Project Priority: High

Cost Estimate:

- Water Storage Tanks 1, 2, 3, 4, and 5 100,000 gallons each at $175,000 each.
- Water Storage Tank 4A 500,000 gallons $1,000,000.

Benefits (Losses Avoided): Protection of property and life safety.

Potential Funding: ASCWD Long Range Capital Improvement Program

Timeline: 2017 to 2021

Action 3. Mineral Springs Soil Bank Stabilization Project

Hazards Addressed: Flood Hazard

Issue/Background: A section of the 10″ sewer main that serves the Alpine Meadows community is located adjacent to and between Mineral Springs Trail and Bear Creek. Recent flooding (2006 and 1997) along with annual erosion by Bear Creek have eroded and undercut the 40 to 50 foot high bank approximately 30 feet. Continued erosion and undercutting by Bear Creek will result in the loss of this 10″ sewer main. The failure of this 10″ sewer main would result in approximately two thirds of the 650 sewer customers' sewage discharging into Bear Creek. Bear Creek discharges into the Truckee River. Discharge of sewage would pose a potential risk to human health and the environment.

This proposed project would complete evaluation of current site conditions, develop recommended slope stabilization (most likely large boulders 2 – 3 tons along with gabions), and install the recommended slope stabilization.

Other Alternatives: Replace approximately 150 feet of 10" sewer main with a pump station and force main. The pump station would require stand-by power because of the inability to provide on-site storage. The site is constrained. A second alternative would be to rent and have available during each major storm or flood event pump around equipment and facilities.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: Alpine Springs County Water District in conjunction with Placer County Public Works Department.

Project Priority: High

Cost Estimate: $550,000

Benefits (Losses Avoided): Potential fines for sewage overflows are estimated at $10 per gallon. Depending on the time it would take to get pumping equipment into place, the fines range from a low of $576,000 to $1,483,200 (412 customers with average daily flow of between 140 gallons per day to 360 gallons per day). In addition to the fines, additional resources would be needed for spill response and clean up, pump around equipment rental and set up, and the construction of replacement facilities. Project would protect natural resources by reducing the potential for spills of untreated wastewater into waterways.

Potential Funding: Grant funding, budget funding, Placer County, ASCWD

Timeline: 2017 to 2019

Action 4. Alpine Meadows Consolidated Defensible Space Continuation Project

Hazards Addressed: Wildfire

Issue/Background: This project would continue fuels reduction on an additional 50 acres of commonly held properties within the Bear Creek watershed, or the Alpine Meadows community. This project will also provide curbside chipping services and defensible space inspections for 200 homes. This project aims to build on the community awareness and educational efforts underway in the area in order to reduce fuel loadings on common properties and to inspire and educate private property owners to complete defensible space treatments on their property. Finally, this project will serve as a model project by applying mitigation and monitoring techniques for prescribed burning of piles in a riparian area where no other means of slash disposal exists.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Lake Tahoe Basin community Wildfire Protection Plan – August 2015

Responsible Office/Partners: Alpine Springs County Water District in conjunction with the North Tahoe Fire Protection District

Project Priority: High

Cost Estimate: $ 200,000

Benefits (Losses Avoided): Protection of property and life safety

Potential Funding: Grant funding, Budget funding, North Tahoe Fire Protection District, ASCWD

Timeline: 2016 to 2019

Annex H Foresthill Fire Protection District

H.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Foresthill Fire Protection District (FFPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Foresthill Fire Protection District, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

H.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table H-1. Additional details on plan participation and City representatives are included in Appendix A.

Table H-1 District Planning Team

Name	Position/Title	How Participated
Chief Ian Gow*	Fire Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Elsa Hucks	Placer County Fire	Reviewed document. Provided information and edits to Annex.
Luana Dowling	Placer County Firewise Communities Coordinator	Reviewed the Foresthill Annex, and discussed it at the Foresthill/Iowa Hill FSC meetings several times. It was also discussed it at the Placer Fire Alliance meetings in general and with respect to incorporation of projects from local CWPPs into the mitigation strategy of the LHMP.
Gary Kirk	Retired Battalion Chief	Reviewed document. Provided information and edits to Annex.

*Foresthill and Placer Hills FPD share one Chief officer and have no other Administrative staff to support this planning effort.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table H-2.

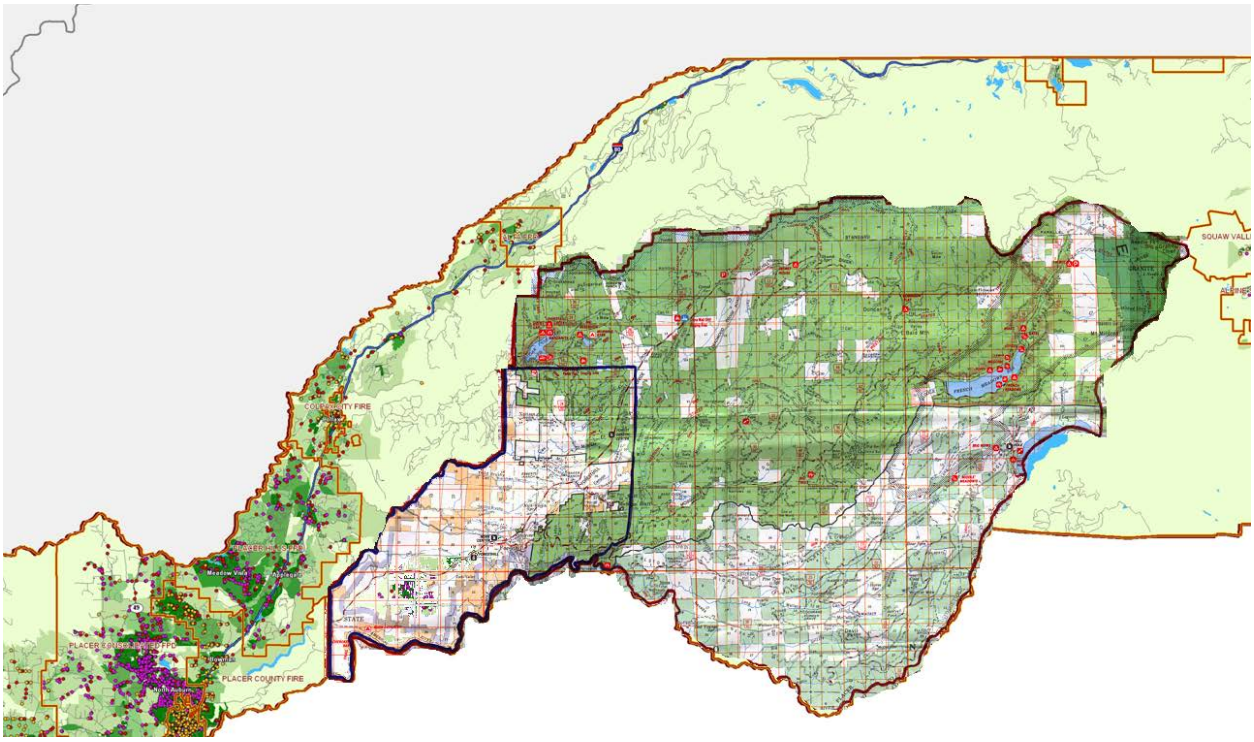
Table H-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Foresthill Fire Protection District	Overall, the District did not incorporate the 2010 LHMP Update into other planning mechanisms due to lack of funding.
Foresthill Fire Protection District	Foresthill Fire Protection District participated in Placer County CWPP planning process. Relevant items from the last plan as applicable to the District were incorporated into the CWPP plan implementation process.

H.3 District Profile

The District service area is illustrated in Figure H-1.

Figure H-1 Foresthill Fire Protection District



Source: Foresthill Fire Protection District

H.3.1. District Information and Background

The Foresthill Fire Protection District (FFPD) serves the greater Foresthill area including Todd Valley, Baker Ranch, Michigan Bluff, and Sugar Pine. The District provides local advanced life support to the community following the merge with Foresthill Ambulance Service. Fire stations located in Foresthill and Todd Valley respond to structure and wildland fires, vehicle accidents, and medical emergencies. The District is staffed by a combination of paid and volunteer firefighters, EMTs, and paramedics. The District was created in April of 1946, after over 15 years of service by the Foresthill Volunteer Fire Department.

Foresthill is located on a broad ridge between the North and Middle Forks of the American River. The Foresthill community covers approximately 11.2 square miles and is located at an elevation of 3,228 feet.

The community of Foresthill, California was founded in 1850 during the California Gold Rush when prospectors swarmed over the Sierra Nevada Mountain divide between the North and Middle Forks of the American River. After the gold played out, many Foresthill settlers turned to logging the tall trees that cover the divide and a dozen lumber mills were established in and around Foresthill. The harvesting of timber, just like gold, eventually became too costly to pursue and the mills were closed, causing many of the residents to seek employment "off the hill" in nearby Auburn and even Sacramento.

Foresthill, however, was not "down-and-out." With the wonderful outdoor recreational opportunities of the Tahoe National Forest, beautiful lakes and snow covered mountains, and the improvement of Foresthill Road during the 1990s by the federal government, people seem to have rediscovered the Foresthill Divide. Land values are on the rise, beautiful new homes are springing up throughout the woods, and the new Foresthill High School makes K-12 education a unique mountain-top experience.

In the Foresthill area, wildland fire suppression is the primary responsibility of CDF and the USFS, with additional support provided through mutual aid. The District has primary responsibility for non-wildland fire incidents that include structure fires, vehicular fires, extreme weather events, mass casualty incidents, etc.

H.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table H-3).

Table H-3 Foresthill Fire Protection District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Limited	Low
Dam Failure	Limited	Occasional	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Limited	Unlikely	Negligible	Low
Flood: 100/500 year	Limited	Occasional	Negligible	Low
Flood: Localized Stormwater Flooding	Extensive	Highly Likely	Low	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Limited	Highly Likely	Negligible	Low
Soil Bank Erosion	Limited	Unlikely	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Extensive	Highly Likely	Catastrophic	High
Hazardous Materials Transport	Extensive	Highly Likely	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

H.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

H.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table H-4 lists District assets, valued at $6.5 million, identified by representatives from the District as important to protect in the event of a disaster.

Table H-4 Foresthill Fire Protection District—Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Station 88	Essential	5981 Gold Street Foresthill, CA 9563	$3,000,000	N/A
Station 89 (District Office)	Essential	24320 Main Street Foresthill, CA 95631	$500,000	N/A
Station 90	Essential	20540 Foresthill Rd Foresthill, CA 95631	$3,000,000	N/A

Source: FFPD

Natural Resources

Several state or federally listed species as identified in Section 4.3 of the base plan may be found within the District boundaries. However, data specific to the District was unavailable, thus an accurate assessment of sensitive species and habitats present within District boundaries could not be made.

Growth and Development Trends

Foresthill Divide is located between the Middle Fork and North Fork of the American River. With the views in the area, developers are planning subdivisions on the canyon rims directly adjacent to unmaintained Bureau of Reclamation lands.

According to the 2007 Capital Improvement Plan for the District, the 2007 service population was estimated at 7,300. Using the plan's 3 percent assumed growth rate, new development is anticipated to increase the service population between 2007 and 2030 by 7,100 for a total service population of 14,300 by year 2030. The plan indicates that an estimated $12.6 million in capital improvements will be necessary by 2030 to meet the growing demands of the District's service area.

As Foresthill area grows there will be further demand for emergency services, more vehicle accidents, and more fires. The development of the commercial property will also bring with it, an increase in use and storage of hazardous chemicals and associated environmental concerns.

Development since 2010

There has been minor development since 2010, but the development has had little impact on the vulnerability of the District.

Special Populations

It is important to note that there are several elderly, disabled, and low income people in the Foresthill area. In the case of a wildfire evacuation, these people may not have transportation. Likewise, in the event of a power outage during the winter months, these special populations may not be able to get to a shelter for warmth.

H.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table H-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable assets are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Drought is a significant hazard, especially to the forested areas of the District. Drought conditions stress and leave the forest susceptible to disease and insect infestation. As a result of recent drought conditions

throughout California, infestations of the Pine Beetle are on the rise. Several areas within the District forests show signs of Pine Beetle and thus will become more vulnerable to wildfire. Drought conditions also may impact the water supply of people residing within District boundaries.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Flooding due to canal and stream runoff can affect individual homes and neighborhoods. This can cause problems for fire responders as they may have to take alternate routes to fires and other emergencies.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Extreme heat is a concern to the District. During extreme hot weather, the risk of wildfire increases. This can be further exacerbated during periods of drought. Also vulnerable to the effects of extreme hot weather is the elderly population located within District boundaries. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Freeze and snow is a concern to the District. During periods of freeze and snow, pipes in both residential and commercial buildings freeze and crack, and transit becomes difficult with many roads in the area freezing over. The impact to the area road system is not just a concern to residents, but also to the emergency service crews who can become immobilized during emergency situations. Snow and winter weather conditions can close Foresthill road in the winter, stranding Iowa Hill residents. Also vulnerable to the effects of freeze and snow is the elderly population located within District boundaries. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Several communities served by District are listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.3.12 of the main plan. These include the communities of Baker Ranch, Foresthill, Hidden Treasure, Michigan Bluff, Shirttail, Sugar Pine Reservoir, Todd Valley, and Yankee Jims.

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildlands severely overgrown. Much of the private land in the District's area is in the wildland urban interface with increasing residential development.

As more people move into the area and impacts from recreational demands increase, there will be more human-caused wildfire starts each year. The increased number of widely scattered homes within the District adds greatly to the danger, complexity, and cost of fighting these fires.

Currently, many of the communities in the District are limited to one route ingress and egress in the event of a major wildfire. Historically, these routes are closed during major events, stranding many people, including visitors, away from their families and homes.

Forest overgrowth due to the efficiency of modern firefighting techniques, and to society's current election to limit forest thinning and harvesting, is a serious problem. If wildfire does not impact the forest first, native insects will eventually kill millions of trees. Explosions in insect populations usually start during a drought, when the lack of water combined with too many trees per acre render the trees too weak to fight off the insect attacks. Without a change in management practices on public lands, there is little hope of avoiding a kill off of trees similar to the kill off experienced by other national forests.

The rural nature within the District boundaries makes the area particularly susceptible to fire due to the heavily forested, cross-compartmented nature of the terrain. The abundance of natural fuels, coupled with extreme low humidity common in the area during fires season, creates potentially volatile situations for both residents and responders.

The most notable recent wildfire to impact the District occurred in September of 2006. This wildland fire, started by a campfire on Ralston Ridge outside of Foresthill, grew to over 4,000 acres in size. The towns of Michigan Bluff, Foresthill, and Volcano were threatened. Infrastructure damage primarily involved damage to power lines

Hazardous Materials Transport

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Hazardous materials transportation poses a risk to the public and to District staff. These incident pose a physical risk to District staff, and can tie up staff for many hours.

H.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

H.6.1. Regulatory Mitigation Capabilities

Table H-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table H-5 Foresthill Fire Protection District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	Y	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 4
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	

Acquisition of land for open space and public recreation uses	N
Erosion or sediment control program	N
Other	N
How can these capabilities be expanded and improved to reduce risk?	

Source:

As indicated above, the District, in conjunction with the County, has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Codes and Ordinances

FFPD, through Placer County has adopted the 2007 California Fire Code. FFPD also defers to Public Resource Codes 4290 (Fire Safe Access) and 4291 (Defensible Space). The Fire Marshal reviews pre-development plans for ingress and egress, fire flow requirements, fire hydrant placement, and placement of shaded fuel breaks. Plan reviews for single family residence in and out of hydrant areas are done as well to ensure proper access and water supply for fire suppression.

Foresthill/Iowa Hill, Community Wildfire Protection Plan, 2006

The Foresthill/Iowa Hill CWPP summarizes wildfire dangers and issues within the Foresthill/Iowa Hill areas. The CWPP also catalogs community wildfire protection needs and identifies corrective action and community projects that will mitigate some of the problems. Communities served by the CWPP with prioritized projects include Michigan Bluff, Baker Ranch, Foresthill, Todd Valley, Yankee Jims, Shirttail, Sugar Pin Reservoir, Hidden Treasure, Iowa Hill, Kings Hill, Big Dipper, and Roach Hill.

Foresthill/Iowa Hill Risk Assessment Plan, 2006

The Foresthill/Iowa Hill Risk Assessment and Mitigation Strategies (RAMS) process helps provide consistent out-year planning for fire mitigation activities, prevention education, and fuels treatment/biomass programs. RAMS prioritizes fire management units and communities by risk and hazard and develops a strategic out-year budget and program of work for the Foresthill/Iowa Hill Fire Safe Council. This RAMS Plan is an amendment to the Placer County Fire Plan/Placer County CWPP, and represents information that was developed collaboratively by members of the Foresthill/Iowa Hill Fire Safe Council and cooperating state and federal agencies.

Capital Improvement Plan, 2007

The Capital Improvement Plan for the District identifies and budgets projects for new public facilities that will be needed to serve the FFPD projected development and increase in service population through 2030.

Foresthill Divide, Iowa Hill Divide Emergency Plan, 2006

The Emergency Plan for the area provides specific planning information, direction, and coordination guidance on a functional as well as an organizational basis for first responding and contributing agencies facing emergencies in the Foresthill and Iowa Hill areas.

H.6.2. Administrative/Technical Mitigation Capabilities

The District is staffed by a combination of paid and volunteer firefighters, EMTs, and paramedics. The FFPD was created in April of 1946, after over 15 years of service by the Foresthill Volunteer Fire Department. The FFPD presently employs a staff of 53, including a Fire Chief, Deputy Fire Marshal, Administrative Captain, three Battalion Chiefs, two Station Captains, three Lieutenants, an administrative assistant, EMTs, firefighters, and paramedics, and is run by a five person Board of Directors.

Three fire stations house the fire engines, brush units, rescue units, a water tender, and three ambulances. Fire Station 88 is located on Gold Street, Station 89 on Foresthill Road near the Placer County corporate yard, and Station 90 is at the intersection of Foresthill Road and Happy Pines Road. The District office is located at 24320 Main Street at the old Safety Club building. Table H-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table H-6 Foresthill Fire Protection District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	In coordination with Placer County
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y	In coordination with Placer County
Floodplain Administrator	N	
Emergency Manager	Y	In coordination with Placer County
Community Planner	N	
Civil Engineer	Y	In coordination with Placer County
GIS Coordinator	Y	In coordination with Placer County
Other		

Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Y	In coordination with Placer County
Hazard data and information	Y	
Grant writing	N	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

H.6.3. Fiscal Mitigation Capabilities

Table H-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table H-7 Foresthill Fire Protection District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Used for capital expenses
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

H.6.4. Mitigation Outreach and Partnerships

Table H-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. Additional information can be found after the table.

Table H-8 Foresthill Fire District Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	Y	School programs
StormReady certification	N	
Firewise Communities certification	Y	
Public-private partnership initiatives addressing disaster-related issues	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

FFPD has many mutual aid agreements and partnerships in place to ensure the safety of the people and property within District Boundaries. Partnerships and/or mutual aid agreements are in place with the following entities:

- CAL FIRE
- USFS
- BLM
- Placer County Sheriff's Office
- Placer County OES
- California Highway Patrol (CHP)
- American Medical Response (AMR)
- American Red Cross
- Placer County Water Agency

The District works closely with the Foresthill/Iowa Hill fires Safe Council, CAL FIRE, USFS, BLM, and private land owners.

H.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including, public education, fuels management projects, and other activities to reduce fuel loads and fire risk. These mitigation activities include:

- Defensible space inspections
- Continual fire safety education
- In process of becoming a Firewise Community
- Firewise workshop
- Firesafe Council
- Business Inspections
- Fire Education in Schools
- Shaded fuel breaks within Foresthill/Iowa Hill areas
- Fuel Reduction Projects
- Fuels Reduction: Chipper Program

H.7 Mitigation Strategy

H.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

H.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.

Issues/background: The consequences of large wildfires in Placer County are a significant concern to its residents, decision-makers, and the three local fire safe councils on the western slope of the County. The planning area of the three fire safe councils consists of approximately 248,000 acres of diverse vegetation, with the majority covered by hardwood and conifer woodlands. Given the vegetation types in the area and the historic Fire Return Intervals (FRI), approximately 14,000 acres could burn annually if steps are not taken to provide prevention programs.

The western slope fire safe councils with the help of local fire agencies have defined 35 projects covering 3,245 acres. These projects consist of roadside hazard reduction, vegetation treatments, fuel breaks, and vegetation removal projects.

Other Alternatives: Continue to educate the public and private landowners on the need to take mitigation measures to prevent catastrophic wildfires from occurring in their area. The limited individual efforts may help some, but the need to establish large connected fuel breaks and defensible space zones are critical.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council, Placer Sierra Fire Safe Council, and Placer County Fire Safe Alliance.

Priority (H, M, L): High

Cost Estimate: The total cost estimate of $4.7 million is needed to treat 3,245 acres at an average cost of approximately $1,450 per acre.

Benefits (Losses Avoided): Using the unincorporated areas of Placer County as an example, there are 624 parcels in the very high category of "values at risk", and over 56,000 properties in the high "values at risk" category. With a median home value of $259,000 in the Sacrament region, the loss of 10 homes plus suppression cost would significantly surpass the cost of the planned mitigation projects.

Potential Funding: Grants, loans and subsidies available for such projects.

Schedule: These projects would be ongoing through the period of this document. Grant funding is generally available through yearly cycles and would be sought for specific projects prioritized by each independent Fire Safe Council.

Action 2. Foresthill Biomass Project

Issue/Background: The mission of the Foresthill/Iowa Hill Fire Safe Council is to protect natural resources, human life, and property improvements by mobilizing all citizens to help them make their homes, neighborhoods, and the community fire safe. The reduction of excess vegetation, a.k.a. fuels, in the area is one of our focus statements. Clearing the forests of fuels makes them more healthy and sustainable and fire resistant. Recycling those fuels and turning them into energy makes it cheaper or even profitable to remove these fuels. It also offers an alternative energy source to reduce dependence on fossil fuels and foreign oil. It would stimulate the economy of the local area with jobs to clear and haul fuels, run a plant and market wood by-products such as soil amendments, particle board, wood chips, and many others.

Other Alternatives: No action leaves our forests severely over grown with brush and a fire hazard to the whole community. Continued mastication of fuels, which is very expensive and does not remove the fuels from the forest.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Foresthill/Iowa Hill Fire Safe Council: Chairman Luana R. Dowling.

Priority (H, M, L): High

Cost Estimate: Costs will vary depending on the size of the biomass plant. A beginning estimate is $300,000 for a small plant to power a building the size of the high school. The cost to put a plant on the ground, collect, haul, and convert the fuels to energy and/or products – and how much money can be made via selling energy to the grid and selling wood by-products is still to be determined.

Benefits (Losses Avoided): By combining fuels recycling with fuels removal, it becomes economically advantageous to remove fuels, whereas the current method of chipping the fuels and leaving them on the forest floor is very expensive, and less effective because fuels are not removed, merely rearranged, and no use is made of the woody remains after fuels treatment.

Potential Funding: Grants, loans and subsidies available for such projects.

Schedule: 1-3 years

Action 3. Assess and Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing and Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's and Maintenance Contracts.

Issue/Background: Rapid containment of wildfires and structure fires are a high priority for the FFPD. This project would evaluate appropriate requirements for hazard fuel clearing and maintenance and propose an ordinance for adoption by the Foresthill Fire Protection District Board of Directors. This ordinance will be based on the State Standard on Hazard Fuels Reduction for Suburban and Rural areas and/or on the Urban-Wildland Interface Code.

Other Alternatives: The alternative is to continue to rely solely upon the land developer and subsequent absentee property owners to provide hazard fuels reduction and maintenance. This has been attempted with other subdivisions in the Foresthill area, and the results are not acceptable.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Fire Chief Kurt Snyder, Foresthill Fire Protection District.

Priority (H, M, L): High

Cost Estimate: The cost to evaluate requirements and prepare the ordinance would come out of normal operating expenses. The cost to the developers of the subdivisions approximately $1,200 per acre initially. Maintenance would be minimal if kept up on a yearly basis. If added to Homeowners Association CC&Rs it would be easier to implement.

Benefits (Losses Avoided): Homes in the FFPD area are presently valued at a median price of over $400,000 with many homes selling for a far higher cost. The $1,200 per acre cost to the developer for hazard fuels reduction represents one-half of one percent of the value of the median home price. Hazard Fuels Reduction and Maintenance is an inexpensive way to improve fire suppression capabilities for a home. It also increases the fire safety of the surrounding homes and wildlands because the faster a structure or wildland fire is contained, the less likelihood that it will spread.

Potential Funding: Grants, loans, and subsidies available for such projects.

Schedule: Complete assessment and ordinance proposal by the end of calendar year 2010.

Action 4. Todd Valley Shaded Fuel Break

Issue/Background: The Foresthill Divide is a ridge separating the North and Middle Forks of the American River above the Auburn State Recreation Area (ASRA) in Placer County. The communities of Todd Valley, Michigan Bluff, and Foresthill are located above the ASRA, overlooking the two forks of the American River.

Todd Valley represents the most concentrated residential development in the wildland/urban interface in the county. The 35,000 acre ASRA provides recreational opportunities to over 900,000 visitors per year. The main attraction to this public space is its natural, unaltered environment. With this ever increasing use comes and equal increase of human caused fires. The forest cover in the canyons provides abundant fuel for wildfires. Placer County has been at or near the top of the list of the fastest growing counties in the United States consistently for the past several years. The communities of Todd Valley, Michigan Bluff, and Foresthill, home to 7,000 residents, are no exception. According to the Cal Fire (formerly CDF), ASRA was the source of 125 ignitions in the period 1990-2005. The entire region is listed by Cal Fire as a "Very High Fire Hazard Severity Zone."

The neighborhoods are on the Federal Register list of "Communities at Risk" because wildfires, originating in the canyons, progress rapidly up the steep slopes threatening property and lives. This project will construct a modified shaded fuel break: a defensible location to be used by fire suppression resources in the control of oncoming wildfires and prevent wildfire spread by removing hazardous fuels in a tactical area. A fuel break between the ASRA and these communities will protect residents and property from wildfire originating in the ASRA and the ASRA from wildfire originating in the communities. The shaded fuel break, approximately 137 acres will be constructed on private lands adjacent to Bureau of Land Management (BLM), Bureau of Reclamation (BOR) lands and U.S. Forest Service Tahoe National Forest (USFS) lands. A large percentage of the property owners on these private lands are in full support of the project as documented by their participation in the Fire Safe Council survey and public meetings associated with the planning processes.

Other Alternatives: If you look at the fire history on the Foresthill Divide it's not a question of IF but WHEN a devastating wildfire will occur. To do nothing in the Todd Valley area would leave residents open to a devastating firestorm. The Placer County Chipper Program has been used very successfully in this area, but is still far from making a significant continuous connected shaded fuel break. Continuous public education is also an alternative.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Luana R. Dowling: FFSC Chairman

Priority (H, M, L): High

Cost Estimate: Approximately $1,200 per acre. 50/50 match with property owners and a federal grant. The Property in the canyon is State Recreation Area owned by Bureau of Reclamation (BOR). This recreation area has been the area of several fire starts in the past. It's only a matter of time.

Benefits (Losses Avoided): Benefit to the 3,000 residents of Todd Valley is life safety as well as property protection. At the current County median value per home of over $400,000 per home, the 1,100 homes in Todd Valley are valued at $440,000,000. Having a strategically planned shaded fuel break will not only save lives, but also assist firefighters in gaining timely access to protect homes.

Potential Funding: Grants, loans, and subsidies available for such projects.

Schedule: An initial phase (Phase 1) has been funded through a National Fire Plan grant and will be completed in August of 2009. Phase 2, if funded will be completed in 2011.

Action 5. Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.

Issues/background: The consequences of large wildfires in Placer County are a significant concern to its residents, decision-makers, and the three local Fire Safe Councils on the western slope of the County. The planning area of the three fire safe councils consists of approximately 248,000 acres of diverse vegetation, with the majority covered by hardwood and conifer woodlands. Given the vegetation types in the area and the historic Fire Return Intervals (FRI), approximately 14,000 acres could burn annually if steps are not taken to provide prevention programs.

The western slope fire safe councils with the help of local fire agencies have defined 35 projects covering 3,245 acres. These projects consist of roadside hazard reduction, vegetation treatments, fuel breaks, and vegetation removal projects.

Other Alternatives: Continue to educate the public and private landowners on the need to take mitigation measures to prevent catastrophic wildfires from occurring in their area. The limited individual efforts may help some, but the need to establish large connected fuel breaks and defensible space zones are critical.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council, Placer Sierra Fire Safe Council, and Placer County Fire Safe Alliance.

Priority (H, M, L): High

Cost Estimate: The total cost estimate of $4.7 million is needed to treat 3,245 acres at an average cost of approximately $1,450 per acre.

Benefits (Losses Avoided): Using the unincorporated areas of Placer County as an example, there are 624 parcels in the very high category of "Values at Risk," and over 56,000 properties in the high "Values At

Risk" category. With a median home value of $259,000 in the Sacramento region, the loss of 10 homes plus suppression cost would significantly surpass the cost of the planned mitigation projects.

Potential Funding: Grants, loans, and subsidies available for such projects.

Schedule: These projects would be ongoing through the period of this document. Grant funding is generally available through yearly cycles and would be sought for specific projects prioritized by each independent Fire Safe Council.

Annex I Loomis Fire Protection District

I.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the Loomis Fire Protection District (Loomis FPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Loomis FPD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

I.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table I-1. Additional details on plan participation and District representatives are included in Appendix A.

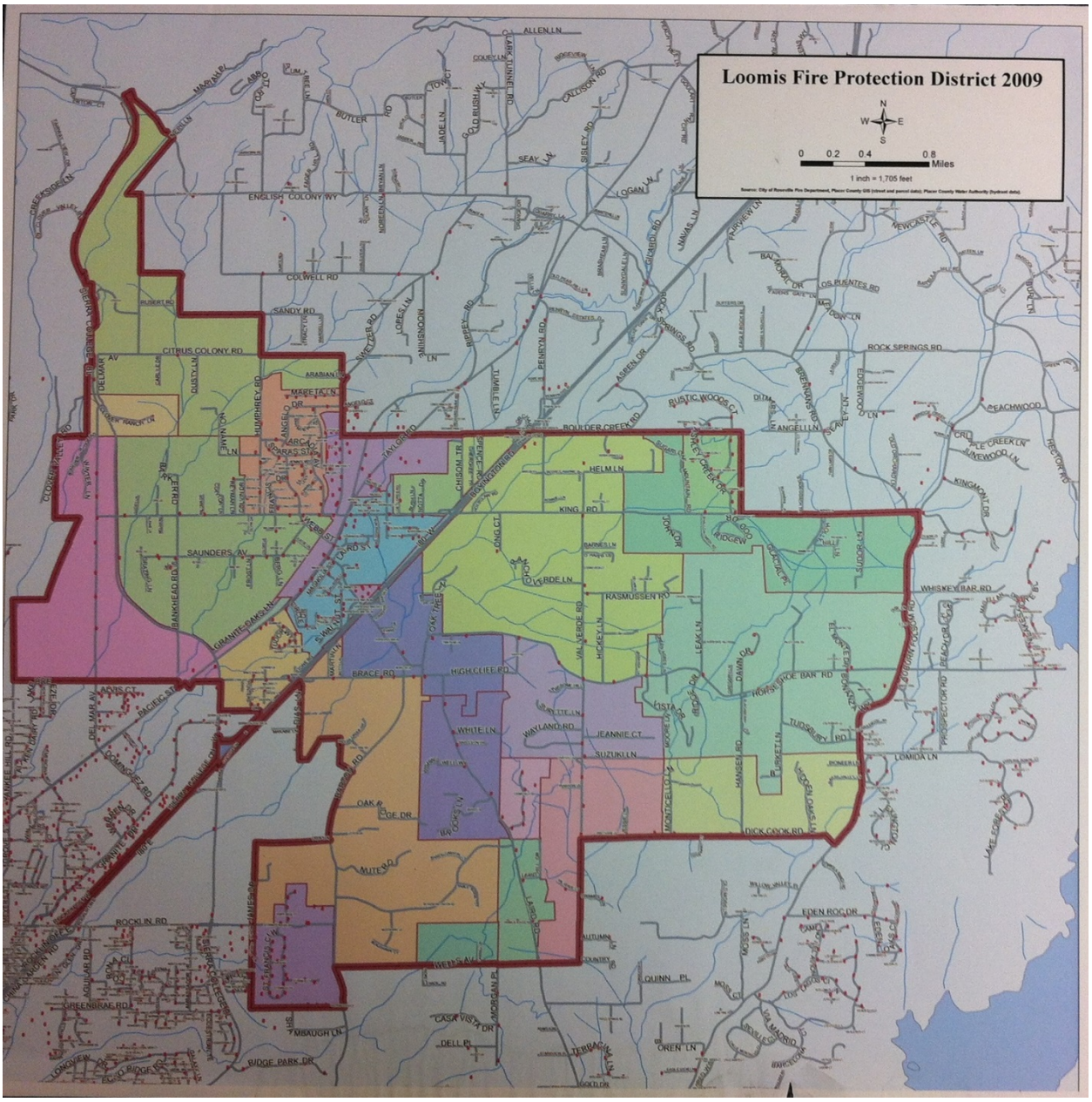
Table I-1 District Planning Team

Name	Position/Title	How Participated
Mike Ritter	Division Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Eric Walder	Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Karl Fowler	Deputy Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex

I.3 District Profile

The District service area is illustrated in Figure I-1.

Figure I-1 Loomis FPD Service Area



Source: Loomis FPD

I.3.1. District Information and Background

LFPD was formed in 1930 after several major fires in the downtown Loomis area resulted in heavy damage to business structures. The principal act that governs the District is the Fire Protection District Law of 1987. The principal act empowers fire districts to provide fire protection, rescue, emergency medical, hazardous material response, ambulance, and any other services relating to the protection of lives and property.

LFPD is entirely within Placer County. The District is located in the southern part of Placer County and borders South Placer FPD in the east, City of Rocklin Fire Department in the west, and Penryn FPD and Placer County Fire Department in the north. The present bounds encompass approximately 18 square miles. LFPD serves the majority of the Town of Loomis in its central portion, as well as unincorporated areas to the northwest of Loomis and east of the Town. The District provides service along Interstate 80 and the main line for Amtrak and the Union Pacific Railroad, a major tourist transportation corridor.

Figure I-2 Loomis Fire Training Facility

Source: Loomis FPD

I.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table I-2).

Table I-2 Loomis FPD Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Significant	Occasional	Limited	Medium
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Likely	Limited	Medium
Earthquake	Extensive	Unlikely	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Negligible	Medium
Flood: Localized Stormwater Flooding	Significant	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Significant	Unlikely	Limited	Medium
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Significant	Occasional	Limited	Medium
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Likely	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

I.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

I.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure and growth and development trends. Table I-3 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table I-3 Loomis FPD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value
Station #28	Fire Facility	5840 Horseshoe Bar	$2,000,000
Station #29	Fire Facility	Horseshoe Bar	$500,000
Training Facility	Fire Facility	3664 Magnolia	$350,000

Source: Loomis FPD

Growth and Development Trends

Land uses within the District consist mainly of rural residential in its unincorporated portions and residential, commercial and industrial in the Town of Loomis. The District's bounds encompass approximately 18 square miles. There are approximately 13,000 residents within the District based on LFPD estimates with about 6,900 people in the Town of Loomis and the remainder of the population in the unincorporated area. The population density within the District is 722 people per square mile.

Growth since 2010 Plan

The District reportedly experienced minimal population growth and change in service demand in the last five years. Growth has been concentrating in the downtown Loomis area near the District's Station 28. The District is anticipating a limited increase in population based on the Town of Loomis General Plan. LFPD does not formally forecast its service needs, but monitors population growth through the Town of Loomis and Placer County general plans. The District has three major projects in the development stages or building stages. The Village and Turtle Island (Loomis Market Place) have been discussed for 10 -15 years. Development plans and an EIR for the Village have been submitted for review in 2015. The 322 acre - 62 lot Sierra de Montserrat Subdivision is less than 50% built-out, consisting of $1.5 - $4 million dollar single family homes. The Village consists of approximately 436 single family residences on 5000 sq. ft. lots and light commercial near Interstate 80 and Horseshoe Bar Road. Turtle Island does not have any current development plans; past plans included 300,000 + square feet of light commercial and a hotel near Interstate 80. There are several small 4-10 lot single family residential lot splits in the building or development phase in the Loomis FPD (Bankhead Road, Cherokee Lane, Del Mar Avenue).

The Town of Loomis in its General Plan uses the projections done by the Sacramento Area Council of Governments (SACOG) according to which the population of the Town will grow by four percent from 2008 to 2020 and by 35 percent from 2008 to 2035. Based on the Sacramento Area Council of Governments (SACOG) projections, the population of Placer County as a whole is anticipated to grow by 19 percent from 2008 to 2020. SACOG, therefore, expects the average annual growth in the County to be about 1.45 percent.

According to California Department of Finance (DOF) data, the population of Placer County is expected to grow by 12 percent over the 10 year period from 2010 to 2020. Thus, the average annual population growth in the County is anticipated to be approximately 1.12 percent. Based on these projections, the District's population would increase from 13,000 in 2010 to approximately 14,560 in 2020.

I.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table I-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Agricultural Hazards

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District boundaries contain agricultural land. From time to time, fire threatens agricultural areas. According to data provided by the HMPC, there have been four incidents in the District since 1985 where fire has threatened cultivated vegetation, orchards, or trees. Damages from these fires was unavailable.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Drought would most definitely affect the crop productions and pre-dry the lighter fuels creating more volatile wildfire conditions in the non-developed open areas of the District.

Earthquake

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Major infrastructure damage and potential fires may occur from earthquake. The District is concerned with the strain on resources due to earthquake response efforts. Mutual aid agreements with surrounding agencies may help reduce this, but would most likely be unavailable due to the regional nature of earthquake. Railroad and I-80 present potential risks associated with train derailment and high speed vehicle accidents.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District is concerned with damage to commercial and residential properties from flooded creeks and ravines. This also may cause reduced crop production in the District.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

There are many localized flooding areas in the District. Problematic areas are shown in Table I-4.

Table I-4 Loomis Fire Protection District – Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Pick Cook	X	X	X	X			X
Auburn Folsom	X					X	X
Brace Road	X			X		X	X
King Road	X			X			X
Bankhead	X						X
No Name Lane	X		X	X			X

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Horseshoe Bar	X			X			X

Levee Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Levee failure risk in the District is the same as the flood vulnerability. It includes damage to commercial and residential properties, over flooded creeks and ravines, reduced crop production.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

High temperatures create volatile light flashy fuels, creating a severe fire hazard throughout the entire District, especially in the WUI. Reduced crop production would result as well.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

The District has concerns with reduced crop production, in addition to infrastructure damage due to frozen pipes.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence– Highly Likely
Vulnerability–High

In the District, high winds can cause issues for residents and District personnel. The HMPC provided past occurrences of wind events for the District. Downed power lines, caused by wind events, occurred 106 times between 1985 and 2015. 17 other severe weather events occurred inside District boundaries.

Soil Bank Erosion

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District noted that erosion may be problematic in the District. Washouts, as detailed in the Localized Flooding discussion above, are likely to occur.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

The California Department of Forestry and Fire Protection (Cal Fire) provides services throughout the State. Generally, Cal Fire services are focused in wildland areas defined as state responsibility areas (SRA). Similarly, the United States Forest Service (USFS) also provides services in California, primarily within forests and grasslands. Areas where USFS services are focused are defined as federal responsibility areas (FRA). The territory of the District that lies within the Town of Loomis is designated as local responsibility area (LRA) and is not considered by Cal Fire to be a very high fire hazard severity zone. Unincorporated areas in the east and northwestern tip of the District are classified as SRA and considered to be moderate fire hazard severity zones. Cal Fire also provides technical support throughout the County in the form of specialized services such as fire suppression handcrews, dozers, and helicopter services when necessary.

The Loomis Fire Protection District provided past occurrences of fire that the District has responded to from 1985 to 2015. There were 1,184 fires that caused $1,887,706 in total losses. Many of these fires were house, car, or building fires. However, 470 of these fires were in grass, brush, forest, or natural vegetation fires. Damages from these specific fires was unavailable.

Hazardous Materials Transport

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Taylor Road, Horseshoe Bar Road, and King Road are main roads that connect to I-80. Many commercial trucks utilize these roads to transport product. Loomis Fire Protection District has multiple fueling stations in the district. Any hazardous incident could result in product release that could contaminate the waterways, create traffic issues, and require potential evacuations. All of which impact District resources.

I.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

I.6.1. Regulatory Mitigation Capabilities

Table I-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table I-5 Loomis FPD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	Y	Started in 2014, it focuses on increasing wildfire suppression in the District boundaries.
Economic Development Plan	N	
Local Emergency Operations Plan	N	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC and 2013 CFC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 4(urban), 6 (suburban), 8B (rural)
Site plan review requirements	Y	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	

Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

I.6.2. Administrative/Technical Mitigation Capabilities

The five-member board of directors governs the District. Board members are elected by the general population residing within the district boundaries and serve for staggered four-year terms. Table I-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table I-6 Loomis FPD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	N	
Other	N	
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	N	
GIS Coordinator	N	
Other	N	
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	N	
Hazard data and information	N	
Grant writing	N	
Hazus analysis	N	

Other	N
How can these capabilities be expanded and improved to reduce risk?	

I.6.3. Fiscal Mitigation Capabilities

Table I-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities. Additional funding information for the District can be found below the table.

Table I-7 Loomis FPD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

The District's revenue in FY 12-13 was $1,572,800, consisting of 14 percent from property taxes, 24 percent from a special tax, 50 percent from benefit assessments, two percent from development fees, one percent from interest income, nine percent from other sources, and less than one percent from plan check fees.

I.6.4. Mitigation Education, Outreach, and Partnerships

Table I-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table I-8 Loomis FPD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

LFPD is a signatory of the Western Placer County Cooperative Fire Services Response Agreement along with the 12 other fire protection agencies in western Placer County, including Alta Fire Protection District, Cal Fire/Placer County Fire Department, Foresthill Fire Protection District, Placer Hills Fire Protection District, Newcastle Fire Protection District, Penryn Fire Protection District, South Placer Fire Protection District, City of Auburn Fire Department, City of Colfax Fire Department, City of Lincoln Fire Department, City of Rocklin Fire Department, and City of Roseville Fire Department. According to the agreement, the agencies provide automatic aid to each other and make use of the closest resource concept by dispatching fire, rescue, and medical emergency response without regard to jurisdiction or statutory responsibility.

LFPD has a contract with South Placer FPD to share operations, personnel, training, vehicle maintenance, and prevention. In 2000, LFPD entered into a memorandum of understanding (MOU) with South Placer FPD and American Medical Response (AMR) for paramedic ambulance transportation. South Placer Fire provides ambulance transport in areas of Loomis close Station 20 located at King and Auburn-Folsom Road.

I.6.5. Other Mitigation Efforts

The District participates in the Placer County Closest Resource Agreement, Placer County Incident Management Team (IMT) Team, and Regional Arson Task Force.

LFPD is a participant in the Closest Resource Agreement along with twelve other fire districts and the Sheriff's Dispatch Center. The participating agencies have dropped their traditional boundaries to allow the

nearest resources to respond into neighboring jurisdictions. The mission of the boundary drop agreement is to provide the quickest response to citizens by disregarding traditional agency boundaries.

I.7 Mitigation Strategy

I.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

I.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Identify and inspect ALL bridges in LFPD

Hazard Addressed: Multi-hazard (evacuation)

Issue/Background Statement: LFPD has already identified several bridges that serve multiple residences, that are not structurally sound and in some cases, will not cross with emergency vehicles.

Other Alternatives: No action.

Existing Planning Mechanisms through which Action Will be Implemented: Loomis Township Traffic Safety Meeting

Responsible Office: Town of Loomis, Property owners

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Access to residences for emergencies

Potential Funding: General Fund, Occasional grants, property owners, mitigation fees

Schedule: Ongoing

Action 2. Vegetation Management for Open Areas

Hazard Addressed: Wildfire

Issue/Background Statement: The topography, climate, and vegetation throughout the LFPD is conducive to the spread of wild land fires. It contains extensive grasslands and oak woodlands in rolling terrain. An example is shown in Figure I-3.

Figure I-3 Excessive Vegetation in Loomis FPD

Source: Loomis FPD

Other Alternatives: No action

Existing Planning Mechanisms through which Action Will be Implemented: Plan review for new subdivisions; Weed abatement; PRC 4291

Responsible Office: Town of Loomis, Property owners

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Reduced fire risk to residents.

Potential Funding: General Fund, Occasional grants, property owners, mitigation fees

Schedule: Ongoing

Action 3. Address Signs for Rural Residences

Hazard Addressed: Multi-Hazard

Issue/Background Statement: The rural areas of the Loomis Fire Protection District have residential homes that do not have visible addresses, making it difficult to locate them during an emergency.

Other Alternatives: No action.

Existing Planning Mechanisms through which Action Will be Implemented: Plan review for new subdivisions and residential homes; offer address signs to residents, at cost; adopted code standards

Responsible Office: Loomis Fire Protection District, Property owners, Town of Loomis

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Improves emergency response times

Potential Funding: Fees associated with code enforcement, plan review, mitigation

Schedule: Ongoing

Action 4. Adopt 2016 CFC, CBC, and local standards

Hazard Addressed: Multi-hazard

Issue/Background Statement: The Loomis Fire Protection District has not adopted any codes since 1999. Updates to code cycles are crucial.

Other Alternatives: No action

Existing Planning Mechanisms through which Action Will be Implemented: Administrative responsibilities contracted with South Placer Fire District

Responsible Office: Loomis Fire Protection District, Town of Loomis

Priority (H, M, L): High

Cost Estimate: Staff time

Benefits (Losses Avoided): Gives Loomis Fire Protection District the authority to inspect and enforce codes, improving the general safety of the community.

Potential Funding: Existing budgets

Schedule: Ongoing

Annex J Nevada Irrigation District

J.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Nevada Irrigation District (NID), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Nevada Irrigation District, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

J.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table J-1. Additional details on plan participation and District representatives are included in Appendix A.

Table J-1 District Planning Team

Name	Position/Title	How Participated
Armon Chip Close	Water Operations Manager	Attended meetings. Provided hazard identification table. Provided updated hazard data. Provided new mitigation actions and updated old mitigation actions. Provided capability data. Provided review and update to previous Annex.
Tim Crough	Assistant General Manager	Provided new mitigation actions and updated old mitigation actions.
Gary King	Engineering Manager	Provided new mitigation actions and updated old mitigation actions

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table J-2.

Table J-2 2010 LHMP Incorporation

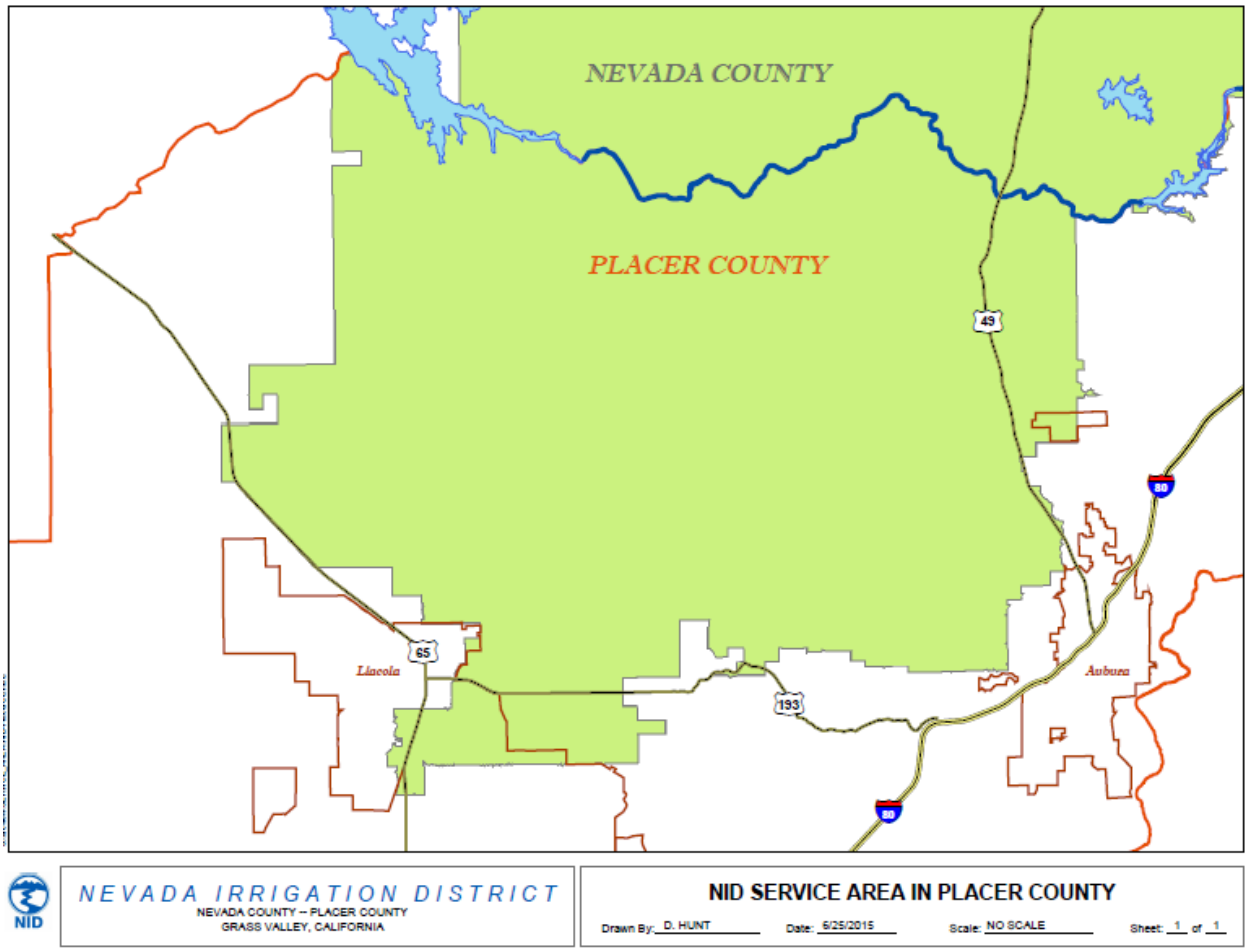
Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
NID	Capital Improvements Program

The LHMP is utilized as both a planning and hazard awareness document. As such, the LHMP and NID's Capital Improvement Plan rely upon each other to accomplish projects that have the potential to mitigate hazards before they occur.

J.3 District Profile

The Nevada Irrigation District service area is illustrated in Figure J-1.

Figure J-1 Nevada Irrigation District's Service Area



Source: Nevada Irrigation District

J.3.1. District Information and Background

Formed in 1921, the Nevada Irrigation District is a diversified water resource agency that supplies over 30,000 homes, farms, and businesses in Nevada, Placer and Yuba Counties in the foothills of Northern California's Sierra Nevada Mountains. NID provides service in an expansive geographic area covering 287,000 acres that makes the District one of the largest in the State of California.

The District is organized primarily to supply water for irrigation, municipal, domestic, industrial, and hydroelectric purposes. NID collects water from the mountain snowpack on 70,000 acres of high mountain watershed and stores it in an extensive system of reservoirs. Water flows to customers in the foothills through over 400 miles of canals and another 300 miles of pipeline. Along the path, it is used to generate clean hydroelectric energy and to provide public recreational opportunities at NIDs multiple reservoirs and campgrounds.

The highest elevation on NID mountain watershed is the peak of 8,373-foot English Mountain which rises east of Bowman Reservoir. The District's highest reservoir is French Lake at 6,835 feet. The District's lowest elevation water service is located about 100 miles to the southwest, at 150 feet above sea level, south of Lincoln in Placer County.

NID has precipitation records for Bowman Reservoir (elev. 5,650 ft.) dating back to 1929. The 69.2-inch annual average precipitation at Bowman compares to an annual average of 56 inches at 2,700 feet near Nevada City and 52 inches at 2,400 feet in Grass Valley.

Irrigation Water

NID has supplied an average 150,000 acre-feet of water per year. About 90 percent of this total is used for local agriculture. NID serves approximately 5,400 raw water customers. Most purchase their water on a seasonal basis — the six-month irrigation season normally runs from on or about April 15 through October 14. Some irrigation customers purchase both summer and winter water for year-around service.

Irrigation water is used to irrigate pasture, golf courses, gardens, nurseries, orchards, and vineyards for both commercial and home production. Grapes, apples, peaches, nuts, berries, corn, rice, wheat, and oats are among the many crops grown with NID water.

Many customers realize other benefits from NID Irrigation water including filling ponds and reservoirs for stock watering, fire suppression, and recreation. Availability of irrigation water is an important factor in the preservation of open space, and greenbelt areas. There are an estimated 97,000 irrigable acres in the Nevada Irrigation District, about a third of which are presently in irrigation.

Treated Drinking Water

Through the years, NID service has changed along with the communities it supplies. The District continues to supply irrigation water, as it has since the 1920s, but today's demand is for piped and treated drinking water.

NID's treated water service areas are located in and around Grass Valley and Nevada City, , Alta Sierra, Lake of the Pines, Penn Valley, Lake Wildwood, Smartville, and North Auburn areas.

Generally, treated water is available in the more populated areas, as it can be very expensive to extend treated water main lines into rural areas where there are few customers to share the costs. In recent years, the District has been successful in working with local property owners to form local water quality improvement districts.

The transition to treated drinking water began in the late 1960s and early 1970s when NID constructed its first water treatment plants. Today, the District operates a network of seven modern water treatment plants in Nevada, Placer, and Yuba counties.

NID presently produces about 3 billion gallons — approximately 9,000 acre-feet — of treated drinking water per year. The district's treatment plants are operated by state-licensed and certified technicians. Water treatment processes include chlorination, coagulation, flocculation, sedimentation, and filtration.

The District operates a state-certified water laboratory where water samples from throughout the district are tested regularly.

NID treated water meets and exceeds standards set by the California Department of Health Services. As required by state law, NID produces an annual water quality report, the Consumer Confidence Report, which is distributed each spring to each treated water customer.

NID's flushing program is conducted annually in the winter months and is designed to keep treated water pipelines clean and ensure a fresh, high quality water supply.

J.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table J-3).

Table J-3 Nevada Irrigation District's Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Significant	Highly Likely	Limited	Low
Avalanche	Limited	Likely	Limited	Medium
Dam Failure	Significant	Occasional	Critical	High
Drought and Water Shortage	Extensive	Occasional	Critical	High
Earthquake	Extensive	Occasional	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Critical	High
Flood: Localized Stormwater Flooding	Limited	Highly Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Limited	Medium
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Critical	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Limited	Occasional	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Significant	Occasional	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

J.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

J.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table J-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster. The current value of these structures is just under $333 million.

Table J-4 Nevada Irrigation District's Critical Facilities, Infrastructure, and District Assets

Name of Asset	Facility Type	Replacement Value	Hazard Info
Rollins Power House	Critical Facilities	$13,475,728	Earthquake, Flood, Fire
Combie South Power House	Critical Facilities	$4,095,002	Earthquake, Flood, Fire
Rollins Reservoir	Critical Facilities	$67,520,547	Earthquake, Flood
Combie Reservoir	Critical Facilities	$5,627,736	Earthquake, Flood
North Auburn Water Treatment Plant	Critical Facilities	$11,357,311	Earthquake, Flood, Fire
Water Canal System	Critical Facilities	$58,364,373	Earthquake, Flood
Orr Creek Reservoir	Critical Facilities	$10,539	Earthquake, Flood
Pickett Reservoir	Critical Facilities	$3,274	Earthquake, Flood
Buildings and Warehouses	Critical Facilities	$93,000	Earthquake, Flood, Fire
Administration buildings	Critical Facilities	$1.2 million	Earthquake, Flood, Fire
Pipelines and tanks	Critical Facilities	$30 million	Earthquake, Flood, Fire
Other assets	Critical Facilities	$130 million	Earthquake, Flood, Fire

Source: Nevada Irrigation District

Natural Resources

Several state or federally listed species may be found within the District boundary. These are identified, along with other species of concern found in the District, in Table J-5 and Table J-6.

Table J-5 Plant Species of Concern in the Nevada Irrigation District

Name	Status	Habitat	Potential Occurrence
Dwarf downingia *Downingia pusilla*	CNPS 2.2	Vernal Pools in valley foothill grasslands	Unlikely to occur. No appropriate habitat in the project area. Nearest known occurrence 2.2 air miles northwest of downtown Lincoln, 1.2 road miles south of Wise Road/Hwy. 65 intersection.

Name	Status	Habitat	Potential Occurrence
Legenere *Legenere limosa*	CNPS 1B.1	Vernal pools and swales, seasonal marshes, artificial ponds, floodplains of intermittent streams, and other seasonally inundated habitats.	May occur in floodplains of intermittent streams in the project area. Known from only two occurrences in the project vicinity. One located north of Pleasant Grove Creek, south of Placer Boulevard, east of Highway 65. The second is at the Orchard Creek Conservation Bank approximately 3 miles southwest of Lincoln (Jones & Stokes 2002).
big-scale balsamroot *Balsamorhiza macrolepis var. macrolepis*	CNPS 1B.2	Chaparral, cismontane woodland and valley and foothill grassland, and vernally moist meadows on sandstone, serpentine, or basalt outcrops. From 300 to 4,600 feet in elevation.	Added to table August 2009, no analysis for the project area completed.
Stebbins's morning-glory *Calystegia stebbinsii*	FE, CE, CNPS 1B.1	Chaparral (openings), cismontane woodland, serpentinite or gabbroic. 600–2,400 ft.	Unlikely to occur. No appropriate habitat present in the project area. This plant is known from fewer than 15 occurrences in specific, isolated areas of Nevada and El Dorado counties (CDFG 2004).
Dubious pea *Lathyrus sulphureus var. argillaceus*	CNPS 3	Cismontane woodland, chaparral, lower and upper montane coniferous forest. Usually full sun to part shade, woodland openings. 500–1,000 ft.	May occur in woodland habitats on the project site.
Ahart's Dwarf Rush *Juncus leiospermus var. ahartii*	CNPS 1B.2	Vernal pool margins and mesic valley and foothill grassland areas at elevations of 30–100 meters.	May occur in non-native grassland habitats in the project area. Reported in Placer County only from one occurrence at the Lincoln Airport.
Red Bluff Dwarf Rush *Juncus leiospermus var. leiospermus*	CNPS 1B.1	Meadows and seeps, vernal pools, and vernally mesic areas in chaparral, cismontane woodland, and valley and foothill grassland from 115 to 3,350 feet.	May occur in woodland and non-native grasslands habitats. Known from north of Roseville in 1982, but was relocated in 1997 (CNDDB 2002).
Butte County fritillary *Fritillaria eastwoodiae*	CNPS 3	Chaparral, cismontane woodland, lower montane coniferous forest (openings), wet and dry slopes red clay or sandy loam. 100–5,000 ft.	May occur in woodland habitats on the project site.
Brandegee's clarkia *Clarkia biloba ssp. brandegeae*	CNPS 1B.2	Chaparral, cismontane woodland, often roadcuts. 900–3,000 ft.	May occur in woodland habitats on the project site. The nearest occurrences are in the Lake Combie Quad along the Bear River (CDFG 2004).

Name	Status	Habitat	Potential Occurrence
Boggs Lake Hedge-hyssop *Gratiola heterosepala*	CE, CNPS 1B.1	Foothill Riparian	May occur in riparian habitat present in the project area. Known from only three occurrences in the project vicinity. Two of these occurrences are located between Rocklin and Roseville; the third is located just north of Lincoln (Placer County 2003).
Pincushion navarretia *Navarretia myersii ssp. myersii*	CNPS 1B.1	Vernal pools, valley and foothill (non-native) grasslands in clay soils. 66–1,083 feet	Northern limits of City of Lincoln. Exact location unknown (needs more fieldwork).
Status Codes:			
Federal FE = Federally listed as Endangered FT = Federally listed as Threatened FC = Federal Candidate species	State CE = California listed as Endangered CT = California listed as Threatened CR = California listed as Rare CSC = California Species of Concern CFP = California Fully Protected		California Native Plant Society 1B = rare, threatened or endangered in California and elsewhere. 2 = rare in California but more common elsewhere. 3 = need more information 4 = plants of limited distribution; a watch list. _.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) _.2 = Fairly endangered in California (20-80% occurrences threatened) _.3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)

Status and habitat information from California Natural Diversity Database (CDFG 2004), California Native Plant Society Electronic Inventory(CNPS 2003), and USFWS Official Species Lists.

[1]Based on table presented in the Lincoln Area Water Treatment Plant Planning and Site Study (NID 2005). Updated by Robertson-Bryan, Inc. for internal use only by NID (August 2009)

Table J-6 Wildlife Species of Concern in the Nevada Irrigation District

Name	Status	Habitat	Potential Occurrence
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Found in vernal pools (seasonal wetlands)	Unlikely to occur. No appropriate habitat present.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE –	Vernal pools containing clear to highly turbid water.	Unlikely to occur. No appropriate habitat present.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT –	Associated with various species of elderberry shrubs (Sambucus spp.); generally occurs along waterways and in floodplains.	May occur if elderberry shrubs are present in the project area. Nearest known occurrences in the vicinity of the Lincoln airport and Lincoln Rodeo Grounds.
Fish			

Name	Status	Habitat	Potential Occurrence
Delta smelt *Hypomesus transpacificus*	FT CT	Found only in the Sacramento-San Joaquin Estuary and they reside primarily in the interface between salt and freshwater. Decline in population due in large part to reductions in delta water outflow.	Unlikely to occur. Project is located outside of species' known distribution.
Longfin smelt *Spirinchus thaleichthys*	– CT, CSC	In the Sacramento-San Joaquin estuary adults and juveniles can be found in water ranging from nearly pure sea water to completely fresh water. Adult and juvenile longfin smelt occupy mostly the middle or bottom of the water column in the salt or brackish water portions of the estuary, although larval smelt are concentrated in near-surface brackish waters. Spawning takes place in fresh water, over sandy-gravel substrates, rocks, and aquatic plants.	Unlikely to occur. Project is located outside of species' known distribution.
Central Valley steelhead *Oncorhynchus mykiss irideus*	FT –	Found in tributaries to the San Francisco Bay, including the south Bay. Pass through the San Francisco Estuary during migration to streams for spawning, and during outmigration to the ocean. Spawn in small streams and tributaries with cold, clean water flowing over graveled bottoms and deep pools.	Rainbow trout/steelhead adults and fry have been seen in Coon Creek, Auburn Ravine, Dry Creek, Secret Ravine, and Miners Ravine (CALFED Bay-Delta Program 2000).
Central Valley spring-run chinook salmon *Oncorhynchus tshawytscha*	FT CT	Found in tributaries to the San Francisco Bay. Pass through the San Francisco Estuary during migration to streams for spawning, and during outmigration to the ocean. Spawn in well oxygenated water in swift, shallow riffles, or at edges of fast runs with loose gravel.	Unlikely to occur. Project is located outside of species' known distribution.
Sacramento winter-run chinook salmon *Oncorhynchus tshawytscha*	FE CE	Found in tributaries to the San Francisco Bay. Pass through the San Francisco Estuary during migration to streams for spawning, and during outmigration to the ocean. Spawn in well oxygenated water in swift, shallow riffles, or at edges of fast runs with loose gravel.	Unlikely to occur. Project is located outside of species' known distribution.
Central Valley fall/late fall-run chinook salmon *Oncorhychus tshawytscha*	– CSC	Found in tributaries to the San Francisco Bay, including the south Bay. Pass through the San Francisco Estuary during migration to streams for spawning, and during outmigration to the ocean. Spawn in well oxygenated water in swift, shallow riffles, or at edges of fast runs with loose gravel.	The Bear River supports an occasional run of adult fall-run chinook salmon in years when flows are sufficient to provide passage (Yoshiyama et al. 1996).

Name	Status	Habitat	Potential Occurrence
Green sturgeon *Acipenser medirostris*	FT CSC	In the Sacramento River, adult sturgeon are in the river, presumably spawning, when temperatures range between 8 14°C. Preferred spawning substrate likely is large cobble, but can range from clean sand to bedrock.	Unlikely to occur. Project is located outside of species' known distribution.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT CSC	Breeds in freshwater ponds or vernal pools, in association with upland areas with small mammal burrows	Unlikely to occur. Project is located outside of species' known distribution.
Western spadefoot toad *Spea hammondii*	– CSC	Requires vernal pools and seasonal wetlands below 4,500 feet that lack predators for breeding. Also occurs in grassland habitat and occasionally in valley-foothill oak woodlands and orchards.	Unlikely to occur. Project is located outside of species' known distribution.
California red-legged frog *Rana aurora draytonii*	FT CSC	Breeds in quiet streams and permanent, deep, cool ponds with overhanging and emergent vegetation below 5,200 feet elevation. Known to occur adjacent to breeding habitats in riparian areas, heavily vegetated streamside shorelines, and non-native grasslands. Sierran streams historically supported populations of red-legged frog; however, these populations have been eliminated.	Unlikely to occur. Project supports minimal suitable habitat and species in not known from the project vicinity. Project area is not designated by USFWS as critical habitat or a core recovery unit. However, the project area is in the historical range of the species. Nearest known occurrence is in El Dorado National Forest, near Michigan Bluff (CNDDB 2004).
Foothill yellow-legged frog *Rana boylii*	– CSC	Inhabits valley and foothill oak woodland, riparian forest, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows. Breeds in rocky streams with cool, clear water from 0 to 4,500 feet.	Appropriate habitat present in intermittent drainages within the proposed project site. Nearest known occurrences are located in Missouri Creek Canyon in Tahoe National Forest and Greenhorn Creek, where two adults were detected in 1999 (CDFG 2004).
Reptiles			
Western pond turtle *Actinemys marmorata*	– CSC	Occurs up to 6,000 feet in perennial wetlands and slow moving creeks and ponds with overhanging vegetation. Requires suitable basking sites such as logs and rocks above the waterline.	Appropriate habitat present in Orr Creek Reservoir and stock ponds located within the project area. Nearest known occurrences are located 4 mi. WNW of Newcastle and on Wolf Creek in Nevada County (CDFG 2004).
California horned lizard *Phrynosoma coronatum frontale*	– CSC	Occurs in riparian woodlands and annual grasslands, exposed sandy-gravelly substrate with scattered shrubs, and clearings from 0 to 6,500 feet.	Appropriate habitat present in the non-native grasslands in the project area. Nearest known occurrences are 2.5 miles west of Highway 49 and 20 Junction in Nevada City and on Alta Vista Road in Grass Valley (CDFG 2004).

Name	Status	Habitat	Potential Occurrence
Giant garter snake *Thamnophis gigas*	FT CT	Primarily associated with marshes and sloughs, less with slow-moving creeks, and absent from larger rivers. Nocturnal retreat is holes, especially mammal burrows, crevices, and surface objects. During the day the giant garter snake often basks on emergent vegetation such as cattails and tules.	Unlikely to occur. Project is located outside of species' known distribution.
Birds			
White-tailed (black shouldered) kite *Elanus leucurus*	– CFP	Inhabits herbaceous and open stages of most habitats mostly in cismontane California. Forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands.	Appropriate nesting and foraging habitat present within the project area.
Northern harrier (nesting) *Circus cyaneus*	– CSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands. Mostly found in flat, or hummocky, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding.	May forage in non-native grasslands and nest in the project area.
Swainson's hawk *Buteo swainsoni*	BCC CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands, suitable grain or alfalfa fields, or livestock pastures.	Unlikely to occur. Project is located outside of species' known distribution.
Ferruginous hawk (wintering) *Buteo regalis*	BCC –	Winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County. Prefers open terrain, plains, and foothills. Does not nest in California.	Winter Visitor. May forage in non-native grasslands in the project area.
Bald eagle *Haliaeetus leucocephalus*	FD (Delisted 7/9/07) CE, CFP (nesting and wintering)	Local winter migrant to various California lakes. Most of the breeding population is restricted to northern counties. Regular winter migrants to the region.	Foraging habitat present in Combie Reservoir.

Name	Status	Habitat	Potential Occurrence
American peregrine falcon *Falco peregrinus anatum*	Former FE (Delisted on 8/20/99), BCC CE, CFP (nesting)	Breeds in woodlands, forests, coastal habitats, and riparian areas near wetlands, lakes, rivers, or other water on high cliffs, banks, dunes, or mounds	Unlikely to occur. No appropriate habitat present in the project area.
California black rail *Laterallus jamaicensis*	BCC CFP, CT	Forages and nests in tidal emergent wetlands dominated by pickleweed or in brackish marshes supporting bulrushes and pickleweed; Usually found in immediate vicinity of tidal sloughs.	Unlikely to occur due to lack of suitable habitat. Previously unknown populations were recently discovered in the foothills of Nevada County (Tecklin 1990). Known to occur in isolated marshes along Garden Bar Road, McCourney Road, and in and near Spenceville Wildlife Area (CDFG 2004).
Mountain plover *Charadrius montanus*	BCC CSC	Short grasslands and plowed fields with little vegetation, and open sagebrush areas of the Central Valley from Sutter and Yuba counties southward.	Unlikely to occur. Project is located outside of species' known distribution.
Long-billed curlew *Numenius americanus*	BCC	F ound in wet meadow habitat in northeastern California in Siskiyou, Modoc, and Lassen counties. Winter visitor along the California coast and in the Central and Imperial valleys.	Winter Visitor. May forage in wet meadows in the project area.
Yellow-billed cuckoo *Coccyzus americanus*	FC, BCC CE	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	Unlikely to occur. Project is located outside of species' known distribution.
Western burrowing owl *Athene cunicularia*	BCC CSC (Burrow sites.)	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Unlikely to occur. Project is located outside of species' known distribution.
Vaux's swift *Chaetura vauxi*	– CSC (nesting)	Prefers redwood and Douglas fir habitats with nest sites in large, hollow trees and snags, especially tall, burned-out stubs. Forages over moist terrain and habitats, preferring rivers and lakes.	Unlikely to occur. Project is located outside of species' known distribution.
Black swift *Cypseloides niger*	BCC CSC (nesting)	Breeds locally in Sierra Nevada and Cascades. Nests in moist crevices or caves, or on cliffs near waterfalls in deep canyons. Forages widely over many habitats; seems to avoid arid regions.	Unlikely to occur. Project is located outside of species' known distribution.

Name	Status	Habitat	Potential Occurrence
Lewis' woodpecker *Melanerpes lewis*	BCC (nesting)	Winter resident in open oak savannas, broken deciduous, and coniferous habitats with brushy understory. Uses logged and burned areas. Winters in the Central Valley, Modoc Plateau, and the Transverse and other ranges in Southern California. Breeds locally along eastern slopes of the Coast Ranges, and in Sierra Nevada, Warner Mts., Klamath Mts., and in the Cascade Range.	Winter Visitor. May forage in the project area.
Little willow flycatcher *Empidonax traillii brewsteri*	– CE (nesting)	Wet meadow and montane riparian habitats from 2,000 to 8,000 feet. Breeding seldom occurs below 5,000 feet. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows	Unlikely to occur. Project is located outside of species' known distribution.
Bank swallow *Riparia riparia*	– CT (nesting)	Migrant found primarily in riparian and other lowland habitats in California west of the deserts. Requires vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, and the ocean for nesting. Feeds primarily over riparian areas during breeding season and over grassland and cropland during migration.	Unlikely to occur. Project is located outside of species' known distribution.
Yellow warbler (nesting) *Dendroica petechia brewsteri*	– CSC	Uncommon nester over most of California, except the Central Valley, Mojave Desert, and high elevations of the Sierra. Winters along the lower Colorado River and in parts of Imperial and Riverside counties. Nests in riparian habitats dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas nears streams.	May occur in woodland and riparian habitats in the project area
Yellow-breasted chat (nesting) *Icteria virens*	– CSC	Uncommon migrant in California. Nests in a few locations such as Sweetwater and Weber Creeks, El Dorado County; Pit River, Shasta County; Russian River, Sonoma County; Little Lake Valley, Mendocino County; and upper Putah Creek, Yolo County. Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry, and grape.	May occur in woodland and riparian habitat in the project area. Documented nesting at Little Wolf Creek, Bear River, Dry Creek, Indian Springs Creek, Deer Creek, and the Middle and South Yuba River (Nevada Co. Planning Dept. 2002).
Modesto song sparrow *Melospiza melodia mailliardi*	– CSC	Found in a variety of habitats including: riparian willow thickets, valley oak riparian with an understory of blackberry, ruderal areas along levees and irrigation canals, and cattail and tule marshes.	May occur in riparian habitats in the project area. Known to occur in western Placer County and adjacent Sierra foothill counties (Grinnell and Miller 1944; Gardali 2002).

Name	Status	Habitat	Potential Occurrence
Grasshopper sparrow *Ammodramus savannarum*	– CSC	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches	May occur irregularly in non-native grasslands in the project area. One singing male was found in an annual grassland east of Lincoln; it was only present for a few days (April 1999). A fall migrant was found along Brewer Road (September 1999). (Easterla pers. comm.; Webb 2003.)
Tricolored blackbird *Agelaius tricolor*	BCC CSC (nestin g colony)	Breeds near freshwater, preferably in emergent wetland with tall dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs. Feeds in grassland and cropland habitats. Found throughout the Central Valley and on the coast.	May forage in non-native grasslands and next in some raw water storage facilities.
Lawrence's goldfinch *Carduelis lawrencei*	BCC	Occurs in valley foothill hardwood and valley foothill hardwood-conifer. Breeds in open oak or other arid woodland and chaparral, near water.	May occur in woodland habitats in the project area.
Loggerhead shrike *Lanius ludovicianus*	– CSC (nestin g)	Open habitats with sparse shrubs and trees (or other suitable perch sites) and bare ground and/or low, sparse herbaceous cover; oak woodlands for nesting. Found in lowlands and foothills throughout California	May forage in non-native grasslands and nest in woodland habitats in the project area.
Mammals			
Spotted bat *Euderma maculatum*	– CSC	Habitats range from arid deserts and grasslands through mixed conifer forests up to 10,600 feet in southern California. Prefers sites with adequate roosting habitat, such as cliffs. Often limited by the availability of cliff habitat. Feeds over water and along marshes.	May roost or forage in the project area in all habitat types, but project area outside of species' historic range.
Greater western mastiff bat *Eumops perotis californicus*	– CSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban areas in southeastern San Joaquin Valley and Coastal Ranges from Monterey County south. Typically roosts in caves, crevices or other rock formations. Requires open areas for foraging.	Unlikely to occur. Project area is outside of species' known distribution.
Townsend's big-eared bat *Corynorhinus townsendii*	– CSC	Occurs from low desert to mid-elevation montane habitat. Occurs in rural settings, inland deserts, coastal redwoods, oak woodland of the inner Coast Range and Sierra, and low to mid-elevation mixed forest.	May roost or forage in the project area in all habitat types, but project area outside of species' historic range.
Status Codes			

Name	Status	Habitat	Potential Occurrence
Federal FE = Federally listed as Endangered FT = Federally listed as Threatened = Federal Species of Concern FC = Federal Candidate species FPT = Federally Proposed Threatened BCC = Birds of Conservation Concern		State CE = California listed as Endangered CT = California listed as Threatened CR = California listed as Rare CSC = California Species of Concern CFP = California Fully Protected	

Status and habitat information is taken from California Natural Diversity Database (CDFG 2004), Zeiner et al. (1990), and USFWS Official Species List

[1] Based on table presented in the Lincoln Area Water Treatment Plant Planning and Site Study (NID 2005). Updated by Robertson-Bryan, Inc. for internal use only by NID (August 2009).

Growth and Development Trends

Past growth for the District is the same as the incorporated communities falling within the service area of the District.

Development Since 2010 Plan

Population growth and development trends within NID boundaries are covered in Section 4.3.1 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District. The District relies on the city and county planning departments to establish future growth areas. The Districts reviews each growth or building project to assess water supply availability and determine the amount of water needed during drought.

J.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table J-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.

- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Avalanche

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

NID has critical water supply facilities in the high alpine watershed that supply a majority of the District's annual water needs. These facilities are located in remote, steep terrain that is subject to avalanche during heavy winters. The primary danger with an avalanche is the potential for blockage of canals and damage to the many elevated flumes relied upon for conveyance. Heavy snow in the early 1990's blocked water flow in the South Yuba Canal and created constraints on the Districts water delivery system. Emergency pumps were brought in to pump water from Scotts Flat as a backup while the snow was cleared. The District is currently working on a permanent pumping facility as an emergency backup supply should future heavy snows or avalanches damage District facilities.

Dam Failure

Likelihood of Future Occurrence–Occasional
Vulnerability–High

A dam failure can range from a small uncontrolled release to a catastrophic failure, caused by prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam. Dam failure flooding varies by area depending on which dam fails and the nature and extent of the dam failure and associated flooding.

The district's highest dam is the rock fill-earth core dam at Rollins Reservoir, built in 1965 and standing 242 feet tall. The Jackson Meadows dam (1965) is second highest at 195 feet, Scotts Flat dam (1965) is 175 feet, and the Bowman South Arch dam (1925) is 171 feet high.

French Dam, constructed in 1858-59, is the district's oldest dam still in use. Other dams that originated in the 1800s include the Bowman Rockfill dam (1872), and Faucherie, Sawmill and Jackson, all constructed prior to 1880. In the lower division, Van Giesen Dam at Combie Reservoir is the oldest, built in 1928.

Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Based on analysis provided in the Placer County General Plan Background Report, only five dams within Placer County have the potential to affect more than 100 persons: Folsom Dikes No. 5 & 6; Lake Tahoe Dam; Camp Far West Dam; Lake Combie Dam; and Rollins Reservoir Dam. Of these five, a failure of Rollins Reservoir or Combie Dams could potentially impact areas within the NID. Failure of Dutch Flat Forebay could also potentially impact services provided by NID, albeit in a limited capacity.

Drought and Water Shortage

Likelihood of Future Occurrence–Occasional
Vulnerability–High

The impact of a drought on the District is primarily one of water supply. Most water provided by the NID comes from snowmelt from their high mountain watershed. A multiple year drought can severely compromise the water supply within the district.

The District is currently experiencing its fourth year of drought with below average precipitation and minimal snowpack since 2012. In 2014 the District recorded a snowpack reading of 5% of average, the lowest snowpack reading since it began collecting this data in 1921. Governor Brown has declared a state of emergency and the State Water Resources Control Board has restricted water use and curtailed many of the Districts water rights. The limited water supply along with the States mandated actions have necessitated the enactment of the Districts Drought Contingency Plan. Some of the action items from the plan include: limiting and or suspending additional Ag water sales, mandatory treated water reductions, and the establishment of a water waste reporting program. The District has proactively managed its water resources in preparation for additional dry years. In addition to conservative water management, the District also purchased supplemental waters from neighboring agencies to help bolster water supply.

After 2 years of below-average rainfall and very low snow-melt run off, Governor Schwarzenegger in June of 2008 declared a state of emergency for drought conditions statewide. The final California Department of Water Resources showed snowpack water content at only 67 percent of normal. .

The 1991-1992, drought also severely impacted the District and other areas of Placer County and surrounding California foothills.

A severe drought that affected the District and all of California is the drought of 1977-1978. This drought was severe enough to trigger implementation of the District's Drought Contingency Plan at the most restrictive level – that of mandatory rationing and reduction in service to irrigation customers up to 50%.

With the unknowns of drought and globally changing climate conditions, NID, more than ever, is promoting water conservation and expansion of storage.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Earthquake vulnerability for the District lies in the water delivery infrastructure and not in its buildings. Earthquakes can cause a separation of underground water supply mains causing flooding and ultimately leading to water supply interruptions.

Earthquakes also have the potential to cause failures of the canal berm/leave system and cause flooding and supply water interruptions.

Additionally, the District is responsible for multiple water storage dams that are susceptible to damage and potentially major flooding during a large earthquake event. The Districts Dam facilities are under the jurisdiction of the CA Department of Dam Safety and the Federal Energy Regulatory Commission which require adherence to a strict set of safety guidelines and Dam safety protocol.

Flood: 100-/500-year

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Flooding and soil erosion due to heavy rains and snow runoff have been a historical problem throughout Placer County. Abundant snowfall in the mountains combined with rain and steep terrain can mean rapid runoff and flooding. Water flow can be high in peak runoff periods with historical downstream flooding. The primary impacts from flooding within the district include damage to roads, utilities, bridges; and flooding of homes, businesses and critical facilities. Flooding has also caused canals to overtop and erosion of the canal levees.

The most recent flood event to impact the District is the late December floods of 2005. Excessive rain for a prolonged period caused severe flooding in the Sierra foothills, in and around Placer County. Impacts included damage to the District's canal system as well as damage to roads and properties throughout District boundaries.

Heavy prolong precipitation in late 1996 caused flood damage across much of the District's service area. President Clinton proclaimed the area a disaster area while Governor Wilson followed suit. Many of the Districts main diversion dams and canals were washed out. Over 50 applications for flood damage assistance for the repair of NID facilities were submitted to FEMA and Cal OES.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

The Nevada Irrigation District (District) supplies both drinking and irrigation water to portions of Placer County. The conveyance of water is accomplished through over 300 miles of pipe and over 450 miles of open canal. Both the water pipelines and canal facilities are subject to damages from localized flooding.

The Districts treated water system is susceptible to localized flooding damages from concentrated storm water runoff causing erosion of soil and exposing the water main. The exposed water main is then weekend and vulnerable to breakage due to the loss of securing soils. Treated water pipelines also have the potential to cause localized flooding during water main breaks.

The Districts canal system is susceptible to storm water flooding from heavy precipitation events that create heavy runoff that enters District canals and overburdens the system. These high runoff flows can cause overtopping of the canal and erosion of the canal berm potentially causing property damage.

Past flooding incidents, although minor in scope, have occurred on nearly every District canal.

The District performs ongoing canal rehabilitation to fortify facilities to bolster against storm water infiltration. In addition, the District is in the design stages for the replacement of the Combie Ophir 1 canal, a major artery to Placer County. This facility has developed leaks and has potential for breakage and flooding.

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Heavy rain events during the winter months tend to destabilize the soils on many of the steep hillsides that NID's Canals flow through. These destabilizations can cause minor landslides or debris flows that slide into or block NID canals. In addition to the blockage, the flows within the canal only exasperate the problem as the water backs up and overflows the berms thereby creating an even more destructive mud/ debris flow.

NID experienced a major land slide that caused the Combie Phase 1 canal to wash down the mountain side and into the Bear River. In addition to the loss of water supply to much of Placer County, the mud and debris that flowed into the Bear River system necessitated a major environmental cleanup

Levee Failure

Likelihood of Future Occurrence– Unlikely
Vulnerability–Medium

A majority of the 400 miles of NID canals are manmade and were designed with small levees to direct the flow of water. These canals levees are vulnerable to failure for a multitude of reasons including but not limited to, overtopping flows, rodent and varmint intrusion, vegetation weakening Ect.

When a levee is breached, the flows contained within the canal escape and flood the surrounding private properties including private residences.

The last levee/canal berm failure occurred in 2012 and caused damage to multiple private properties.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

NID is subject to multiple hazards during severe frees events. First, NIDs high sierra facilities are vulnerable to freezing so severe that the waters within the supply canals become solid ice. When this occurs, water deliveries to the system become impossible. NID has experienced multiple events where crews were sent out day and night to break ice to keep water flowing to critical water treatment facilities.

Second, freezing in the lower reaches of NID's service area where customers are not acclimated or prepared for cold temperatures causes freezing of water distribution systems and burst pipes. . Once the pipes thaw,

water free flows through the broken pipes and creates water demands that NID treatment systems have a tough time keeping up with.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the NID service area. Often during these events, the raw water distribution system can be impacted. Heavy runoff from storm activity can cause excessive water in District canals resulting in an overtopping of the canal. An overtopping will washout the canal berm resulting in localized flood damage and interruption of the water supply. On an annual basis the District receives 20 to 40 claims stemming from these overtopping events.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

All communities within the northwestern portion of Placer County served by the NID are listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.3.2 of the main plan.

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildlands severely overgrown. Much of the private land in the District's area is in the wildland urban interface with increasing residential development.

As more people move into the area and impacts from recreational demands increase, there will be more human-caused wildfire starts each year. And, the increased number of widely scattered homes within the District adds greatly to the danger, complexity, and cost of fighting these fires.

Forest overgrowth due to the efficiency of modern firefighting techniques, and to society's current election to limit forest thinning and harvesting, is a serious problem. If wildfire does not impact the forest first, native insects will eventually kill millions of trees. Explosions in insect populations usually start during a drought, when the lack of water combined with too many trees per acre render the trees too weak to fight off the insect attacks. Without a change in management practices on public lands, there is little hope of avoiding a kill off of trees similar to the kill off experienced by other national forests.

The Washoe Fire in August 2007 had impacts to the NID. This fire occurred in the wildland urban interface area of the Tahoe Park and Tahoe Woods subdivisions, along the west shore of Lake Tahoe. Although no lives were lost, the fire destroyed 5 residential structures and encompassed 19 acres. Power and gas utilities incurred damages. There were also losses to timber assets, loss of watershed protection, and loss of the aesthetic value of a scenic corridor. This event caused major disruptions to the west shore and Tahoe City traffic and business on a busy summer weekend. Highway 89 in West Lake was closed for a period of time.

The most notable recent wildfire to impact the District was the 49 fire in 2009. The wind driven fire occurred in the urban sections of North Auburn and burned through the Districts North Auburn Water Treatment Plant. 62 homes were destroyed and infrastructure damaged. Power remained out for multiple days making the production of potable water to the area difficult.

Hazardous Materials Transport

Likelihood of Future Occurrence–Occasional
Vulnerability–High

NID storage and conveyance facilities are located along the heavily traveled Interstate 80 corridor. This is the main artery for transportation in and out of the northern ca. and includes a major railway. A multitude of hazardous chemicals are transported through this area on a daily basis. A spill along the interstate or railway has the potential to cause contamination to the Districts main water supply.

J.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

J.6.1. Regulatory Mitigation Capabilities

Table J-7 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table J-7 Nevada Irrigation District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y	Last update 2011. The plan covers the expected expansion of District facilities over the next 30 years. The hazards covered include the expected flow ranges thus allowing for upsizing of pipes and canals to prevent storm water flooding.
Capital Improvements Plan	Y	Ongoing annually. Projects are initiated based on Master Planning, facility inspection, and available capacity.
Economic Development Plan		N/A
Local Emergency Operations Plan	Y	The District has multiple Emergency Plans that are updated annually. These plans cover emergencies ranging from treated water supply to a major dam failures.
Continuity of Operations Plan		
Transportation Plan		N/A

Stormwater Management Plan/Program	Y	Storm water management is covered by District policy. The policy states all future facilities will be designed in a manner that doesn't allow storms water to infiltrate District canals.
Engineering Studies for Streams	Y	Only for stream health.
Community Wildfire Protection Plan	N	Covered in our Emergency Response Plans.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		The District also maintains a drought contingency plan to assist water management during periods of drought or water supply shortages
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code Enforced by the County	N/A	Version/Year: N/A
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	Score:
Fire department ISO rating:	N/A	Rating:
Site plan review requirements	N/A	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	N/A	
Subdivision ordinance	N/A	
Floodplain ordinance	N/A	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N/A	
Flood insurance rate maps	N/A	
Elevation Certificates	N/A	
Acquisition of land for open space and public recreation uses	N/A	
Erosion or sediment control program	N/A	
Other	N/A	
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

NID Urban and Ag Water Management Plan, 2010

NID's Urban Water Management Plan addresses many issues related to the sound and sustainable use of water. These include information relating to water sources, reliability planning, water use provisions, water demand management measures, and water shortage contingency plan.

Drought Contingency Plan, 1992

The District's Drought Contingency Plan supplements urban and agricultural plans and identifies drought caused water shortages and water demand reduction goals within the District during a drought. The plan contains a 5-step contingency process depending on the severity of the drought. These steps range from encouraging voluntary conservation to mandatory reductions in service.

J.6.2. Administrative/Technical Mitigation Capabilities

NID is governed by a five-member Board of Directors, elected to four-year terms by District voters. The board is the District's policy-making body and policy is carried out by approximately 185 full- and part-time employees. Members of the board are elected from within and represent five geographical divisions within the District. As a state agency, NID operates under rules and regulations adopted under authority conferred by the California Water Code. NID is headquartered at an 18-acre site located on West Main Street in Grass Valley. The District also operates a maintenance yard on Gold Hill Road near Lincoln and a Hydroelectric Department office off Interstate 80 near Colfax. Table J-8 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table J-8 Nevada Irrigation District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	Planning is included through the Districts Engineering Department
Mitigation Planning Committee	Y	Planning is included through the Districts Engineering Department
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	The District has a fully staffed maintenance division with 64 dedicated positions to keep facilities in proper order.
Mutual aid agreements	Yes	The District has mutual aid agreements with many neighboring agencies including, PG&E, PCWA, City of Grass Valley, City of Nevada City, and Placer County.
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N/A	
Floodplain Administrator	N/A	
Emergency Manager	Yes	The District has a risk manager that will act as an emergency manager during an emergency. Table top emergency exercises are practiced with multiple agencies every 5 years.
Community Planner		
Civil Engineer	Yes	The District has an in house engineering department with a staff of 5 licensed engineers trained in all aspects of District functions.

GIS Coordinator	Yes	The District has a drafting division that maintains the Districts GIS system. The group has coordinated with outside agencies during emergencies to provide mapping information.
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Yes	The District has electronic warning systems for its dams, water treatment plants and its canals. Facilities are manned or monitored on a 24 hour a day 7 day a week basis. The District also utilizes an answering service as backup.
Hazard data and information	Yes	The District maintains a current SDS data base
Grant writing	Yes	The District has an in house grant writer
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

J.6.3. Fiscal Mitigation Capabilities

Table J-9 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table J-9 Nevada Irrigation District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	Funding source is included in water rates
Authority to levy taxes for specific purposes	Yes	The District receives a small portion of local government taxes through an agreement with the Counties
Fees for water, sewer, gas, or electric services	Yes	Fees include funding of
Impact fees for new development	No	
Storm water utility fee	No	
Incur debt through general obligation bonds and/or special tax bonds	Yes	Bonds and special taxs have both been utilized to fund projects within the District
Incur debt through private activities	No	
Community Development Block Grant	No	
Other federal funding programs	Yes	The District has been the recipient of Depart. of Water Resources grant funding
State funding programs	Yes	State Revolving Loan Funding

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Other		
How can these capabilities be expanded and improved to reduce risk?		

J.6.4. Mitigation Outreach and Partnerships

Table J-10 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table J-10 Nevada Irrigation District's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	The District works with Multiple NGO's that focus on watershed protection such as: SYRCL, Bear Yuba Land Trust and others that could help spread the word during emergency
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	The District has a dedicated Water Efficiency Staff to help spread the water conservation message
Natural disaster or safety related school programs	N/A	
StormReady certification	N/A	The District has a storm water action plan in place that is implemented during forecasted heavy storms
Firewise Communities certification	N/A	
Public-private partnership initiatives addressing disaster-related issues	N/A	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Cosumnes, American, Bear, and Yuba (CABY) Integrated Regional Water Management Plan is identified by the District as examples of successful partnering with other agencies.

J.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including several projects, which include:

- NID Regional Water Supply Project
- Cole Siphon Replacement Project
- Rock Creek Bypass Encasement Project
- Lincoln Canal Encasement Project
- North Auburn Highway 49 Transmission Project
- North Auburn Treatment Plant Capacity Expansion
- Woodrose Way Pipeline Replacement Project
- Combie Phase 1 Replacement Project

In addition, acutely hazardous chlorine gas has been removed at all the Districts Water Treatment Plants. The District has switched to bleach to lessen the hazard level to the neighboring residences.

Development of interties between NID & PCWA to allow for multi-agency coordination and backup water supply. PCWA and the District have two interties and are working on developing two more. Additionally, the District is working with PG&E on the development of a supply water intertie that would benefit all agencies.

J.7 Mitigation Strategy

J.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

J.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Combie Phase 1 Replacement

Hazard Addressed: Water Supply Reliability, Flood Control, Earthquake Vulnerability

Issue/Background Statement: A majority of the water that supplies Placer County properties within the Nevada Irrigation District flow the Combie Phase 1 Canal. The Canal has reached its life expectancy and is experiencing leakage and structural issues. The concrete flume sections are separating and the general condition of the concrete is failing. The District is the beginning stages of design for the replacement of the open canal with a pipe. This project includes the replacement of the elevated siphon crossing the Bear River. This facility has had experienced failures in the recent past that caused flood damage and extended water outages for the northern portions of Placer County.

Other Alternatives: No other financially feasible option exists.

Existing Planning Mechanisms through which Action Will be Implemented: The District has been planning and preparing for the replacement of this facility for multiple years. CEQA is done and preliminary design is currently underway.

Responsible Office: Nevada Irrigation District/PCWA/PG&E

Priority (H, M, L): High

Cost Estimate: Approximately $18 million.

Benefits (Losses Avoided): Associated property damage and loss of water supply to the entire Placer County region.

Potential Funding: Unknown

Schedule: Next three to five years

Action 2. Centennial Water Storage and Power Supply Project

Hazards Addressed: Water Supply Reliability, Flood Control Protection, Power Outages

Issue/Background: The Nevada Irrigation District is embarking on a regional water storage and supply reliability project known as Centennial Reservoir and Power Supply Project. The proposed project includes a water storage reservoir between Rollins and Combie Lakes. The project is necessary to bolster water supply for the surrounding regions to help combat prolong drought, future demand needs. The project will also provide local green power generation and environmental benefits.

Other Alternatives: Conservation, and water use restrictions

Existing Planning Mechanism(s) through which Action Will Be Implemented: The District has just begun studying this proposed project. Currently feasibility and environmental studies are under way.

Responsible Office/Partners: Nevada Irrigation District

Project Priority: High priority as the District plans for water supply for the future.

Cost Estimate: 200 Million Dollars

Benefits (Losses Avoided): Regional water supply reliability including protection from long term drought and climate change, clean renewable power generation, and environmental benefits are a small sample of some of the highlights this project will bring forward.

Potential Funding: Still being researched, District Funding, Grants

Timeline: 8-10 years

Action 3. Water Service Auburn Valley CSD

Hazards Addressed: Water Supply Reliability

Issue/Background: The Auburn Valley CSD is a small subdivision on the north end of Placer County. The water supplied to the subdivision is accomplished through a number of ground water wells. Current drought conditions have exposed some well yield issues that have affected the available water supply to the area.

The District has the potential to supply the subdivision with treated surface water from either its North Auburn or Lake of the Pines water systems. Both connection points would take a substantial amount of infrastructure in pipelines to connect. Regardless, should the Auburn Valley CSD's wells go dry, an alternative water supply will be needed in short order.

Other Alternatives: Auburn Valley could drill more wells or purchase surface water from NID and treat onsite

Existing Planning Mechanism(s) through which Action Will Be Implemented: Auburn Valley is not within NID's service boundary; however efforts to include them are already underway. Once inside, the District would have the opportunity to provide water, be it treated or raw. The project would be handled by the Nevada Irrigation Districts Engineering Department.

Responsible Office/Partners: Nevada Irrigation District / Auburn Valley CSD

Project Priority: Currently medium priority as the District works to include the area within its boundaries.

Cost Estimate: $1.2 Million to connect to the Districts treated water system.

Benefits (Losses Avoided): Reliable water supply to a vulnerable system. This would alleviate a potential public health and safety issue should the CSD run out of water.

Potential Funding: Grants, Private Funding

Timeline: 3 to 5 years

Action 4. NID Headquarters Office Generator

Hazards Addressed: Long term power outages and emergency operations

Issue/Background: The headquarters office of the District located at 1036 West Main St, Grass Valley, is the main communications hub for day to day operations and acts as the Districts EOC durring Emergency events. Emergency backup power is needed to keep all District operations running during an extended power outage.

Other Alternatives: Rental of a power generator, however this would not be timely enough during an emergency event.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Project will oversight will be provided by the District's Engineering and Electrical Departments.

Responsible Office/Partners: Nevada Irrigation District

Project Priority: High priority

Cost Estimate: $250,000

Benefits (Losses Avoided): Backup generator power will allow the District to continue functioning in the event of an extended power outage. This will allow for the continued operation of the Districts emergency command center during a power outage.

Potential Funding: District Funding, Grants,

Timeline: 2 to 5 years

Action 5. Orr Creek Diversion

Hazards Addressed: Water Supply Reliability, Flood Control

Issue/Background: The Districts Orr Creek Diversion Structure was built in the early 1900's and has gone through a number of modifications and additions. The older portion of the structure is leaking and is in need of replacement. The proposed project would strengthen the diversion dam to guard against failure, repair leakage under the dam, and provide a discharge valve to allow for flow control below the dam. This facility is the lifeline to hundreds of acres of irrigated lands in Placer County.

Other Alternatives: Leave the facility as is or move the diversion to a different location.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The District has included the Orr Creek Diversion in its capital improvement plan. The project will move toward analysis and design when funds become available.

Responsible Office/Partners: Nevada Irrigation District Engineering Department

Project Priority: Medium priority. Project will progress as funding becomes available

Cost Estimate:

Benefits (Losses Avoided): The retrofit of the facility would provide the structural integrity to minimize potential dam failure. The project will provide water supply reliability to the many customers whom receive water from this diversion structure. The installation of a outlet valve will allow the District to better control the waters that flow past the facility particularly during heavy precipitation events.

Potential Funding: District Funding, Grants

Timeline: 3 to 5 years

Action 6. Reservoir Cleaning

Hazards Addressed: Water Supply Reliability, Flood Control

Issue/Background: Small reservoirs located within the canal system are filling with sediment from continued years of use. Adequate reservoir storage is very beneficial during storms and heavy rain. As the reservoir accumulates sediment, water storage is reduced and the ability to regulate water efficiency is diminished. Reduced reservoir storage can result in upstream canal overtopping and property damage. Nevada Irrigation District has initiated a small reservoir cleaning program to alleviate this problem.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Nevada Irrigation Districts Engineering and Maintenance Departments provide oversite on these projects

Responsible Office/Partners: Nevada Irrigation District

Project Priority: Medium

Cost Estimate: Approximately $20,000 per reservoir

Benefits (Losses Avoided): Water Quality, Water storage and prevention of property damage

Potential Funding: District Funding, Grants,

Timeline: 3 to 5 years

Action 7. Canal Culvert Replacement Program

Hazards Addressed: Water Supply Reliability, Flood Control

Issue/Background: Canal Crossings are facilitated with numerous culverts throughout the Placer County area. These culverts are often undersized, aged, and failing. During heavy rain events these culverts backup water causing flooding and overtopping of the canal upstream of the culvert. Overtopping often results in erosion of the canal berm and presents possible property damage. Nevada Irrigation District is currently engaged in a culvert replacement project aimed at resolving these issues.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Nevada Irrigation Districts Engineering and Encroachment Departments provide oversite on these projects

Responsible Office/Partners: Nevada Irrigation District and associated property owners

Project Priority: Medium

Cost Estimate: Costs vary for each culvert replacement; however, the estimated cost to replace the average large culvert is about $12,000.

Benefits (Losses Avoided): Life, Safety, and the reduction of property loss

Potential Funding: District Funding, Grants,

Timeline: 3 to 5 years

Annex K Northstar Community Services District/Fire Department

K.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the Northstar Community Services District/Fire Department (Northstar CSD/FD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Northstar CSD/FD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

K.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table K-1. Additional details on plan participation and District representatives are included in Appendix A.

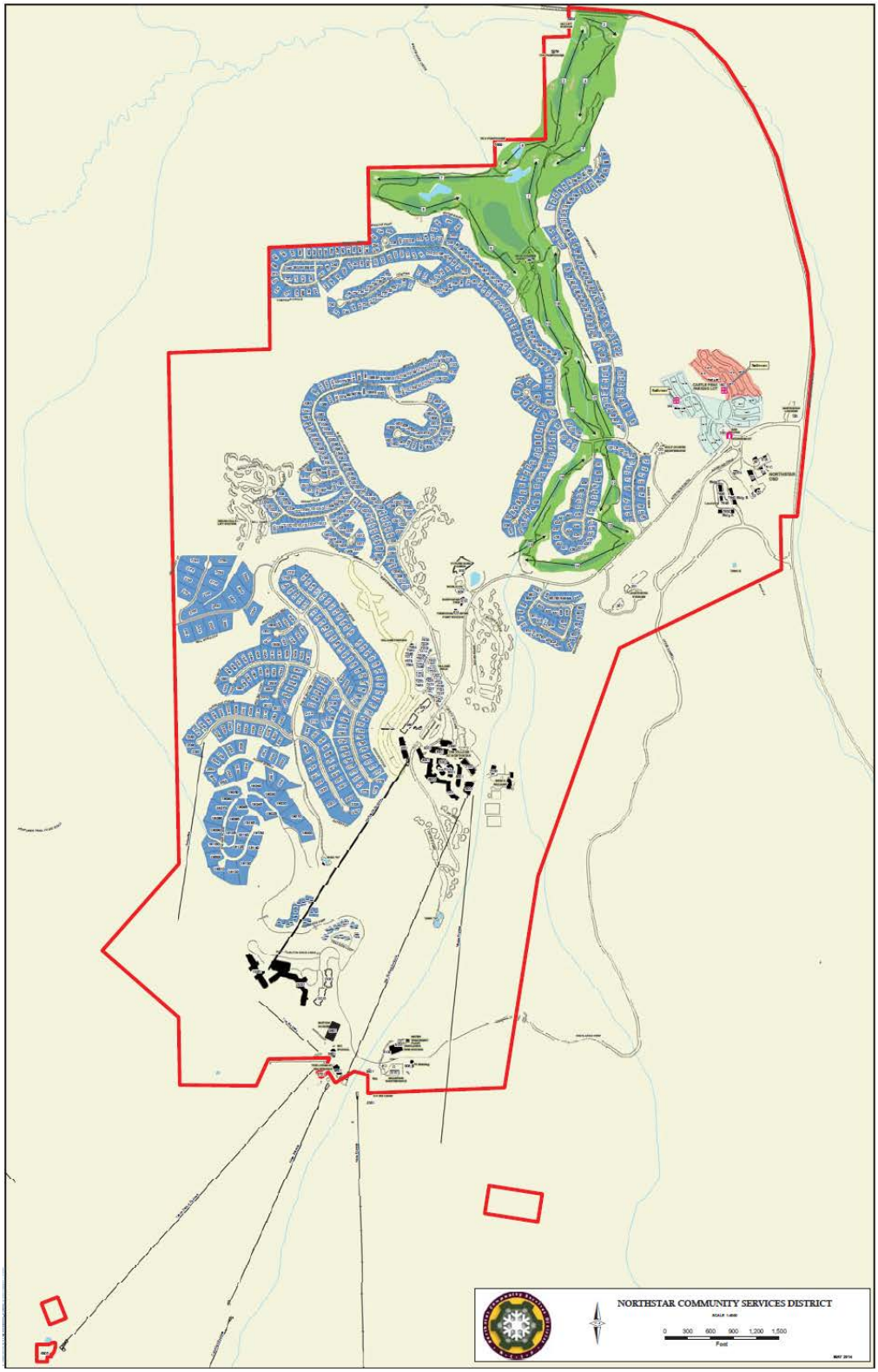
Table K-1 District Planning Team

Name	Position/Title	How Participated
Mark Shadowens	Fire Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided maps. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Jason Gibeaut	Fire Captain	Provided information on capabilities, attended meetings, completed tables for critical facilities and infrastructure, completed mitigation action worksheets.
Matt Ryan	Utilities Manager	Attended meetings, provided information related to the completion of tables for critical facilities and infrastructure, reviewed mitigation action worksheets provided maps on past problematic flood areas.

K.3 District Profile

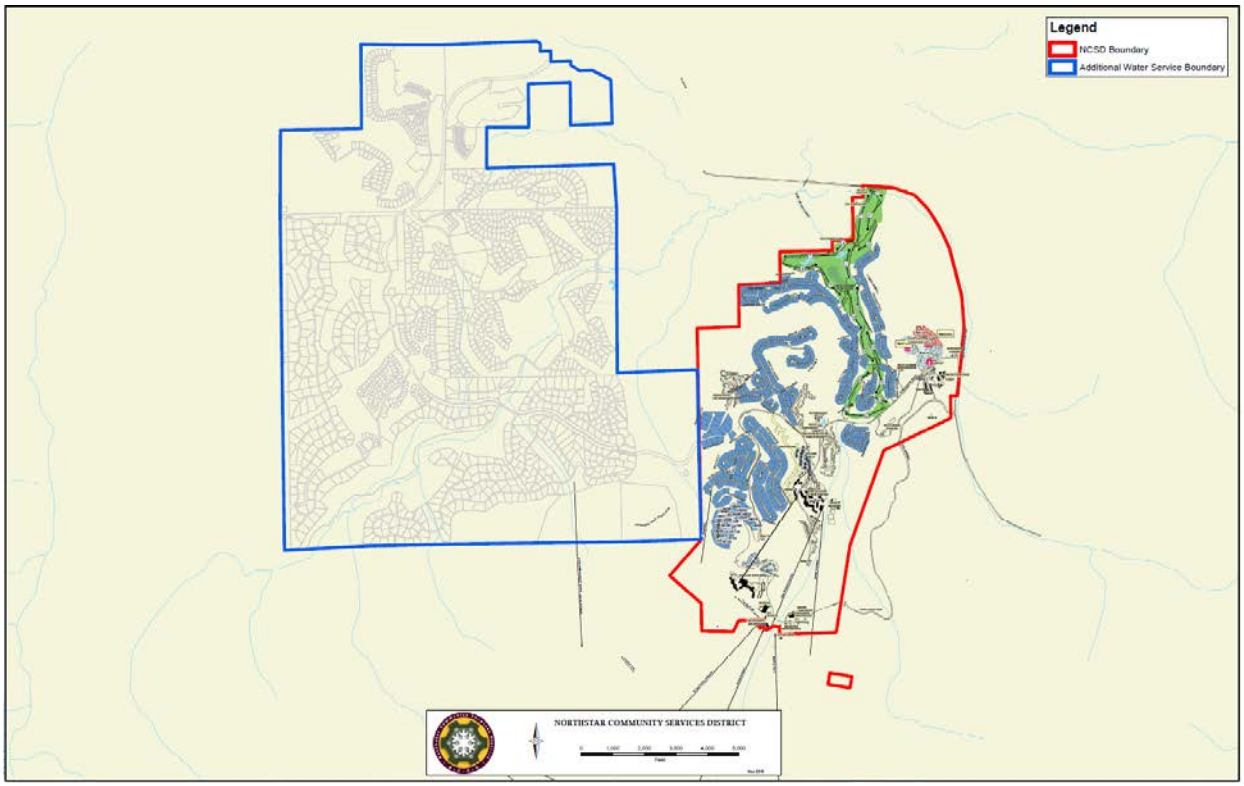
The District service area is illustrated in Figure K-1 and Figure K-2.

Figure K-1 Northstar CSD/FD Service Area



Source: Northstar CSD/FD

Figure K-2 Northstar CSD Water Service Areas



Source: Northstar CSD/FD

K.3.1. District Information and Background

In 1972, the Northstar Fire Department was formed as a Placer County Services Area governed by the Placer County Board of Supervisors. In 1991, the Northstar Community Services District was formed as an independent district within Placer County; a five-member board governs the District. The five board members set district policy and a general manager manages the District. The District provides fire protection, water, sewer, road maintenance, snow removal and recreational services.

K.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table K-2).

Table K-2 Northstar CSD/FD Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Significant	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Limited	Medium
Drought and Water Shortage	Extensive	Occasional	Limited	Medium
Earthquake	Extensive	Occasional	Limited	Medium
Flood: 100/500 year	Significant	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Significant	Occasional	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Unlikely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Highly-likely	Critical	High
Severe Weather: Fog and Freezing Fog	Significant	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Occasional	Limited	Medium
Soil Bank Erosion	Significant	Occasional	Limited	Low
Subsidence	Significant	Unlikely	Negligible	Low
Wildfire	Extensive	Likely	Catastrophic	High
Hazardous Materials Transport	Significant	Unlikely	Critical	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

K.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

K.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table K-3 lists particular critical facilities and other The District's physical assets consist of critical infrastructure for supplying essential services to the community. In total, the District's physical assets are worth approximately $17.4 million dollars.

Table K-3 Northstar CSD/FD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
267 Lift Station	Sewer Lift	Sawmill Fort Road	$1,500,000	Multiple Hazards
Tank #1	Water Storage	Highlands	$460,745	Multiple Hazards
Office/Garage	Office/Storage	49 Trimont Ln	$975,000	Multiple Hazards
Fuel Enclosure	Fueling	51 Trimont Ln	$50,000	Multiple Hazards
Pump House/Tank	Water Storage	Big Springs	$750,000	Multiple Hazards
Tank F #2	Water Storage	903 & 900 Road	$633,523	Multiple Hazards
Equipment Bay	Equipment Storage	51-C Trimont	$470,000	Multiple Hazards
Tank #2/Res C	Water Storage	Coyote Fork	$1,645,516	Multiple Hazards
Firehouse Pump	Water Lift	914 Northstar Dr	$750,000	Multiple Hazards
Tank #2/Res D	Water Storage	Big Springs	$460,745	Multiple Hazards
Tank #1/Res C	Water Storage	Coyote Fork	$1,645,516	Multiple Hazards
Sand Barn/Storage	Storage	51 Trimont Ln	$915,000	Multiple Hazards
Maintenance Building	Repair and storage	51 Trimont Ln	$1,350,000	Multiple Hazards
TH-2 Well Building	Water treatment	Sawmill Fort Road	$225,000	Multiple Hazards
Tank #1/Res D	Water Storage	Big Springs	$460,745	Multiple Hazards
Tank E	Water Storage	Highlands View	$633,523	Multiple Hazards
Water Plant	Treatment	9150 Highlands View	$2,700,000	Multiple Hazards
Sewer Pump Station	Sewer Lift	Indian Hills	$600,000	Multiple Hazards
TH-1 Well Building	Water treatment	Sawmill Flat Rd	$225,000	Multiple Hazards
Station 31	Fire Station	910 Northstar Rd	$4,500,000	Multiple Hazards
Station 32	Fire Station	9100 Highlands View	$4,500,000	Multiple Hazards

Source: Northstar CSD/FD

Growth and Development Trends

Development started in the Northstar area in the early 1970's, with the first homes completed in 1972. Development has had both positive and negative effects on the forest itself and on the potential for wildfire. The potential for the increase of fires has been further intensified by having an increased amount of people

recreating in the forest. In addition, with the introduction of residential and commercial property within forested areas, structure protection has taken a priority over fire suppression. This allows wildland fires to grow in intensity until enough firefighting resources can arrive to start suppressing the actual wildland fire. On the positive side of development, the construction of roads has increased access within the forest and the availability of water for fighting fire has been expanded. Early detection of fire has improved with people present in the forest and with cell phone technology. With adequate funding, agencies also have the ability to manage forest fuels properly and to provide for a healthy fire resistant forest ecosystem.

In 1999, the year of the first Fuels Management Plan, the total built square footage, including commercial buildings, comprised of 2,320,857 square feet. For 2015, that number has nearly doubled in size.

Developers are currently building out the Highlands II Subdivision. 9A and 10C have expected completion dates of 2015 and 2016. 10G has an expected completion date of 2017. The developer has current entitlements that will continue development for the next 20 years and additional properties have been identified for future entitlements.

All areas "under construction" and designated for "future construction" are impacted by the potential wildfire hazard.

K.5.2. Estimating Potential Losses

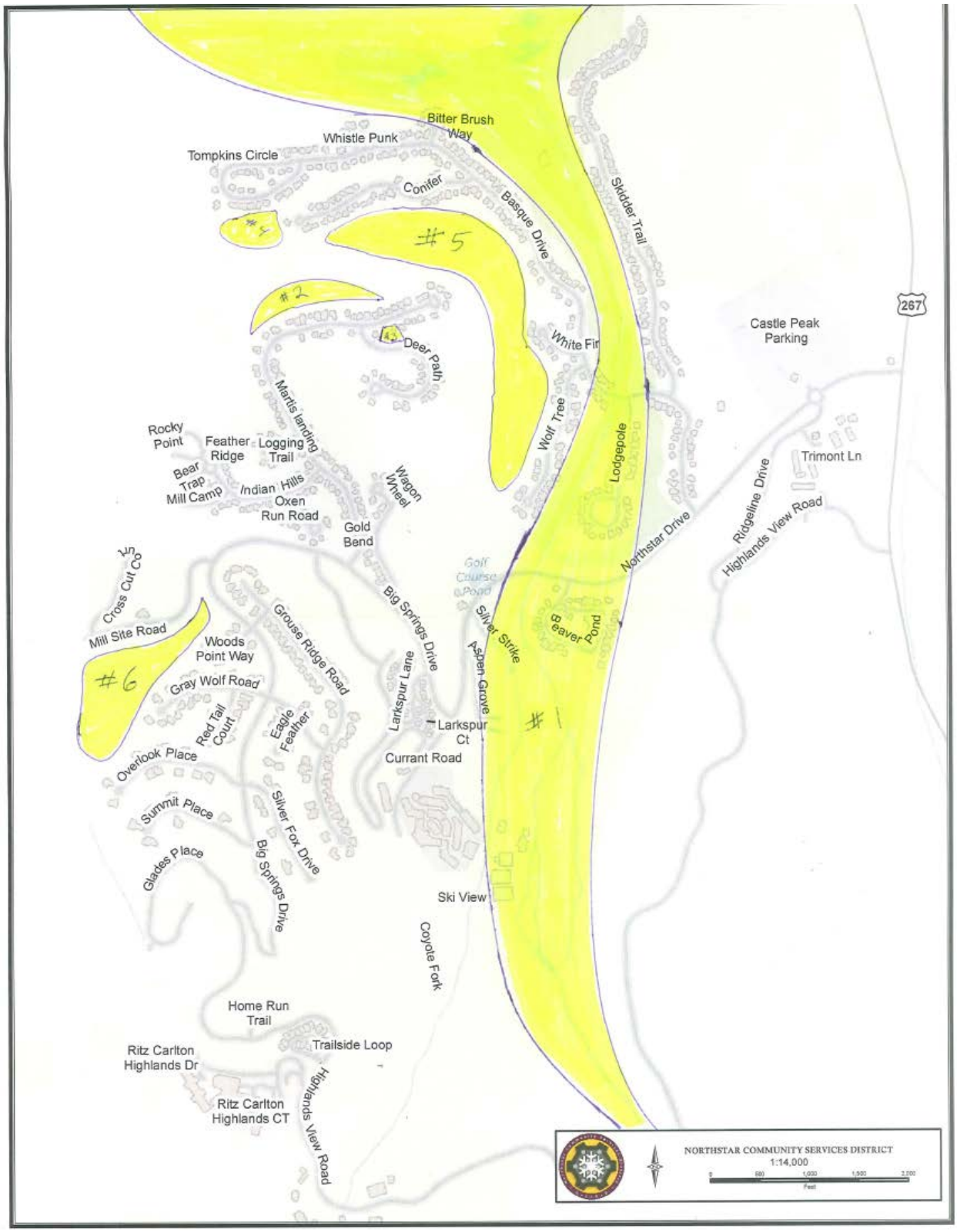
This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table K-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

While there are no GIS mapping efforts available to support hazard analysis on the District, the District did create a map of past problem areas. This is shown in Figure K-3. These areas are referred to in the vulnerability text below.

Figure K-3 Northstar CSD Hazard Areas



Source: Northstar CSD

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Figure K-3 is broken out into sections. Section #1 was taken from an inundation study for Reservoir "A" and the effects on Martis Creek West in the event of complete dam failure, Martis Creek West is also a main focus for flooding during rain events to a lesser extent. Streets affected by rain event flooding include the crossings with Northstar Drive, and Basque Drive. Other areas of past flooding problems are also identified on Figure K-3.

Drought and Water Shortage

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has a robust water supply that includes ample water storage and redundancy in its supply systems. Although the District is in a very good position to survive a water shortage as a result of drought the District also recognizes the importance of water conservation measures. In 2015 the District completed a new rate study that was adopted by the Board of Directors which levies penalties for water overages, the District has also been pro-active in promoting water conservation efforts to all businesses and residential users.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has never suffered a severe earthquake. However, if an earthquake were severe enough, there is potential to cause widespread destruction. This destruction would be in the form of damage to businesses, private residences, and critical infrastructure including District owned facilities that provide essential services. Since the community of Northstar is a resort community, the shutdown to businesses for long periods due to an earthquake would cause negative impacts to the economy.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Certain areas of the District are at risk to flooding. On Figure K-3, section #4 indicates an area affected by flood. The effects above Thompkins Circle tend to be greater. If the drainage inlet becomes inundated with debris or is unmaintained flooding can occur in the common areas.

The HMPC noted a flooding event that occurred in the community of Northstar. In the winter of 2014, a rain on snow flood event caused rapid melting of the snow, which led to minor flooding. Minor damage to

a few residential structures that only required clean up. Some minor damage to dirt roads, culverts etc. Some paved roads were undercut and required repair. This fell under federal disaster declaration DR-1628.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Figure K-3 is broken out into sections. Section #3 affects a small swath of land behind the downhill side of Deerpath and a few homes on the uphill side of Martis. This area has traditionally been a problem but most of the storm water that used to affect this area has been redirected. The District sees localized flooding affect a few other streets in the area. Locations and problems can be found on Table K-4.

Table K-4 Northstar CSD – Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Northstar Dr	X		X	X		X	X
Basque Dr	X	X	X	X		X	X
Martis Landing	X		X		X	X	X
Deer Path	X		X		X		
Thompkins Circle	X		X			X	X
Conifer	X		X		X	X	X
White Fir	X		X		X	X	X
Wolf Tree	X		X		X	X	X
Mill Site Road	X		X		X	X	X

Source: Northstar CSD

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly likely
Vulnerability–High

Because the District is located within the Sierras freeze and snow is a normal occurrence. Over the years the District, its property owners and business owners have taken steps as part of normal everyday life to ease the potentially harmful effects of freeze and snow.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Northstar and its surroundings can experience in excess of 200 inches of snow with annual storms that bring rain, ice and snow. The summers are typically warm and dry with thunderstorms that cause lightning. The District can be affected by heavy rains and storms. Since the physical area of the District is not large, heavy rains often affect all of the District at the same time. Because the District is located in an alpine climate severe weather is often expected and planned for. The last couple of severe weather events that the District has experienced have been rain on snow events that are difficult to manage. Rain on snow events are difficult to predict and can severely tax District resources when trying to mitigate the negative impacts. On Figure K-3, all highlighted sections can be affected by heavy rains.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–High

The District is located in the Sierra Nevada mountain range at the east end of Placer County. The community of Northstar is in a classic Wildland/Urban Interface area (WUI), which adds responsibility and demands to both structural and wildland firefighting. If the District were to experience a major wildland fire the limited emergency response resources would be severely taxed. Northstar is a popular year-round visitor destination, which causes the potential for traffic congestion and could prevent firefighting equipment or medical-emergency personnel from responding in a timely manner. Traffic congestion at peak times of summer could also impact the ability of residents to evacuate in the event of a large scale wildfire.

Hazardous Materials Transport

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Large quantities of hazardous materials do not get routed through Northstar. Northstar does not have rail lines that run through the community, and the community does not have a major highway that runs through it. Highway 267 is adjacent to the community but it simply connects to Truckee and Kings Beach and is not a major route for hazardous material transport.

K.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

K.6.1. Regulatory Mitigation Capabilities

Table K-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table K-5 Northstar CSD/FD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	NA	Placer County Authority
Capital Improvements Plan	N/N 2011	Does not address hazard projects identified within the mitigation strategy.
Economic Development Plan	NA	Placer County Authority
Local Emergency Operations Plan	NA	Placer County Authority
Continuity of Operations Plan	Y/N	Currently in process of being developed.
Transportation Plan	NA	Placer County Authority
Stormwater Management Plan/Program	NA	Placer County Authority
Engineering Studies for Streams	NA	Watershed Council Authority
Community Wildfire Protection Plan	Y/Y 2015	Plan addresses hazards and includes mitigation strategy and actions.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013
Building Code Effectiveness Grading Schedule (BCEGS) Score	NA	Score:
Fire department ISO rating:		Rating: 3
Site plan review requirements	Y	Yes
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	NA	Placer County Authority
Subdivision ordinance	NA	Placer County Authority
Floodplain ordinance	NA	Placer County Authority
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	Only wildfire. Yes, it is an effective measure and adequately administered.
Flood insurance rate maps	NA	Placer County Authority
Elevation Certificates	NA	Placer County Authority

Acquisition of land for open space and public recreation uses	NA	Placer County Authority
Erosion or sediment control program	NA	Placer County Authority
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District, in conjunction with the County, has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Northstar Community Wildfire Protection Plan, 2015

The objective of this Community Wildfire Protection Plan (CWPP) is to reduce or eliminate the loss of life, property and resources caused by a wildfire in the Northstar community. This will be accomplished through public input, planning and forest management practices. The first line of defense against a catastrophic wildfire in Northstar is to prevent as many fires as possible from starting or, in the event of a fire, to keep it as small as possible. The second line of defense is to enforce defensible space requirements around structures and to manage fuels in common and boundary areas by creating firebreaks, safe escape routes and promoting a healthy forest ecosystem. The CWPP puts goals and actions together to reduce wildfire risk to residents in the Northstar community.

Ordinance 26-09 – Wildland Fire Prevention and Defensible Space

Fires pose a serious threat to the preservation of the public peace, health and safety, and are extremely costly. Since fires ignore civil boundaries, it is necessary that cities, counties, special districts, state agencies, and federal agencies work together to minimize the threat of fires and maximize the ability to extinguish them quickly. Preventive measures are therefore needed to insure the preservation of the public peace, health, and safety.

The purpose of this Ordinance is to:

- ➢ Classify lands within the District in accordance with whether a high fire hazard is present so that District officials and others with similar wildland fire prevention and suppression responsibility are able to identify measures that will retard the rate of spread and reduce the potential intensity of uncontrolled fires that threaten to destroy natural resources, life or property.
- ➢ Require that the measures be implemented in order to accomplish the following:
- ✓ Set maintenance standards
- ✓ Define penalties for violation of this Ordinance

The District hereby specifically and expressly finds that regulations contained herein are reasonably necessary because of local climatic, geological and topographical conditions unique to the Northstar area and are further required to reduce the possibility of a fire originating within the District from spreading to the adjacent Lake Tahoe Basin, an area of national importance and significance.

Future Construction in Wildfire Zones

Due to potential wildfire hazard, developers must follow an established ordinance that dictates that all new construction must have certain "buffer" zones. For example, the developer must construct a 300' buffer zone (implementing fuels management operations) in and around development (both residential and commercial). Additionally, the developer must create a 5' non-combustible buffer zone around developed property.

K.6.2. Administrative/Technical Mitigation Capabilities

In 1991, the Northstar Community Services District was formed as an independent district within Placer County; a five-member board governs the district. The five board members set district policy and a general manager manages the district. Table K-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table K-6 Northstar CSD's Administrative and Technical Mitigation Capabilities

Administration	**Y/N**	**Describe capability Is coordination effective?**
Planning Commission	NA	Placer County
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	The maintenance of clearing drainage systems is the responsibility of Placer County. Northstar Community Services District works closely with Placer County to coordinate this effort.
Mutual aid agreements	Y	Northstar Fire Department is party to several mutual aid agreements.
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	NA	Placer County responsibility
Floodplain Administrator	NA	
Emergency Manager	NA	
Community Planner	NA	Placer County responsibility
Civil Engineer	Y FT	Staff is trained on regulation and mitigation. There is effective coordination between agencies and staff.
GIS Coordinator	Y FT	Staff is trained on regulation and mitigation. There is effective coordination between agencies and staff.
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	NIXLE, DOT Signage, Fire Danger Signs, Reverse 911, District Siren, Website with Emergency Updates/Postings

Hazard data and information	Y	Coordinated with Placer County Environmental Health
Grant writing	Y	Forester and one staff person is responsible for grant writing pertaining to Fuels Reduction Program, and fire operations.
Hazard analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

K.6.3. Fiscal Mitigation Capabilities

Table K-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table K-7 Northstar CSD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Capital improvement projects are typically projects that replace existing assets. Funding for mitigation projects are at the discretion of the Board of Directors.
Authority to levy taxes for specific purposes	Y	Yes. Measure "E" was used to fund fuels reduction and road improvements.
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	The fire department assesses mitigation fees for new development.
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	Up to this point, the incurring of debt has only been used to help fund the new Admin Building. Depending on the type of mitigation project special tax bonds and general obligation bonds could be utilized.
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	Federal grants have been awarded for past forestry projects that reduce forest fuels to prevent catastrophic wildfires.
State funding programs	Y	Forestry grants that reduce hazardous forest fuels and enhance water sheds.
Other		
How can these capabilities be expanded and improved to reduce risk?		

K.6.4. Mitigation Outreach and Partnerships

Table K-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table K-8 Northstar CSD/FD's Mitigation Education, Outreach, and Partnerships

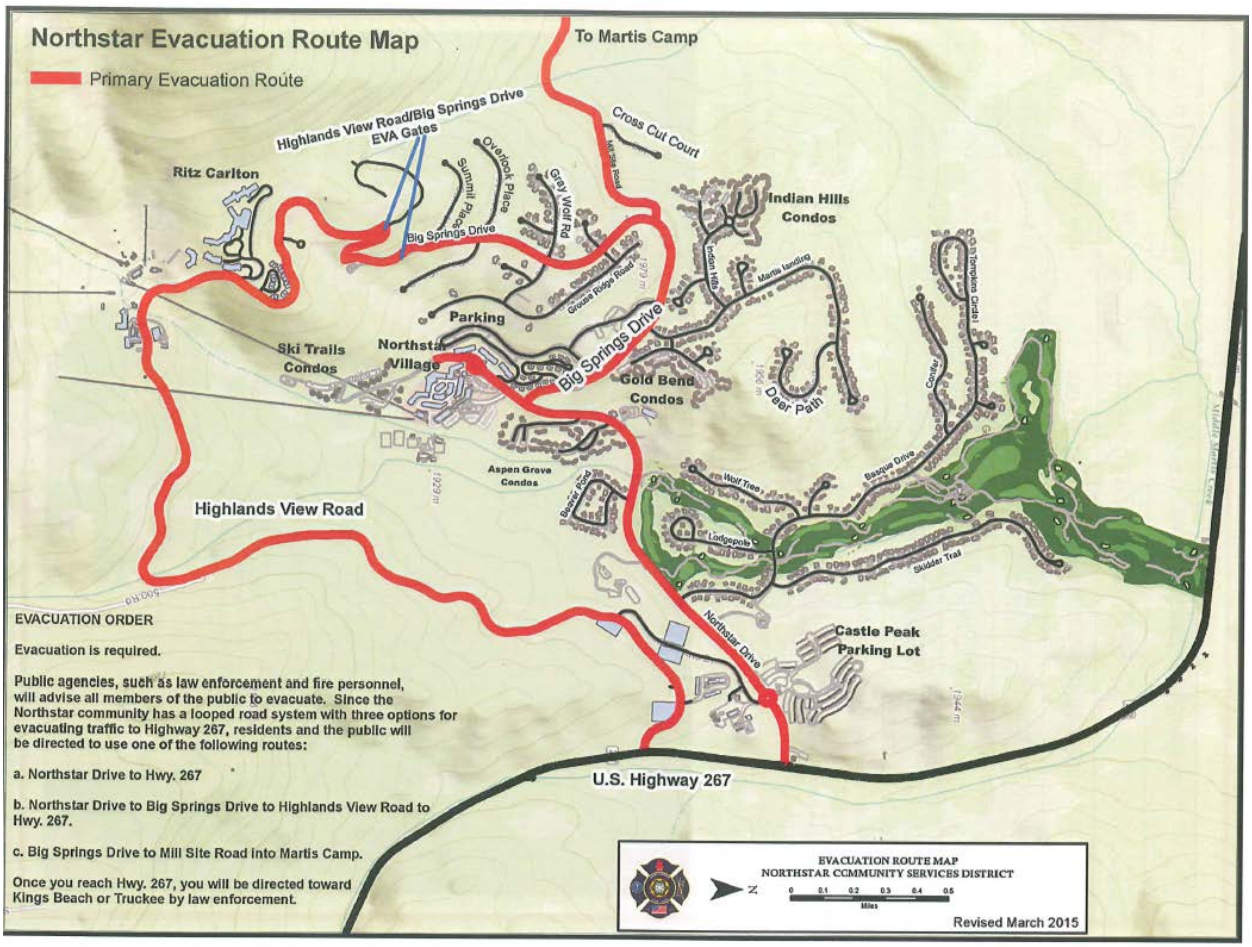
Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Homeowner's Newsletter - articles highlight fire safety, water conservation, and information important to the community. Annual Homeowner's Meetings presentations are given on fire safety, defensible space, and fuels reduction program. Fire Extinguisher training is offered by District employees multiple times throughout the year for local Annual Fire Prevention/Inspections of Commercial Properties – Inspections are provided within a focus on educating business owners of fire code requirements. District Water Conservation Program - A Conservation Ordinance has been adopted. There are educational efforts to all property owners on the benefits of water conservation, the District has installed smart meters so property owners can monitor water usage, the District has installed a conservation garden to encourage water wise landscape.
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	Y	Recognized FireWise community
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

K.6.5. Other Mitigation Efforts

The Northstar Community Services District has many other mitigation efforts. Some of these were captured in the tables above, but are discussed in greater detail below.

- Firewise Community: The District became recognized as a Firewise Community in 2009. Since then, the NFD has continually worked with many of our community leaders towards maintaining such eligibility. The Firewise program is nationally-recognized. The NFD, in conjunction with Northstar Property Owners Association (NPOA), Condominium Association Management Company (CAMCO), Vail Resorts, and Mountainside Partners are providing resources aimed at the reduction of fuels to create better defensible space within the Northstar area. There are many benefits to becoming a Firewise community; we gain an edge on securing grants and Federal funding for defensible space projects. The program is also recognized by certain insurance companies which offer a discount to property owners who reside within a Firewise community.
- Fuels Reduction Program: A program that is overseen by a full-time Forester that executes fuels management/forest health projects with the emphasis on reducing excess fuels, reduce the potential for insect and disease infestations and restore the forest back to healthy historical standards. The program offers the necessary resources and staffing for such projects. This program was created in order to meet the strategic initiatives found in our District's Community Wildfire Protection Plan (CWPP).
- Defensible Space Program: A program that is overseen by a full-time Fire Prevention Officer that requires all homeowners to maintain their property in compliance with Public Resources Code (PRC) 4291, California Code of Regulations (CCR) 1299 and Northstar Ordinance 26-09 guidelines.
- Fire Hydrant Maintenance Program: A program that seeks to keep all fire hydrants operable to the fullest measure. The program institutes annual inspections and maintenance involving flow/pressure testing, flushing, repairs and re-painting.
- Green Waste Recycling Program: A program created to help homeowners with defensible space compliance. This program allows homeowners and their contractors to dispose of green waste by either leaving it on the curb in front of their property for NCSD personnel to collect or by taking the material directly to the green waste recycling site. Material placed at the recycling will be ground into woodchips and used for erosion control projects. This program was established back in 2007 with a Prop 40 grant. Since its implementation, approximately 15,000 cubic yards of material has been recycled.
- With the ensuing development of the Highlands area, new roads were constructed (i.e. Highlands View Road and Shaffer Mill Road connector) – thus, allowing for additional means of ingress and egress in case of evacuation due to catastrophic events. This is shown in Figure K-4.

Figure K-4 Northstar CSD - Evacuation Routes



Source: Northstar CSD

- Deer Path Water Course Relocation Project. The original water course that day lighted above the Martis Landing homes was relocated to a new channel. The original drainage inlet was removed. A new inlet was installed further downstream and all water tied into the larger storm water system.
- Wolf Tree Storm Water Extension. The original storm water system day lighted itself at the property line. This was problematic as it would wash out our sewer access road and find a water course through a lower residence on Basque. This storm water drainage was extended and a culvert installed under the sewer access road. It now day lights above the golf course as a dissipater was installed to encourage sheet flow onto the golf course fairway.
- Easement Access Road Water Bar Maintenance and Replacement Program. Annually, the Utilities Department maintains the water bars on all of our access roads. An assessment of effectiveness is done at the same time. The purpose of the water bars is to encourage sheet flow and dissipate energy. Areas deemed to have unnecessary or ineffective water bars are terminated and areas deemed useful are added.
- Storm Water Drainage Inlet Maintenance. Technically, storm drainage inlets are Placer County's responsibility. Placer County is not always able to get all of our D.I.'s on an annual basis. And, in many areas, this is necessary. The Utilities Department ensures that all D.I.'s within the District boundaries are clean of debris and able to flow storm water in the case of a serious event. Such work is performed using the District-owned Vac-Con truck.
- Storm Events. During a storm event where the precipitation is in the form of rain (not snow), the Utilities Department uses part of its crew to clean D.I. grates to ensure water is flowing into its proper

channels. In some instances, water must be diverted to avoid it cutting its own course in a less desirable path. Equipment used for this task includes simple hand tools such as: shovels and rakes. However, the Vac-Con truck, backhoe, loaders or graders can be used when deemed necessary.

K.7 Mitigation Strategy

K.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

K.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Martis Landing Drainage Swales and Catch Basins

Hazards Addressed: Flooding

Issue/Background: The District experiences flooding on the backside of Martis Landing during heavy rain storms. In order to correct this problem, drainage swales, water bars and catch basins could be constructed in order to direct and catch the run-off. The run off comes from common area property and water run-off is not the responsibility of the NCSD. There is some opportunity to incorporate water bars, and drainage swales to a minor extent during the forest thinning fuels reduction process that will occur in future years. If larger scale work needs to be completed an engineer would have to design systems to divert sheet flow and contain water.

Other Alternatives: No other alternatives

Existing Planning Mechanism(s) through which Action Will Be Implemented: No planning mechanism.

Responsible Office/Partners: Northstar Utilities Department/Northstar Fire Department

Project Priority: Medium

Cost Estimate: If a design Engineer is utilized the price for design and construction could cost upward of $100,000. Some minor work could be completed in conjunction with fuels management projects that could be implemented for $5,000 to $10,000.

Benefits (Losses Avoided): Benefits: Reducing flooding and damage to homeowners' and District's property.

Potential Funding: Grant Funding

Timeline: Ongoing

Action 2. Continue Easement Access Road Water Bar Maintenance and Replacement Program

Hazards Addressed: Flooding

Issue/Background: Annually, the Utilities Department maintains the water bars on all of our access roads. An assessment of effectiveness is done at the same time. The purpose of the water bars is to encourage sheet flow and dissipate energy. Areas deemed to have unnecessary or ineffective water bars are terminated and areas deemed useful are added.

Other Alternatives: Placer County were to cover such mitigation work on a routine basis

Existing Planning Mechanism(s) through which Action Will Be Implemented: No planning mechanism.

Responsible Office/Partners: Northstar Utilities Department

Project Priority: Medium

Cost Estimate: We estimate the District spends about $5,000 on this project annually. Most of the cost is in equipment and personnel; fuel is minimal. The cost to have excess material removed from the D.I.'s is technically the county's responsibility and any material we remove is still disposed of by the county.

Benefits (Losses Avoided): Benefits: Reducing flooding and damage to homeowners' and District's property.

Potential Funding: District Funding

Timeline: Ongoing

Action 3. Fuels Reduction @ Sawmill Reservoir

Hazards Addressed: Wildland Fire

Issue/Background: Northstar CSD has 1 reservoir (Sawmill Reservoir) located within its District. With the threat of wildfire, this reservoir could be vital in providing a valuable water source for firefighting aircraft helping fight potential future wildfires. However, in order for it to be fully functional, trees will need to be cleared in and around the reservoir to allow aircraft to dip and collect water for airdrops.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: Northstar Fire Department in cooperation with CALFIRE will work in collaboration to plan project.

Responsible Office/Partners: Northstar Fire Department

Project Priority: Medium

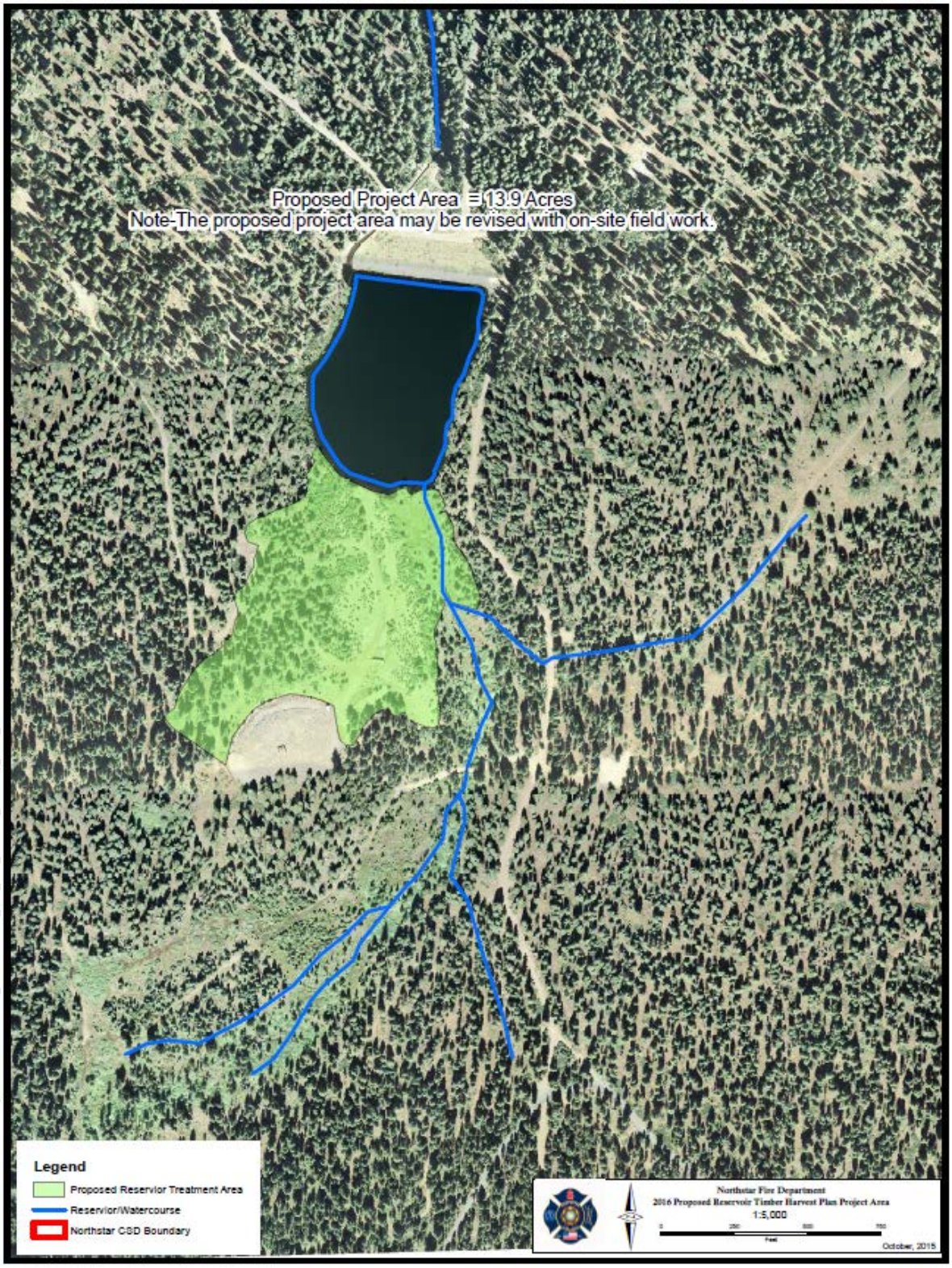
Cost Estimate: Cost is approximately $20,000.

Benefits (Losses Avoided): Sawmill Reservoir would allow for helicopter resources to pull water from the reservoir in order to fight a wildland fire at Northstar.

Potential Funding: Northstar Fire Department annual budget or grant funded.

Timeline: 2016-2017

Figure K-5 Sawmill Reservoir



Action 4. Fuels Reduction Program

Hazards Addressed: Wildfire

- **Issue/Background**: Continue our Fuels Reduction Program (see Priority No. 1 – Complete fuels management work in the area identified as Porcupine Hill which lies in the northeast portion of the district along U.S. Highway 267 and the Northstar Golf Course. Ongoing work has focused on establishing a 300' buffer zone from the highway first and to eventually treat the entire property between highway 267, Basque and Skidder Trail.
- Priority No. 2 – Create a shaded fuel break in the eastern portion of the district boundary from the residential area of Beaver Pond moving north towards U.S. Highway 267. Past project work has strengthened the eastern boundary and this remaining portion will create a sustainable fuel break between the district boundary and Northstar Drive.
- Priority No. 3 – In the south portion of the district lies 90+ acres of forested land that requires fuels treatment beginning above the Northstar Village to the top of Highland View Road. The Big Springs Gondola which travels from the Northstar Village to Mid Mountain lies within this priority area.
- Priority No. 4 – Create a 500' buffer zone south of the Northstar Property Owners Association, (NPOA) Recreation Center and east of the Ski Trails Condominium Association Complex. Future work in the Northstar Fire Department's Management Plan will work beyond the 500' buffer zone.
- Priority No. 5 – Work in a partnership with the United States Army Corps of Engineers on a fuels management project on their property located in the northwest corner of the district. Fuels reduction has been completed on the district side; however extensive work on the neighboring property is needed.
- Priority No. 6 – To continue strategically removing dead, diseased and dying trees within the CWPP area to promote forest and watershed health and to identify and perform maintenance where needed. The CWPP area extends 1.5 miles in any direction from any developed area.

Figure K-6). (The following mitigation efforts are proposed for future fuels reduction and can be found in our current CWPP):

- Priority No. 1 – Complete fuels management work in the area identified as Porcupine Hill which lies in the northeast portion of the district along U.S. Highway 267 and the Northstar Golf Course. Ongoing work has focused on establishing a 300' buffer zone from the highway first and to eventually treat the entire property between highway 267, Basque and Skidder Trail.
- Priority No. 2 – Create a shaded fuel break in the eastern portion of the district boundary from the residential area of Beaver Pond moving north towards U.S. Highway 267. Past project work has strengthened the eastern boundary and this remaining portion will create a sustainable fuel break between the district boundary and Northstar Drive.
- Priority No. 3 – In the south portion of the district lies 90+ acres of forested land that requires fuels treatment beginning above the Northstar Village to the top of Highland View Road. The Big Springs Gondola which travels from the Northstar Village to Mid Mountain lies within this priority area.
- Priority No. 4 – Create a 500' buffer zone south of the Northstar Property Owners Association, (NPOA) Recreation Center and east of the Ski Trails Condominium Association Complex. Future work in the Northstar Fire Department's Management Plan will work beyond the 500' buffer zone.
- Priority No. 5 – Work in a partnership with the United States Army Corps of Engineers on a fuels management project on their property located in the northwest corner of the district. Fuels reduction has been completed on the district side; however extensive work on the neighboring property is needed.
- Priority No. 6 – To continue strategically removing dead, diseased and dying trees within the CWPP area to promote forest and watershed health and to identify and perform maintenance where needed. The CWPP area extends 1.5 miles in any direction from any developed area.

Figure K-6 Fuels Reduction Before and After

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: 2015 Northstar Community Wildfire Protection Plan (CWPP) *Note-This document is updated every 2-3 years and is an ongoing document.

Responsible Office/Partners: Northstar Fire Department

Project Priority: Highest

Cost Estimate: Cost estimates are based per priority within the updated 2015 Northstar CWPP.

- Priority 1: Approximately 66-acres remain a priority for treatment. Current estimates are $95,000 to complete the Porcupine Hill project area. Potential logging with subsidized revenue to pay for mastication is currently being studied.
- Priority 2: Fuels reduction work in the eastern portion of the District boundary range from initial treatment to needed maintenance work. Future developments could help strengthen fuels management of this eastern boundary and scheduling with developers is being planned. The current estimate of treatment of the eastern District boundary is $75,000
- Priority 3: Several attempts to treat this area with federal and state funding has not been successful grant funding has been difficult to obtain. An initial estimate to treat priority three area was $162.000 However, continued advanced conifer tree mortality in the past two years has increased that estimate to $200,000 Investigations in tree harvesting to help subsidizing these costs are currently being investigated.
- Priority 4. Creating a 500' buffer zone from the Northstar Property Owners Association would approximately cover 8.54 acres of land to create a formidable buffer zone. This work would require a combination of pile burning and chipping on difficult topography and would require multiple treatments to reach a desired level. Current estimates are $17,000 to complete a series of treatments.
- Priority 5 – All planned project work adjacent to the United States Army Corps property has been completed and is now considered to be in a "Maintenance Mode". Cost estimates are $10,000 to maintain brush every 4-6 years and $15,000 to maintain existing trees every 8-10 years. Future timber harvesting could help subsidize these costs.

- Priority 6 – Strategically removing fire hazard trees within the District will be an ongoing task and differs annually depending on tree mortality rates and where the trees are located for removal. Typically fire hazard trees are removed during a one to three day event in the spring and in the fall. Trees are removed in combination of hauling and or chipping. The average cost for two sessions is $4,500

Benefits (Losses Avoided): Benefits to this work are statistically reducing a catastrophic wildfire event from occurring within or outside the District, thus causing a financial loss in residential, commercial structures and a resort driven economy.

Long term costs in prevention outweigh the costs of suppression and provide a long term benefit of a healthy diverse forest creating long term revenue in timber products.

Potential Funding: Mechanisms of funding range from federal, state and county grant funding. Internal funding is from Measure E which is a special initiative that allows a minimum amount of tax funds to be spent on fuels reduction projects. Measure E provides "in kind" costs to grant matching requirements.

Timeline: Ongoing

Action 5. Storm Water Drainage Inlet Maintenance

Hazards Addressed: Flooding

Issue/Background: Technically, storm water drainage inlets are Placer County's responsibility. Placer County is not always able to get all of our D.I.s on an annual basis. And, in many areas, this is necessary. The Utilities Dept. ensures that all D.I.s with the District boundaries are clean of debris and able to flow storm water in the case of a serious event. Such work is performed using the District-owned Vac-Con truck.

Other Alternatives: Placer County were to cover such mitigation work on a routine basis

Existing Planning Mechanism(s) through which Action Will Be Implemented: No planning mechanism.

Responsible Office/Partners: Northstar Utilities Department

Project Priority: Medium

Cost Estimate: It is estimated that NCSD spends about $10,000 per year on DI maintenance from debris removal from the catch basins to debris removal (mainly pine needles) during rain events to ensure their continued flow.

Benefits (Losses Avoided): Benefits: Reducing flooding and damage to homeowners' and District's property.

Potential Funding: District Funding

Timeline: Ongoing

Action 6. Siphon Line

Hazards Addressed: Seismic Hazard

Issue/Background: The District maintains a large sewer line that runs along highway 267 within the Martis Valley. If this line were to break, the valley and its habitat would be greatly affected by the unobstructed raw sewage. A 12" lay flat hose on reels would allow the Utilities Dept. to bypass the broken section of sewage line through the clean-outs while attempting to repair the broken pipe.

Other Alternatives: Our current alternative is the lines are redundant, meaning we have 2 lines, if one sewer line were to break we can switch to the other line without interruption to the service. If both lines were to break a jumper line is one method of allowing us to continue to provide transfer of sewer without an interruption until the broken pipe can be repaired.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Current mechanism would be to obtain equipment from other local agencies who own this equipment. The downside to obtaining this equipment from another jurisdiction would be the time associated with traveling to the other jurisdiction and returning to our District.

Responsible Office/Partners: Northstar Utilities Department

Project Priority: Highest

Cost Estimate: = $25,000

Benefits (Losses Avoided): The ability to quickly divert or bypass a break in the raw sewage line thus keeping a limited amount of raw sewage from leaking while trying to mitigate or repair a broken line.

Losses Avoided: Raw sewage leakage hazard that would have an environmental impact. The greater the leakage, the greater cost in mitigating or cleaning-up the environmental impact.

Potential Funding: The District has talked about purchasing the lay flat hose and it has been denied in past budgets.

Timeline: 2017-2018

Action 7. Provide Power from Mobile Generator

Hazards Addressed: Emergency Services

Issue/Background: If power were lost due to a catastrophic event, the District–owned infrastructure would be greatly affected since many of the buildings do not have back-up power capabilities. With a mobile generator, the District would be able to provide power to certain buildings during a crisis. For example, if one of our well pumps lost power, a mobile generator would allow for the tank to still operate and, thus, provide a water supply crucial to the community.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None at this time.

Responsible Office/Partners: Northstar Utilities Department

Project Priority: Medium to High

Cost Estimate: $200,000

Benefits (Losses Avoided): Provide power during a time of crisis that will allow for critical infrastructure to still operate. Without power to generate continuous water supply, domestic water supply would be affected and the fire department could be impacted by lack of water or pressure to fight fire. Without power, data centers and IT capabilities that provide crucial water storage data to technicians would be limited.

Potential Funding: Unknown

Timeline: Unknown

Action 8. Green Waste Recycling Program

Hazards Addressed: Wildfire

Issue/Background: Continue our Green Waste Recycling Program which was created to help or encourage homeowners with defensible space compliance. This program allows homeowners and their contractors to dispose of green waste by either leaving it on the curb in front of their property for NCSD personnel to collect or by taking the material directly to the green waste recycling site. Material placed at the recycling yard will be ground into woodchips and used for erosion control projects. This program was established back in 2007 with a Prop 40 grant. Since its implementation approximately 15,000 cubic yards of material has been recycled.

Other Alternatives: If the Green Waste Recycling Program was abandoned, homeowners would only have the following 2 options: 1) Hire a contractor to remove and dispose of the green waste to the nearest landfill. 2) Dispose of the green waste themselves at the nearest landfill.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Funding will need to be acquired through grants or other means to continue this program. Additionally we will need to find a proper facility that can guarantee they will take excess woodchips above what the resort can take and use for erosion control projects.

Responsible Office/Partners: Northstar Fire Department

Project Priority: High

Cost Estimate: The cost estimate of this program is about $60,000 annually.

Benefits (Losses Avoided): Benefits: Offers an incentive to homeowners to be compliant with Defensible Space. The more homeowners that are compliant the greater reduction of wildland fire threat to the community. Losses: If a destructive wildfire moved through the community there would be hundreds of

millions of dollars in property and economic damage. In addition there would be substantial losses to the environment.

Potential Funding: Federal Grant

Timeline: Year by year.

Action 9. Enhance our current Defensible Space Program by seeking funding to hire a part-time employee to assist the Fire Prevention Department in running this program.

Hazards Addressed: Wildfire

Issue/Background: Properly-maintained defensible space provides firefighters with a safer working environment (see Figure K-7), allowing them to protect structures from encroaching wildfire, and minimizes the chances for a structure fire escaping into surrounding wildlands. Residential defensible space inspections are essential to a good community fuels reduction program. Research and experience has shown that reduction of fuels around structures is crucial to their chance for survival during a wildfire.

The current program is overseen by a full-time Fire Prevention Officer that requires homeowners to maintain their property in compliance with Public Resources Code (PRC) 4291, California Code of Regulations (CCR) 1299 and Northstar Ordinance 26-09 guidelines. In the past, the position of an inspector was grant funded. However, that funding has expired.

Figure K-7 Defensible Space Before and After

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Northstar Community Service District / Fire Department Plan; Northstar Community Services District Annual Budget

Responsible Office/Partners: Northstar Fire Department

Project Priority: High

Cost Estimate: The cost to hire a full time seasonal employee is about $25,000 per year.

Benefits (Losses Avoided): The benefit to having this program is the potential to reduce the overall fire loss to the community. Northstar is a resort community that relies heavily on tourists visiting the area. If a large fire were to take place in the community not only would it be devastating to the local residents it would have a large impact on the economy driven by tourism.

Potential Funding: Federal or State grants

Timeline: Beginning Summer of 2016.

Action 10. District Water Conservation Program

Hazards Addressed: Drought

Issue/Background: Due to the drought, Northstar CSD is concerned about its current and future water supplies. In order to curb the use of water by the constituents of Northstar, the District has instituted a District Water Conservation Program. This program has established a concerted effort in meter detection installation and tracking. Additionally, there are incentives for the homeowners to conserve water – i.e. high efficiency toilets rebate program, washing machine rebate program, and higher water rates for users that go over their monthly allotment of water. There are also fines that can be levied for not following water conservation rules.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: State mandates and District ordinances

Responsible Office/Partners: Northstar Utilities Department

Project Priority: Medium to High

Cost Estimate: $15,000 - $30,000 annually.

Benefits (Losses Avoided): Benefits: The conservation of water for various means and purposes – necessary for the District to function annually.

Potential Funding: District funding.

Timeline: Ongoing

Annex L North Tahoe Fire Protection District

L.1 Introduction

This Annex details the hazard mitigation planning elements specific to the North Tahoe Fire Protection District (North Tahoe FPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the North Tahoe FPD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

L.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table L-1. Additional details on plan participation and City representatives are included in Appendix A.

Table L-1 District Planning Team

Name	Position/Title	How Participated
Greg Smith	Captain	Attended meetings. Provided edits and updates to past annex. Provided new mitigation actions. Updated old mitigation action status. Provided asset tables and hazard id, vulnerability and capability information. Also provided map and logo.
Steve Simons	Division Chief	Provided edits and updates to past annex. Provided new mitigation actions. Updated old mitigation action status. Provided asset tables and hazard id, vulnerability and capability information.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table L-2.

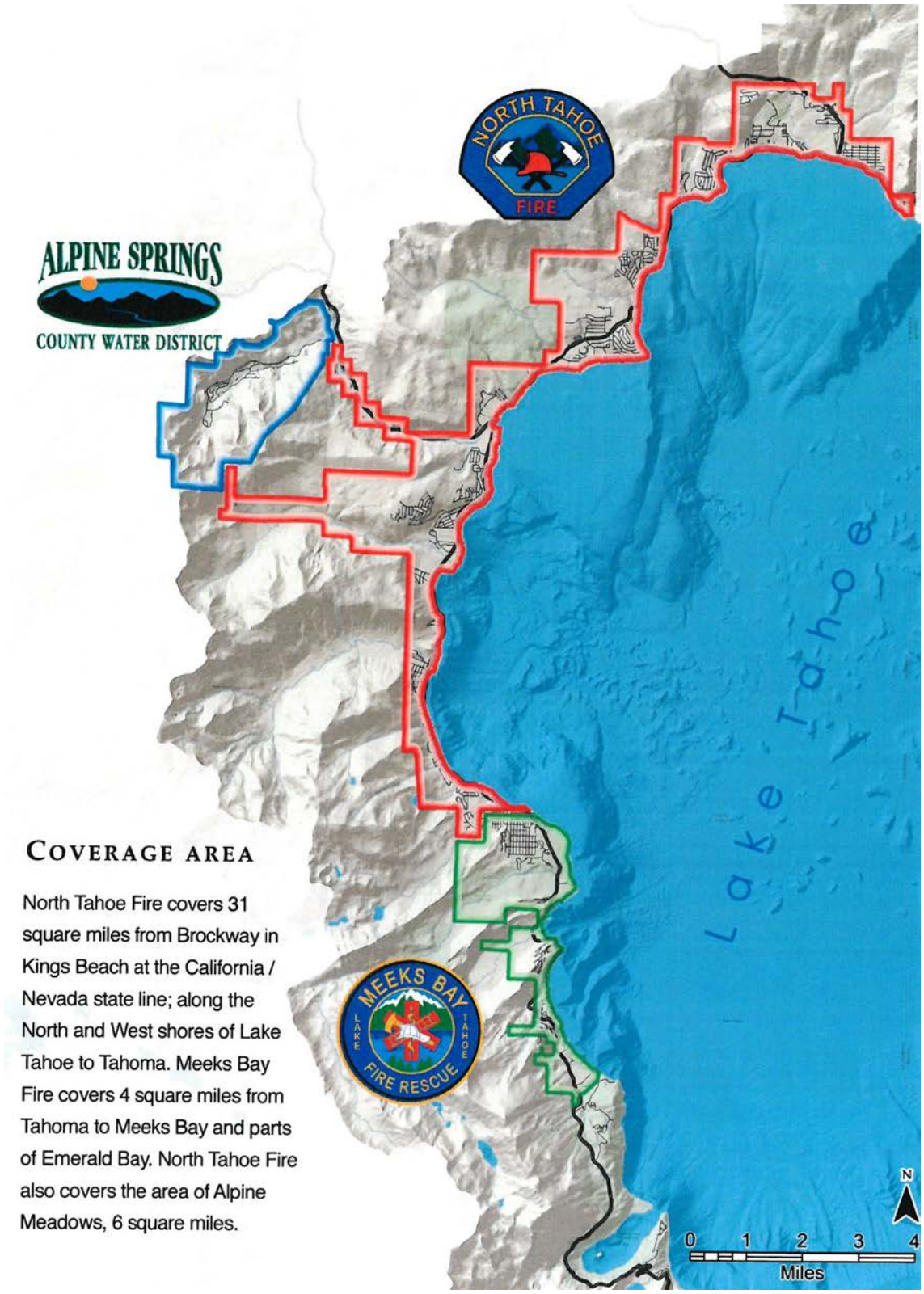
Table L-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
NTFPD	2015 Tahoe CWPP, Forest Fuels Reduction via Prescribed Fire and Chipping Programs, Placer County Emergency Operations Plan, Truckee River Geographic Response Plan.

L.3 District Profile

Figure L-1 of the Lake Tahoe Basin Fire Protection Agencies shows the area covered by the North Tahoe Fire Protection District (NTFPD). North Tahoe Fire protects all of the Placer County communities on the north and west shores of the Lake Tahoe Basin.

Figure L-1 North Tahoe FPD Service Area



Source: North Tahoe FPD

L.3.1. District Information and Background

North Tahoe Fire Protection District serves the north and west shores of Lake Tahoe, California. The District covers over 31 square miles of territory and borders the largest alpine lake in North America. The full-time resident population is just over 18,000 people, but communities swell to well over 50,000 people on any given day in the busy winter and summer tourist seasons. The district serves a rural area and is geographically isolated due to the numerous high mountain passes, two-lane highways, harsh weather conditions, and extreme influxes of tourists. The areas served are at altitudes of 6,000 feet to over 9,000 feet.

The District is a combination fire department with five fire stations and employs 52 full-time personnel. This District is an all risk fire and EMS transporting agency, providing fire suppression and prevention, rescue, hazardous materials, and paramedic ambulance services.

The District, under long term contract, administers and provides this all risk fire and EMS service to the community of Alpine Meadows, a world-class ski resort with over 750 housing units, limited egress, and a fire station staffed during peak demand, on a nearly 24/7 days a week basis.

L.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table L-3).

Table L-3 North Tahoe FPD Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Highly Likely	Critical	Medium
Avalanche	Limited	Highly Likely	Limited	Low
Dam Failure	Significant	Unlikely	Critical	High
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Extensive	Occasional	Critical	High
Flood: 100/500 year	Limited	Occasional	Critical	High
Flood: Localized Stormwater Flooding	Limited	High Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Low
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Significant	Unlikely	Critical	High
Severe Weather: Extreme Heat	Extensive	Likely	Negligible	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Critical	High
Severe Weather: Fog and Freezing Fog	Significant	Occasional	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/**Wind**/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Limited	Occasional	Negligible	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Occasional	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

L.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

L.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table L-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table L-4 North Tahoe FPD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value
North Tahoe FPD facilities	Essential	
Headquarters Station 51	Essential	$15.6 million
Station 52 Training	Essential	$13.5 million
Station 53 Homewood	Essential	$10.5 million
Station 54 District shop	Essential	$8.5 million
Station 55 Fuels Reduction	Essential	$8.5 million
Station 56 Alpine Meadows	Essential	$7.5 million
Type 1 Structure Engines X 6	Essential	$800,000 each
Type 3 Brush Engines X 3	Essential	$500,000 each
ALS Ambulances X 7	Essential	$150,000 each
Command Vehicles etc.		$60,000
Placer Co. Sheriff Dispatch & Office	Essential	
Highways, Bridges, Arterial Roads	Transport/ Lifeline	
Utilities	Transport/ Lifeline	Power, Water, Gas, Sewer, Cell Towers
CalTrans & Placer Co. DPW	Transport/ Lifeline	Facilities and Equipment
Lake Tahoe Outlet Dam	High Loss	
Schools and Shelter locations	High Loss	
Groceries stores		

Source: North Tahoe FPD

It is important to note that there are no hospitals within the North Tahoe Fire District boundaries. This becomes a significant vulnerability when the highways become impassable due to flooding, rock/mudslides, avalanches, and interstate closures.

Natural Resources

Several state or federally listed species may be found within the District boundary. These are identified, along with other species of concern found in the District, in Table L-5.

Table L-5 Species of Concern in the North Tahoe Fire Protection District

Species	Federal Status	Critical Habitat in NV/CA	Office Lead	State
Mammals				
Fisher *Martes pennanti* (West Coast DPS)	C	N/A	YFWO	CA
Birds				
Yellow-billed cuckoo *Coccyzus americanus* (Western U.S. DPS)	C	N/A	SFWO	CA/NV
Bald eagle *Haliaeetus leucocephalus*	T	N	SFWO	CA/NV
Amphibians				
Yosemite toad *Bufo canorus*	C	N/A	SFWO	CA
Mountain yellow-legged frog *Rana muscosa* (Sierra Nevada DPS)	C	N/A	SFWO	CA/NV
Fishes				
Lahontan cutthroat trout *Oncorhynchus clarki henshawi*	T	N	NFWO	CA/NV
Plants				
Webber ivesia *Ivesia webberi*	C	N/A	NFWO	CA/NV
Tahoe Yellowcress *Rorippa subumbellata*	C	N/A	NFWO	CA/NV

Source: North Tahoe Fire Protection District

Growth and Development Trends

Population growth within the NTFPD continues but is not uniform throughout. The areas within and closest to the developed communities are growing fastest and have higher housing densities. The more rural, mountainous areas are experiencing limited growth, in part due to land ownership, lack of services, and overall rugged terrain.

Unique to this part of Placer County is not the growth of full time residents, but the influx of visitors and tourists to the area, especially during the peak summer and winter seasons. While this area is home to only about 18,000 full time residents, during high season some 50,000 people, on any given day, may be enjoying the vast recreational and tourist opportunities. This spike in population creates a unique vulnerability to the area, especially in the event highways become impassable due to flooding, landslides, avalanches, or gridlocks due to high volume and extreme weather conditions. Even during the off-season, the lack of

multiple transportation routes, if closed, can leave the resident population cut off from necessary, and potentially life-saving, services.

Development Since 2010

Development in the North Tahoe area has been steady. The increase in residents has increased the number of properties and people the NTFPD has to protect.

L.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table L-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Agricultural Hazards

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

As the district has little agricultural industry due to altitude and climate there is little effect to agriculture. The timber industry will likely start to see the effects of the multi-year drought in the form of increased disease and mortality in the coming years.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

A dam failure can range from a small uncontrolled release to a catastrophic failure caused by prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam. Dam failure flooding varies by area depending on which dam fails and the nature and extent of the dam failure and associated flooding.

Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Based on analysis provided in the Placer County General Plan Background Report, only four dams within Placer County have the potential to affect more than 100 persons. Of these four, a failure of the Lake Tahoe Dam could potentially impact areas within the NTFPD. Failure of this dam would be contained within the Truckee River floodway to Nevada County and could impact in excess of 1,000 people.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Drought- the district is experiencing a multi-year drought that is part of a much larger drought throughout the western United States. Potential effects of a multi-year drought include:

- Reduced water for domestic consumption and fire suppression.
- Stress on natural vegetation leading to increased disease and mortality.
- Drought stressed/dead vegetation contributes to increased fire danger and fire behavior, leading to larger more catastrophic wildfire incidents.

The HMPC noted that the 2014-2015 drought had impacts in the District. Crop damages were widespread, wildfire risk was increased, and businesses had felt impacts from the drought conditions.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–High

No specific studies have been conducted in the local area in regards to the impacts of a large scale earthquake. In general, such an event would result in large scale widespread impacts on a regional level that could include:

- Structural collapse
- Transportation impacts
- Power and communications interruptions
- Structural and wildfire incidents
- Avalanches, mudslides, rock falls and landslides
- Dam failures and flooding
- Sieche Wave Events

- Loss of life and injuries on a large scale
- Economic impacts and business loss

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The Truckee River Watershed is the primary watershed of concern within the District boundaries. The Truckee River Watershed, with an area of approximately 2,720 square miles, encompasses the entire Lake Tahoe, Truckee River, and Pyramid Lake systems. The overflowing and diversion of Squaw Creek (upper Truckee River Basin) is responsible for major flooding events, such as the January floods of 1997, in eastern Placer County.

Flooding and soil erosion due to heavy rains and snow runoff have been a historical problem. Abundant snowfall in the mountains combined with rain and steep terrain can mean rapid runoff and flooding. Water flow can be high in peak runoff periods with historical downstream flooding. The primary impacts from flooding within the district include damage to roads, utilities, bridges, and flooding of homes, businesses and critical facilities. Road closures create difficulties in providing emergency services to areas cut off by flooding and limit the area's ability to evacuate.

The most notable flood event impacting the District is the January floods of 1997. This flooding started in late December over a crowded holiday period, with heavy winter storms causing some 6-7 feet of snow to fall at the lake level, followed by a warm wet storm causing approximately 14″ inches of rain to fall in a two-day period. Flooding was widespread over much of northern California and parts of Nevada. All of the NTFPD's response area was impacted by flooding. Damage to infrastructure and private property was estimated at $35 million, and included damage to bridges, highways, surface streets, utilities, and the collapse of a portable classroom. All transportation and supply routes were cut off or gridlocked and inaccessible. Mud and rockslides occurred throughout the region, with one large landslide, approximately 1 mile in length, occurring on the west shore.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

In 1997 the District experienced areas of flooding and landslides related to El Nino resulting in hazardous conditions and road closures. Impacts were to the Highway 89 corridor between Tahoe City and Truckee and the Ward Canyon area on the west shore of Lake Tahoe. Future such events could impact many areas of the district and surrounding areas.

Seiche (Lake Tsunami)

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

The District response areas are at risk to seiche. This was described in Section 4.3.9 of the base plan.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Being that the district is primarily located between about 6,000 and 7,500 feet above sea level, any extreme heat events would be part of a much larger event impacting on a regional level and would be relatively moderate in impact.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Freeze and snow events are a major concern to the District. Snow and winter weather conditions regularly result in utility outages and the closure of major transportation routes. According to the NTFPD planning team, major winter storms have routinely cut off transportation routes in the district for hours (as recent as March 2007) to over a week (back in the 1950s), stranding thousands and causing a major impact to services and supplies.

With altitudes ranging from 6,000 to 9,000 feet above msl, extreme cold/freezing temperatures can create significant problems. Of particular concern to the District is the vulnerability of the area to broken utilities and power failures during extreme weather events. Most notably, during the mid-80s, a gas main failure occurred in Carson City, Nevada, causing a major outage throughout the region. This also resulted in an overload of the power utilities in the District, causing failures lasting several days. The District estimates that such outages lasting several days during extreme weather events occur approximately every 2-3 winters.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Inside the District, severe weather often occurs. The greatest damages often occur from high winds. The HMPC noted recent events in December of 2014 where winds caused damage to power lines. The HMPC provided the information in Figure L-2. During this event, a structure fire occurred that was the direct result of a wind event in which a tree fell onto an occupied residence. Fortunately all occupants escaped the building without injury. Winds in the District were recorded as high as 80 mph that date with gust on the

surrounding mountains in excess 130mph. High winds can fan the flames of wildfire in the District as well, increasing the size of wildfires very quickly.

Figure L-2 December 11, 2014 Wind Caused Damages

```
FDID  Incident ID Inci Num   Exp Alm Date   Alm Time Stn Inci Type Description
                  Address                                Addr Type Addr Wild Number   St Pre
fix Street                   St Type St Suffix Addr 2                                Apt Room
        Xst Prefix Xstreet                 Xst Type Xst Suffix Rural
31044 _4TTS6BZLC  2014028592 0   12/12/2014 18:39:52 53  322      Motor vehicle accident with in
juries              6937 West Lake BLVD                      1         N          6937
    West Lake                BLVD

31044 _4TTS49WC5  2014028578 0   12/12/2014 14:39:47 51  321      EMS call, excluding vehicle ac
cident with injury   925 North Lake BLVD /3                   1         N          925
    North Lake               BLVD                                                          3

31044 _4TTS1MN0R  2014028557 0   12/12/2014 09:55:34 56  321      EMS call, excluding vehicle ac
cident with injury   1960 Squaw Valley RD                      1         N          1960
    Squaw Valley             RD

31044 _4TTS1MMZW  2014028550 0   12/12/2014 09:24:36 53  444      Power line down
                    3590 West Lake BLVD                         1         N          3590
    West Lake                BLVD

31044 _4TTS0LLL7  2014028542 0   12/12/2014 07:08:56 52  324      Motor Vehicle Accident with no
 injuries           North Side Brockway Summit                  3         N

                                                              North
31044 _4TTRWK2DU  2014028531 0   12/11/2014 23:08:58 52  611      Dispatched & cancelled en rout
e                   8675 North Lake BLVD                        1         N          8675
    North Lake               BLVD

31044 _4TTRV746W  2014028517 0   12/11/2014 19:59:50 56  700      False alarm or false call, Oth
er                  255 Squaw Valley RD                         1         N          255
    Squaw Valley             RD

31044 _4TTRRMSIU  2014028465 0   12/11/2014 11:37:51 53  631      Authorized controlled burning
                    2980 Electric DR                            1         N          2980
    Electric                 DR

31044 _4TTRRUQA2  2014028463 0   12/11/2014 11:06:31 52  813      Wind storm, tornado/hurricane
assessment          8872 Brook AVE                              1         N          8872
    Brook                    AVE

31044 _4TTRRITQW  2014028462 0   12/11/2014 10:56:59 52  445      Arcing, shorted electrical equ
ipment              Fox ST & Brook AVE                          2         N
    Fox                      ST
                  Brook                      AVE
31044 _4TTRRITOY  2014028456 0   12/11/2014 10:17:55 53  444      Power line down
                    796 Cascade CIR                             1         N          796
    Cascade                  CIR

31044 _4TTRQ4JV7  2014028440 0   12/11/2014 08:55:05 51  813      Wind storm, tornado/hurricane
assessment          1749 Washoe WAY                             1         N          1749
    Washoe                   WAY

31044 _4TTRQCHNN  2014028438 0   12/11/2014 08:38:10 53  444      Power line down
                    5255 West Lake BLVD                         1         N          5255
    West Lake                BLVD

31044 _4TTRRITOD  2014028437 0   12/11/2014 08:32:58 51  444      Power line down
                    350 Woodview CT                             1         N          350
    Woodview                 CT

31044 _4TTRQ8IQS  2014028435 0   12/11/2014 08:21:55 52  461      Building or structure weakened
 or collapsed       365 Snowflake AVE                           1         N          365
    Snowflake                AVE

31044 _4TTRRITNT  2014028428 0   12/11/2014 07:31:02 53  461      Building or structure weakened
 or collapsed       5549 Lagoon RD                              1         N          5549
    Lagoon                   RD

31044 _4TTSROOKE  2014028427 0   12/11/2014 07:28:08 51  111      Building fire
                    1770 Washoe WAY                             1         N          1770
    Washoe                   WAY
```

Source: North Tahoe FPD

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Extremely High

All communities within the District are listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.3.2 of the main plan.

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildlands severely overgrown. Much of the private land in the District's area is in the wildland urban interface with increasing residential development.

According to the NTFPD, the following areas of the District were prioritized for projects because of their population, values at risk, and fuel availability:

- Tahoe City
- Lake Forest
- Highlands
- Dollar Point
- Cedar Flats
- Carnelian Bay
- Agate Bay
- Tahoe Vista
- Kings Beach
- Kingswood
- Talmont
- Tahoe Park
- Pineland
- Timberland
- Skyland
- Tahoe Pines
- Tahoe Swiss Village
- Homewood
- Chamberlands
- Tahoma
- McKinney Estates.

As more people move into the area and impacts from recreational demands increase, there will be more human-caused wildfire starts each year. And, the increased number of widely scattered homes within the District adds greatly to the danger, complexity, and cost of fighting these fires.

Currently, many of the communities in the District are limited to one route access and egress in the event of a major wildfire. Historically, these routes are closed during major events, stranding many people, including visitors, away from their families and homes. So far there has been no loss of life attributed to the limited evacuation routes, but it is likely only a matter of time before people are cut off and trapped by a major fire event.

Forest overgrowth due to the efficiency of modern firefighting techniques, and to society's current election to limit forest thinning and harvesting, is a serious problem. If wildfire does not impact the forest first, native insects will eventually kill millions of trees. Explosions in insect populations usually start during a drought, when the lack of water combined with too many trees per acre render the trees too weak to fight off the insect attacks. Without a change in management practices on public lands, there is little hope of avoiding a kill off of trees similar to the kill off experienced by other national forests.

A notable recent wildfire to impact the District was the Washoe Fire in August 2007. This fire occurred in the wildland urban interface area of Tahoe Park and Tahoe Woods subdivision, along the west shore of Lake Tahoe. Although no lives were lost, the fire destroyed 5 residential structures and encompassed 19 acres. Power and gas utilities incurred damages. There were also losses to timber assets, loss of watershed protection, and loss of the aesthetic value of a scenic corridor. This event caused major disruptions to west shore and Tahoe City traffic and business on a busy summer weekend. Highway 89 in West Lake was closed for a period of time.

Due to recent droughts in the North Tahoe FPD, widespread wildfires have occurred in or near District boundaries. In the last few years several large fires have impacted the Lake Tahoe Basin in various ways. The Angora fire burned over 300 structures and the King Fire burned almost 100,000 acres to the west of the basin and almost burned into the basin. These are both described in the base plan in Section 4.2.17.

Wildland fires are a significant threat to regional power distribution systems. Power outages caused by wildland fires directly affect the safety of district residents, drastically restrict critical water system operations, and severely limit available water supplies for fire suppression.

Hazardous Materials Transport

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Effects of a hazardous materials release are many and varied by the properties and quantities of the substance released and the setting of the release. Such incidents may result injuries, loss of life, property and environmental damages.

The NTFPD portions of the 2011 Truckee River Geographic Response Plan, the 2007 Lake Tahoe Sill Response Plan and the 2010 Placer County Emergency Operations Plan in response and mitigation to hazardous materials incidents.

L.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

L.6.1. Regulatory Mitigation Capabilities

Table L-6 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table L-6 North Tahoe FPD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	2010 Placer County Emergency Operations Plan
Continuity of Operations Plan	N	
Transportation Plan	N	
Storm water Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	Y	2015 Lake Tahoe CWPP
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code		Version/Year: 2013 UBC
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating:	Y	Rating: 4/4Y
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (storm water, steep slope, wildfire)	Y	Defensible requirements space enforced by CalFire
Flood insurance rate maps	N	
Elevation Certificates	N	

Acquisition of land for open space and public recreation uses	N
Erosion or sediment control program	N
Other	
How can these capabilities be expanded and improved to reduce risk?	

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Tahoe Community Wildfire Protection Plan, 2015

In 2015 the Tahoe Community Wildfire Protection Plan was created (2015 CWPP). This plan encompasses all areas of the Alpine Meadows and NTFPD that are at risk and directly outlines hazards and mitigations needed to preserve lives and property in these areas in the setting of a wildland fire incident. It is incorporated by reference here in support of the 2015 update to this document (Tahoe FFT.org). This website is hosted by the Tahoe Living with Fire Organization.

Codes and Ordinances

Avalanche

Placer County's avalanche management program defines Potential Avalanche Hazard Areas (PAHAs) where the minimum probability of avalanche occurrence is 1 in 100 per year or where avalanche damage has already occurred. According to the Placer County Avalanche Ordinance the following information must be disclosed in PAHAs:

- Identification that a structure is within a PAHA;
- A warning that avalanche control work is conducted in the area and avalanche warnings will be provided as feasible; and
- Identification of sources that provide weather information and general information on avalanches.

In addition, the County limits construction as necessary in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

L.6.2. Administrative/Technical Mitigation Capabilities

The board is comprised of 5 members representing 5 regions within the Lake Tahoe basin and is selected by registered voters within the District. The board serves as the governing body for the District's more than 22,000 residents. Members of the board are elected by geographical Division for 4 years. The Board of Directors approves District Rules and Regulations and, through the Fire Chief, ensures adherence to District policies. District policy and actions may be adopted by motion, or more formally, by resolution.

The NTFPD provides services through six fire stations: Alpine Meadows, Tahoe City, Homewood, Dollar Hill, Carnelian Bay, and Kings Beach. These fire stations are staffed by 60 to 65 uniformed and support personnel. The Assistant Chief oversees the operations division which includes service delivery, communications, apparatus repair, replacement, and purchasing. The Assistant Chief is responsible for engine company staffing, alarm response guidelines, and standard operating procedures.

NTFPD's dispatch services are provided by the Grass Valley Emergency Command Center in Grass Valley, CA. The dispatch center uses computer aided dispatching to ensure optimal resource monitoring and management utilizing the closest resource backed up by station cover assignments in a multi-tiered alarm structure.

For apparatus maintenance and repair the District employs 1 full-time Mechanic/Captain and two part-time assistants. The District pursues an aggressive vehicle replacement policy which refurbishes engines after 10 years, places them in reserve after 20 years and replaces them after 25 years. District ambulances are designed to have the ambulance module remounted on a new chassis every 5 years until replacement. The North Tahoe Fire Protection District maintenance and repair facility personnel ensure the District purchases only items of a specified quality at the least expense to the taxpayers. The District maintenance and repair facility personnel are charged with all tasks associated with providing a safe and reliable apparatus fleet at the lowest possible expense to the taxpayers. Table L-7 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table L-7 North Tahoe FPD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	Multiple in place and on-going with allied agencies
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	N	
GIS Coordinator	Y	Program just starting in Fall 2015
Other		

Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Placer Count Sherriff 911, Caltrans message signs. Routinely used for fire weather Red Flag warnings
Hazard data and information	Y	Occupancy pre-plan capabilities, MDT grant
Grant writing	Y	Admin staff
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Additional grants and further program development.		

L.6.3. Fiscal Mitigation Capabilities

Table L-8 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table L-8 North Tahoe FPD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Community Service District fees
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	Y	Equipment and program grants
Other		
How can these capabilities be expanded and improved to reduce risk?		
On-going program management and opportunities		

L.6.4. Mitigation Outreach and Partnerships

Table L-9 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table L-9 North Tahoe FPD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	CERT Program
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	2015 Emergency Preparedness and Evacuation Guide, portable message signs
Natural disaster or safety related school programs	Yes	Fire safety week for the schools program
Storm Ready certification	No	
Firewise Communities certification	No	
Public-private partnership initiatives addressing disaster-related issues	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Continued program management and development		

The NTFPD has automatic aid agreements with bordering Districts and mutual aid agreements with other fire agencies throughout the area. The District relies heavily upon this aid from their neighbors. Due to the high costs that are associated with a resort based economy, three-quarters of the NTFPD personnel live outside of the area served. This requires additional personnel from neighbors to respond and assist with incidents that are within the operational area.

The District is also a participating member of the Sierra Front WildFire Cooperators, a bi-state, multi-agency organization. The cooperators address numerous issues pertaining to wildfire suppression, prevention and public education.

The District also works with other agencies on wildfire-related matters. Working with professional fire experts from the U.S. Forest Service and California Department of Forestry and Fire Protection helps ensure that the District's work complements state and federal work and is up to standard for controlling wildfires.

In implementing many of the fuels management projects, the NTFPD works closely with the Tahoe Fire and Fuels Team which consists of representatives of Tahoe Basin fire agencies, CAL FIRE, Nevada Division of Forestry and related state agencies, the Nevada Fire Safe Council, the Tahoe Regional Planning

Agency, the USDA Forest Service, conservation districts from both states, the California Tahoe Conservancy, and the Lahontan Regional Water Quality Control Board. Coordination of fuels reduction projects in the Tahoe Basin is overseen by a Multi-Agency Committee (MAC) comprised of the above agencies.

L.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including, public education, fuels management projects, and other activities to reduce fuel loads and fire risk. These mitigation activities include:

- Public presentations and defensible space inspections
- Working with Homeowner's Association's Living with Fire publication
- Public outreach via website, local paper and school education programs
- Fire & Life Safety structural plan review program
- Forest Fuel's management program
- Advise and assist with water system infrastructure improvements
- Details on some of the recent, ongoing mitigation projects are noted below.

Fuel Reduction Projects

The NTFPD has partnered with the Meeks Bay Fire Protection District and the North Lake Tahoe Fire Protection Districts in Incline Village, Nevada to develop and implement a Coordinated Fuels Management and Defensible Space Program.

These organization's fuels management personnel and resources are shared and can be utilized without limitation in Meeks Bay, North Tahoe and the North Lake Tahoe Fire Districts as determined by project priority and funding availability. The combined fuels reduction dedicated staff includes a 20 person Type 2-IA hand crew, a 10 person fuels reduction module, a three person chipping crew, a registered Forester, and a NWCG qualified Type 2 Prescribed Fire Burn Boss. In 2014, the Fuels program applied for multiple grants through federal and state sources to aid in the continuation of our expanded fuels management program.

Fuels Reduction: Chipper Program

The NTFPD provides fuels reduction chipping to roughly 1200 or more properties each year, which is equivalent to over 300 acres of treatment in the district. Chipping statistics from 1999 to 2007 are provided in Table L-10. The District fuels treatment statistics vary greatly in availability by year and in numbers reported as the reporting methods have varied over the years. The reason for the large increase in these numbers in 2007 was due to the Angora Fire in 2006 that resulted in an increased need for defensible space in the region as over 300 homes were destroyed that year. It resulted in a large increase in wildfire awareness and the need for better defensible space around homes and businesses in the area. In subsequent years the numbers have stabilized and decreased at times. 2008 to 2013 were unavailable.

Table L-10 Chipping Stats 1999-2007

Season	Parcels Treated	Pounds
2015	437	152,000
2014	325	104,000
2008-2013	N/A	N/A
2007	1,323	807,500
2006	567	379,278
2005	634	353,450
2004	543	286,285
2003	636	285,100
2002	517	248,000
2001	716	427,840
2000	407	223,087
1999	546	299,277
Totals	**5,889**	**3,309,817**
5,889 Lots = 1472.25 at ¼ acre per lot average.		

Source: North Tahoe Fire Protection District

L.7 Mitigation Strategy

L.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

L.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. FCC P-25 Interoperability Radio Systems

Hazard Addressed: Multi-hazard

Issue Background: Communications is a critical factor in the operations and functions of North Tahoe Fire Protection District. Radio communications is the primary source of dispatch for all fire department operations. The current radio system is a complex network of fixed and mobile infrastructure that allows for fire resources to effectively communicate with dispatch and other public safety agencies to mitigate emergency and non-emergency incidents.

The need for effective communications, consolidated dispatch, technology updates, and multi-jurisdictional interoperability are critical to firefighter and public safety as well as property and environmental conservation. This is an unfunded mandate of significant expense that affects the local taxpayer and fire district budgets for many years. Radio Equipment has a limited service life, requires consistent maintenance and upgrades, and is an expensive expenditure for the district.

Other Alternatives: None

Existing Planning Mechanism (s) through which Auction Will BE Implemented: Federal Communication Commission (FCC) Standards and Specifications. State of California, Office of Emergency Services, Standards and Specifications. State of California, CAL FIRE, Standards and Specifications.

Responsible Office: North Tahoe Fire Protection District

Priority (High, Medium, Low): High

Cost Estimate: $600,000 for base, mobile, portable, and fix geographical repeater radios and systems. $50,000 yearly expenditure for dispatch services through CAL FIRE Grass Valley Emergency Command Center (Regional, Multi-agency, Public Safety Collaborated Dispatch Center).

Benefits (Losses Avoided): Technology and equipment upgrades, Inter-operability with multi -disciplinary emergency response agencies, use of a regional, multi-agency collaborated dispatch center, local regional partnerships between state & local public safety agencies with cost sharing of maintenance and development of critical infrastructure.

Potential Funding: Federal, State, County, and local funds.

Schedule: New projects are prioritized and completed as funding becomes available. Older equipment is replaced with new equipment that meets 2018 FCC guidelines and meets the Department of Homeland Security, SAFECOM, 6 Levels of Interoperability. Maintenance of current infrastructure is part of Fire District's annual budget and is supported by local tax payers. Estimated 2015-2018.

Action 2. District GIS Technology, Equipment, Database and Mapping Improvements

Hazard Addressed: Multi-hazard

Issue/Background: Handle and manipulate information, statistical analysis, project planning and tracking, fuels management, parcel treatment, services provided:

- GIS/GPS interface for response routes, Hydrant locations when covered by snow;
- Critical tool for many applications used in fuels management and emergency services;
- Sharing information with other agencies for project work; and
- Presentations for public education, evacuation routes, fuels management.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Tahoe Basin Fire Commission Report, Recommendation #6.

Responsible Office: North Tahoe Fire Protection District.

Priority (High, Medium, Low): High

Cost Estimate: $30,000.

Benefits (Losses Avoided): Improved response times to emergencies, improved regional information sharing.

Potential Funding: Federal, State and local funds.

Schedule: 2016. The district has implemented a program and essential personnel have received the training to start the GIS data base project. Progress is anticipated in the coming months commensurate with available funding.

Action 3. North Tahoe Fire Protection District Critical Facility Infrastructure Improvements

Hazard Addressed: Multi-hazard

Issue/Background: With exception of the new station 51(completed in 2012) and located at 222 Fairway Drive in Tahoe City, all other North Tahoe Fire District facilities were built 50 to 60 years ago and fail to meet current building codes and seismic standards for critical public safety facilities.

Scientists have studied the Lake Tahoe region for earthquake faults and have located three major faults within the Lake Tahoe Basin. According to their calculations, these faults are capable of producing quakes reaching 7.0 or above on the Richter scale. In addition to the typical and expected damage from the quake itself, these quakes are more than capable of producing large underwater landslides that have produced massive seiche waves in the basin in the ancient past. These waves are reported to have been up to 100′ high and have deposited massive boulders far above the current lake level. Four of the District's five fire stations are built only a few feet above lake level and are well within the projected hazard zones for seiche wave damage. All of the facilities would sustain major damage in a heavy earthquake possibly trapping and injuring emergency response personnel and destroying emergency response units.

Funding is needed for facilities master planning, property acquisition, funding studies, plan development and construction.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: A seismic upgrade and/or relocation of all North Tahoe Fire District facilities needs to be studied and completed as soon as possible.

Responsible Office: North Tahoe Fire Protection District.

Priority (High, Medium, Low): High

Cost Estimate: $ 10-15 million + ’15 est. ($ 500K planning, permits… each station, $3 mil. 52, 55, $2 mil. 53, 54)

Benefits (Losses Avoided): Safety of emergency response personnel and equipment is critical for natural disaster response and mitigation.

Potential Funding: Federal, state and local pre-disaster mitigation funds.

Schedule: 5-10 years.

Action 4. Seiche Wave Warning Systems, Signs and Public Education

Hazard Addressed: Seiche

Issue/Background: Scientists have studied the Lake Tahoe region for earthquake faults and have located three major faults within the Lake Tahoe basin. According to their calculations, these faults are capable of producing quakes reaching 7.0 or above on the Richter scale. These quakes are more than capable of producing large underwater landslides that have produced massive seiche waves in the basin in the ancient past. These waves are reported to have been up to 100' high.

Most of the basin’s communities are located less than 100 feet above lake level. If a seiche wave were to occur to the magnitude reached in the past, there could be significant loss of life. This type of incident could happen very rapidly with little to no warning, due to the relatively small confines of the lake basin.

A sophisticated network of warning devices coupled with information signs and regular public education could improve evacuations and save lives.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: UNR and USGS research with tsunami warning systems as a template.

Responsible Office: Placer County OES/North Tahoe Fire.

Priority (High, Medium, Low): Medium

Cost Estimate: Undetermined.

Benefits (Losses Avoided): Significant life safety due to advanced warning

Potential Funding: Undetermined

Schedule: Undetermined.

Action 5. Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education

Hazard Addressed: Wildfire

Issue/Background: Defensible space is the single most important action that can be taken by individual home owners to protect homes from wildland fire. It is also one of the most critical aspects of protecting the wildland from fire that originates in the community.

Inspections, free chipping, public education, enforcement, and compliance are important components to the overall success of the program and when coupled with CWPP projects, lead to improved wildland intermix safety. Chipping programs can lead to less dooryard burning, better air quality and better compliance with regulations. Inspections, public education, and enforcement are needed to help protect the entire community through uniform communications and standards.

Residential chipping services have varied in recent years due to several factors and need to continue to be available to property owners in the district to ensure adequate defensible space as required by law. This aspect of the community assistance program allows homeowners to complete defensible space on their own with the knowledge that the material will be disposed of efficiently. Disposal of material is the biggest problem for homeowners and the chipping program allows homeowners the opportunity and incentive to complete work.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: TBFC Recommendations 37-42 and 44 describe actions that will assist property owners and fire agencies with attaining required defensive space for all properties within 5 years.

Responsible Office: North Tahoe Fire Protection District.

Priority (High, Medium, Low): High

Cost Estimate: $250,000 (Annually).

Benefits (Losses Avoided): Life, property, environmental health and safety.

Potential Funding: Local, state and federal funding.

Schedule: Ongoing May through November each year.

Action 6. Hazardous Wood Roof Replacement Program

Hazard Addressed: Wildfire

Issue/Background: Historical data suggests that firebrands are a principle WUI ignition factor and that highly ignitable wood roofs can cause homes to be lost in wildland fire events without direct flame impingement into the structure.

In January 2008, NTFPD adopted fire code changes to prohibit the use of shake shingles on new construction. The high cost of wood shake roof replacement precludes many property owners from changing to Class "A" fire resistive materials. The cost/benefit relationship is difficult when roofs contain additional years of useful life. A stipend program to assist property owners with the costly conversion is felt to be the only way of achieving successful "change out" close to 100 percent.

According to the Tahoe Fire Commission Report (May 2008), there are many homes in the basin which have wood shake shingle roofs that pose a risk to the dwelling and surrounding homes as well. Furthermore, the report recognizes that replacing wood shake shingle roofs is one of the most effective retrofits a homeowner can do. Finding 17A specifically states that "the use of appropriate building materials helps prevent homes from ignition in a fire." Finding 17B also states that "there is a need to require the retrofitting of such structures to make them safer from the hazards of catastrophic fire within the basin." To reduce the risk posed by wood shake shingle roofs, the report recommends that local governments, with the assistance of the Tahoe Basin fire chiefs and any basin fire safe councils, pursue any grant or loan programs that may be available to assist property owners in retrofitting their residences to meet these requirements.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Existing CWPP as well as the TBFC Final Report Recommendations 45-47.

Responsible Office: North Tahoe Fire Protection District / Nevada Fire Safe Counsel.

Priority (High, Medium, Low): High

Cost Estimate: $1,906,822 ($1,206,822 federal share + $700,000 non-federal share).

Benefits (Losses Avoided): In addition to the avoided loss of life and safety, the net present value of benefits calculated in the Benefit Cost Analysis is $12,419,506. Data not included in this estimate includes the value of power lines and electric infrastructure, pumping stations and other water infrastructure, and the value of merchantable timber. Finally, there is damage to the local tourist-dependent economy and the watershed protecting the clarity of Lake Tahoe.

Potential Funding: FEMA and local funding.

Schedule: The goal stated in the Fire Commission report is to have fire resistive roofing on all structures within 10 years. North Tahoe Fire plans to begin a 5 year effort starting in 2009. The local program is expected to take at least three full years (36 months) to be complete but could be completed earlier depending upon the participation level of property owners. The proposed schedule of work is as follows:

- Outreach & marketing to prepare educational materials, handouts, and supplies – 1 month
- Management paperwork & notification to designated treatment areas – 4 months
- Homeowner receives contractor bids – 2 months
- Contractor selection and homeowners contractual agreement – 2 months
- Permit process through Building Department – 2 months
- Roofing construction and replacement – 20 months
- Close out open Building Dept permit through sign-off – 1 month

- Property owner submits for reimbursement – 1 month
- Funds advance to the Fire District – 1 month
- Project tracking and reporting to OES – 2 months

Action 7. Regional Water System Fire Protection Upgrades and Interoperability

Hazard Addressed: Wildfire

Issue/Background: The communities in the North Tahoe Fire Protection District are served by 16 different public and private water purveyors. All of these companies were started many decades ago with little to no regional master planning or concern for fire suppression. Several of these systems were installed 50-100 years ago and designed to only provide domestic water to a few seasonal customers.

Adequate fire suppression infrastructure is a key component of community fire suppression capabilities. The lack of adequate fire flow has a direct relation to life safety, environmental protection, property loss prevention and regional economic stability. Several recent structure fires could have been suppressed much quicker if there had been adequate hydrants with the proper fire flow and storage to support the fire fight. All of these fires have either extended into the wildland or had great potential to destroy hundreds to thousands of acres of National Forest land and the associated watershed leading directly into Lake Tahoe.

Current California Fire Code requires a minimum of 1000 GPM fire flow for 2 hours for a typical residential structure. This includes hydrant spacing of 500 feet or less, the necessary storage and/or refill capacity of at least 120,000 gallons, the proper main lines, pump capacity and back up power supplies. Many of the residential structures in this District exceed the typical residential square footage by 3-4 times. This, compounded with the multitude of small water companies, exacerbates the lack of adequate fire flow.

Existing and future water system facilities need to be "hardened" and protected against fire, tampering, and potential attack. Structural improvements, system redundancy, alarm systems, source identification, and regional master planning are needed to meet the stated objectives for the least cost.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: Regional water purveyor capital improvement project master planning and cost study.

Responsible Office: Regional planning lead by Placer County Water Authority with cooperation of all local public and private water companies and the North Tahoe Fire Protection District.

Priority (High, Medium, Low): High

Cost Estimate: $150-200 million.

Benefits (Losses Avoided): Life safety, environmental damage, water clarity, property loss, economic stability.

Potential Funding: Rate payers; local, state and federal funds.

Schedule: Ongoing for 10-20 years.

Action 8. Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment

Hazard Addressed: Wildfire

Issue/Background: CWPP/Fuels reduction work: Minimum impact mastication equipment can reduce hazardous fuel loads much more quickly and efficiently than hand treatment. This equipment is the most effective method of maintaining previously treated lots and also works very well in smaller urban lots. The speed and efficiency of production allows much more fuels reduction work to be done each season, thereby reducing the threat of catastrophic wild fire in the communities quickly. This goal is clearly identified in the Tahoe Basin Fire Commission's Final Report. Mastication helps eliminate the fuels without the need to wait for piles to cure and waiting for a permissible burn day. Less pile burning means better air quality, fewer resources needed for the same result and less public concern.

Critical infrastructure needs: Heavy snowfall can exceed 60 inches in a single storm. Without access to hydrants and key emergency infrastructure facilities, the ability to serve and protect the community is severely hampered.

The year round use of this District asset would prove valuable by freeing up personnel to work on other projects and components of fuels reduction and emergency services. It would allow personnel to rapidly clear hydrants during and after storms. It would lower the occurrence of workers comp. injuries with less hours spent hand treating fuels reduction projects or digging over 800 hydrants buried after each storm.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: CWPP Projects, Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10-Year Plan.

Responsible Office: North Tahoe Fire Protection District.

Priority (High, Medium, Low): High

Cost Estimate: $175,000

Benefits (Losses Avoided): Life safety and property loss prevention.

Potential Funding: Federal, State and local funds.

Schedule: To be determined.

Action 9. Hydrant Risers, Replacements and Markers

Hazard Addressed: Multi-hazard

Issue/Background: There are over 1,200 hydrants in the District serviced by 16 different water companies. There are many small water companies with little to no funds available for infrastructure repairs or upgrades.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Water companies and North Tahoe Fire District.

Priority (High, Medium, Low): Medium

Cost Estimate: $275,000. Riser parts plus labor to install $175+$150=$325 per hydrant plus 17 percent administrative fee including contingency.

Benefits (Losses Avoided): Protecting lives and property by gaining faster access to water supplies especially during inclement weather.

Potential Funding: Federal, state and local funds as well as local rate payers.

Schedule: As soon as funding and resources are available. This project may be done separately or in conjunction with the regional water system upgrades and interoperability.

Annex M North Tahoe Public Utility District

M.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the North Tahoe Public Utility District (North Tahoe PUD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the North Tahoe PUD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

M.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table M-1. Additional details on plan participation and District representatives are included in Appendix A.

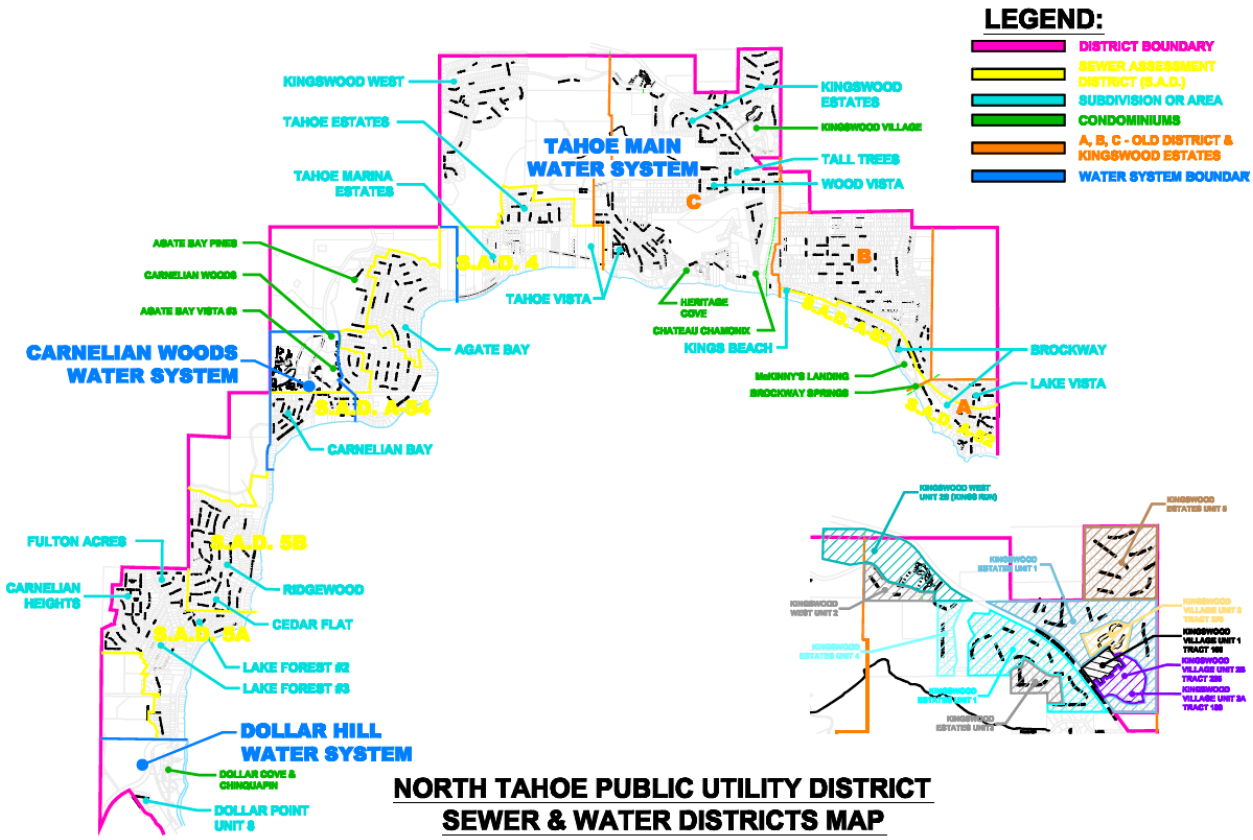
Table M-1 District Planning Team

Name	Position/Title	How Participated
Suzi Gibbons	Contracts and Planning Coordinator	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex. Provided logo and base map.
Will Stelter	Engineering and Operations Manager	Provided input on hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Larry Marple	Chief Financial Officer	Provided input on past hazards.

M.3 District Profile

The North Tahoe PUD service area is illustrated in Figure M-1.

Figure M-1 North Tahoe PUD



Source: North Tahoe PUD

M.3.1. District Information and Background

The North Tahoe Public Utility District (NTPUD) was formed in 1948 under the State of California Public Utilities Code to provide sewer services to the residents of the north shore of Lake Tahoe. The District's boundaries range from the Nevada state line in Crystal Bay to Dollar Hill. Our service area includes the communities of Kings Beach, Tahoe Vista, Brockway Vista, Carnelian Bay, Cedar Flat and Agate Bay.

In November of 1967, water services were added to the District's responsibility with the Recreation and Parks Department being created in 1968. The District manages and maintains most of the public beaches in our service area as well as the North Tahoe Regional Park in Tahoe Vista.

The North Tahoe Event Center is also owned and managed by the District. The District currently serves 5,524 sewer connections and 3,879 metered water connections.

M.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table M-2).

Table M-2 North Tahoe Public Utility District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Highly Likely	Limited	Medium
Earthquake	Significant	Unlikely	Limited	Medium
Flood: 100/500 year	Significant	Unlikely	Limited	High
Flood: Localized Stormwater Flooding	Significant	Occasional	Limited	Medium
Landslides and Debris Flows	Significant	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	Medium
Severe Weather: Extreme Heat	Limited	Unlikely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Limited	Occasional	Limited	Medium
Soil Bank Erosion	Limited	Occasional	Limited	Medium
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Limited	Occasional	Limited	Medium
Hazardous Materials Transport	Limited	Unlikely	Negligible	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

M.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

M.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table M-3 lists District assets identified by representatives from the District as important to protect in the event of a disaster.

Table M-3 North Tahoe Public Utility District—Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Base Administration Facilities	District Operations Base	875 National Ave., Tahoe Vista, CA	$4,706,529	
National Avenue Water Treatment Plant	Potable Water Intake & Treatment Plant	7010 North Lake Blvd., Tahoe Vista, CA	$2,291,919	Seiche Flood Drought
Park Well	Potable Water Well and Emergency Generator	6600 Donner Rd., Tahoe Vista, CA	$176,371	Wildfire Drought
Park Tank	Potable Water Tank	6600 Donner Rd., Tahoe Vista, CA	$175,000	Wildfire
Carnelian Woods Well	Potable Water Well	Carnelian Woods Ave., Carnelian Bay, CA	$195,000	Wildfire Drought
Carnelian Woods Tank I	Potable Water Tank	End of Silver Pine Dr., Carnelian Bay, CA	$249,000	Wildfire
Carnelian Woods Tank II	Potable Water Tank & Booster Pump Station	End of Silver Pine Dr., Carnelian Bay, CA	$293,800	Wildfire
Dollar Hill Tank	Potable Water Tank	Top of Dollar Hill, Tahoe City, CA	$276,500	Wildfire
Dollar Cove Water Intake	Potable Water Intake & Pump House	3600 North Lake Blvd., Carnelian Bay, CA	$85,800	Soil Bank Erosion Drought
Brockway Water Intake	Potable Water Intake & Pump House	Brockway Rd., Kings Beach, CA	$75,000	Soil Bank Erosion Drought Seiche
Kings Beach Tank	Potable Water Tank	Beaver St., Kings Beach, CA	$749,000	Wildfire
Zone 1 Tank	Potable Water Tank & Booster Pump Station	1001 Canterbury Dr., Kings Beach, CA	$1,200,000	Wildfire
Zone 2 Tank	Potable Water Tank	1050 Lake Vista Rd., Kings Beach, CA	$600,000	Wildfire
Kingswood West Water Tank	Potable Water Tank	1392 Kings Vista Ct., Tahoe Vista, CA	$600,000	Wildfire

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Kingswood West Booster Pump Station	Potable Water Booster Pump Station	9611 Regency Way, Tahoe Vista, CA	$180,600	Wildfire
Secline Sewer Pump Station	Sewer Pump Station	121 Secline St., Kings Beach, CA	$685,000	Severe Weather Flood: Localized Stormwater Flooding Seiche
National Sewer Pump Station	Sewer Pump Station	7010 North Lake Blvd., Tahoe Vista, CA	$650,600	Severe Weather Flood: Localized Stormwater Flooding Seiche
Carnelian Sewer Pump Station	Sewer Pump Station	255 Onyx St., Carnelian Bay, CA	$743,800	Severe Weather Flood: Localized Stormwater Flooding
Dollar Sewer Pump Station	Sewer Pump Station	3630 North Lake Blvd., Carnelian Bay, CA	$2,188,000	Severe Weather Flood: Localized Stormwater Flooding
S1, S2, N2, C1, D1, D2, D3, D4, D5, D6, D7 Satellite Sewer Pump Stations	Model 15 and Model 16 Satellite Sewer Pump Stations	Various locations from Stateline at Crystal Bay to Dollar Point	Model 15: $64,150/ea Model 16: $101,350/ea	Severe Weather
N1 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	Tahoe Vista, CA	$136,350	Severe Weather
N3 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	Tahoe Vista, CA	$172,700	Severe Weather
C2 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	5000 North Lake Blvd., Carnelian Bay, CA	$181,350	Severe Weather
North Tahoe Event Center	Community Conference Center & Emergency Evacuation Shelter	8318 North Lake Blvd., Kings Beach, CA	$2,405,000	Severe Weather (wind) Seiche Flood
Tahoe Vista Recreation Area	Beach & Facilities, Boat Launch, & Parking Areas	7010 North Lake Blvd., Tahoe Vista, CA	$3,264,703	Severe Weather Seiche Flood
Secline Beach Park	Park	South end of Secline St., Kings Beach, CA	$10,000	
North Tahoe Regional Park	Park with numerous amenities	6600 Donner Rd., Tahoe Vista, CA	$1,119,859	Wildfire

Source: North Tahoe PUD

Growth and Development Trends

Population growth and development trends within District boundaries are covered in Section 4.3.2 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District**.**

M.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table M-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

As a public water purveyor, droughts and water shortages may have an impact on the District's well water levels during prolonged drought conditions. It is doubtful it would have an impact on the District's lake intake due to the length of the intake and the District's pumps are submersible.

Earthquake

Likelihood of Future Occurrence–Unlikely

Vulnerability–Medium

The District has a number of critical facilities that may be vulnerable to Earthquakes. A seismic study will help determine which facilities and an approach for retrofit.

Flood: 100/500 year

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a 100/500 year storm. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during a 100/500 year storm. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during localized stormwater flooding. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during localized stormwater flooding. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

From December 31, 2005 to January 6, 2006, severe flooding occurred in the North Tahoe PUD area. There was snow on the ground in the area at the time of a rain. The rain on snow event caused mild to moderate flood damage in the area. It was considered a 50-year flood event. State Highway 28 was closed due to flooding. Fortunately, schools were already closed for the Christmas holiday. The North Tahoe PUD received reimbursement of $37,768 from State OES for staff time (regular and overtime) and equipment costs to keep sewer and water pump stations operational during power outages. The HMPC noted that there is a high likelihood of reoccurrence, depending on weather conditions. Additional/alternative fuel supplies should be considered for these types of catastrophic events. All local gas stations ran out of fuel (regular and diesel) and gas trucks were not able to get into the area due to week-long road closures on Interstate 80.

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has a wooden structure, water booster pump station in a low-lying area that may be at risk during a land slide. This booster pump station boosts water up to a 500,000 water storage tank that is the only water supply for a large subdivision with only one road for ingress/egress.

The District also has gravity and force sewer mains over creek crossings that are vulnerable to debris flows. During the 1996/97 rain on snow event, Watson creek was overflowing and eroded the ground around one of the District's sewer force mains. The sewer force main was hanging precariously under the roadway until repairs to support the force main could be done.

Seiche (Lake Tsunami)

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a seiche. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during a seiche. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Freeze and Snow can cause small water mains to break which affects water services in the surrounding neighborhood. Freeze and snow can also cause power outages which would affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a Severe Weather event. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during a Severe Weather event. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Soil Bank Erosion

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

The District has two inactive lake intakes in areas where soil bank erosion occurs. The District desires to rehabilitate these intakes for potable water redundancy and fire protection. Stabilization will need to be a key factor to be able to bring these intakes and supporting infrastructure back on-line.

Wildfire

Likelihood of Future Occurrence–Occasional
Vulnerability–High

The District has several assets that would be at risk during a wildfire due to the location and wooden structures. These assets include the North Tahoe Regional Park, the Park Well, Kingswood West Booster Pump Station, and the Carnelian Well. Wildfire would also cut off access to critical water infrastructure which could impact the District's ability to provide safe drinking water and fire protection.

M.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

M.6.1. Regulatory Mitigation Capabilities

Table M-4 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table M-4 North Tahoe Public Utility District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Sewer – 1991 Water - 1999	Can be used to implement mitigation actions, but needs to be updated. These are more planning documents
Capital Improvements Plan	2015	Five-year plan updated each fiscal year.
Economic Development Plan	n/a	County
Local Emergency Operations Plan	2005	The ERP addresses hazards and risks. Never adopted; needs to be updated.
Continuity of Operations Plan	No	
Transportation Plan	n/a	County
Stormwater Management Plan/Program	n/a	County

Engineering Studies for Streams	n/a	County
Community Wildfire Protection Plan	n/a	Fire District
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes	Sanitary Sewer Management Plan Urban Water Management Plan
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	n/a	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	n/a	Score:
Fire department ISO rating:	n/a	Rating:
Site plan review requirements	Yes	District Ordinances are adequately enforced for sewer & water
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	n/a	
Subdivision ordinance	n/a	
Floodplain ordinance	n/a	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	n/a	
Flood insurance rate maps	n/a	
Elevation Certificates	n/a	
Acquisition of land for open space and public recreation uses	n/a	
Erosion or sediment control program	n/a	
Other	n/a	
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

5-Year CIP: The District has a rolling 5-Year CIP plan for sewer and water capital projects that is updated annually. The District has a rate structure in place to be able to do $577,000 in sewer capital replacement projects and $842,000 in water capital replacement projects each year.

Sanitary Sewer Management Plan (SSMP): As a requirement of the District's State Water Resources Control Board Waste Discharge Permit, the Board has adopted an SSMP. The plan sets the goals to maintain the District's sewer collection system.

The goals are to:

- Properly manage, operate, and maintain all parts of the wastewater collection system
- Provide adequate capacity to convey peak flows
- Minimize the frequency of SSOs
- Mitigate impacts of SSOs
- Justify appropriate funding levels to support the program objectives
- Meet all applicable regulatory notification and reporting requirements

Urban Water Management Plan (UWMP): The State of California Urban Water Management Planning Act (Act) requires each urban water supplier with 3,000 or more connections, or which supplies at least 3,000 acre-feet per year (AFY) of water, to submit UWMPs to the California Department of Water Resources (DWR) every five years. The District has approximately 3,872 connections.

The UWMP Act requires urban suppliers to report, describe, and evaluate water deliveries and uses, water supply sources, efficient water uses, and demand management measures (DMMs),including implementation schedule and strategy. The purpose of developing an UWMP is to evaluate whether a water supplier can meet the water demands of its water customers as projected over a 20- or 25-year period. The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. This evaluation is accomplished through analysis of current and projected water supply and demand for normal or average conditions, as well as during water shortages.

M.6.2. Administrative/Technical Mitigation Capabilities

The Board is comprised of 5 members and is selected by registered voters within the District. The Board serves as the governing body for the District's residents. The Board of Directors approves District Rules and Regulations and, through the General Manager, ensures adherence to District policies. Table M-5 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table M-5 North Tahoe Public Utility District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	n/a	
Mitigation Planning Committee	n/a	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	n/a	
Mutual aid agreements	Yes	Mutual Aid agreement in place for Truckee-Tahoe area sewer and water agencies.
Other	n/a	

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	n/a	
Floodplain Administrator	n/a	
Emergency Manager	n/a	
Community Planner	n/a	
Civil Engineer	Yes	Staffing is adequate; trained on sewer/water emergencies; coordination is effective.
GIS Coordinator	Yes	n/a
Other	n/a	
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	No	We are looking into the capability for reverse 911.
Hazard data and information	No	
Grant writing	Yes	We have limited staff and time to write grants; but take advantage of grant opportunities as they arise.
Hazus analysis	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Increase staffing will give us the ability to improve in areas that pertain to NTPUD but are lacking.		

M.6.3. Fiscal Mitigation Capabilities

Table M-6 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table M-6 North Tahoe Public Utility District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	Limited funding; grants help with being able to do more Capital projects.
Authority to levy taxes for specific purposes	Yes	Limited capability; mostly for sewer and recreation.
Fees for water, sewer, gas, or electric services	Yes	Water and sewer fees are currently used for Capital improvements as funding allows.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Impact fees for new development	n/a	
Storm water utility fee	n/a	
Incur debt through general obligation bonds and/or special tax bonds	Yes	We have incurred debt in the past with bonds and loans for Capital projects.
Incur debt through private activities	n/a	
Community Development Block Grant	n/a	
Other federal funding programs	Yes	Have received funds through the Lake Tahoe Restoration Act for fire protection. Funds have been limited in recent years.
State funding programs	Yes	Have received funds for various recreation projects. Funds are limited for mitigation actions.
Other		
How can these capabilities be expanded and improved to reduce risk?		

M.6.4. Mitigation Outreach and Partnerships

Table M-7 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table M-7 North Tahoe Public Utility District Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	n/a	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	We have on-going public education and outreach programs in place for reducing water use (irrigation) due to current drought.
Natural disaster or safety related school programs	n/a	
StormReady certification	n/a	
Firewise Communities certification	n/a	

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Public-private partnership initiatives addressing disaster-related issues	n/a	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Increase interaction with County and Fire District to increase messaging.		

M.6.5. Other Mitigation Efforts

The District has performed other mitigation projects over the years which include:

- Fuels reduction in the North Tahoe Regional Park
- Constructed a 500,000 gallon water storage tank
- Constructed a 1.3 million gallon water storage tank
- Upsized the Carnelian Bay West water system from 2" water mains to 8" water mains and installed numerous hydrants for fire protection
- Rehabilitated 2 of the 4 main sewer pump stations
- Rehabilitated the 22" Dollar sewer force main for redundancy and to allow for maintenance of the 16" Dollar sewer force main

M.7 Mitigation Strategy

M.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

M.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Update SCADA Equipment and Telecommunications Infrastructure

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD's existing SCADA and Telecommunications infrastructure need to be update and replaced in order to sufficiently operate the sewer collection and water production systems.

Other Alternatives: No acceptable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD maintains a SCADA Master Plan. Implementation will be through the NTPUD Capital Improvement Program and schedule.

Responsible Office/Partners: NTPUD Engineering and Operations departments.

Project Priority: High

Cost Estimate: $150,000

Benefits (Losses Avoided):

- Insure timely notification of current conditions at remote sewer and water sites
- Insure communications with the public and stakeholders as required
- Insure IT and telecommunications resources and work location are available in the area in the event of an emergency.
- Insure that personnel working in the EOC can communicate with field workers and others

Potential Funding: NTPUD Capital Improvement Program

Timeline: 1-3 Years

Action 2. IT and Telecommunications Improvements for Disaster Preparedness

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD's existing IT and telecommunications infrastructure need improvements in order to sufficiently operate as a satellite Emergency Operations Center.

Other Alternatives: Alternatives would be to depend on the local Fire District and County Office of Emergency Services in emergency situations.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD is a member of the Truckee North Tahoe Joint Information Response Team. Planning is ongoing with that Team and the needs of the Team will be included when planning infrastructure improvements. Implementation would be determined on other agency funding and participation.

Responsible Office/Partners: NTPUD IT and Public Information Administrator in coordination with other agencies in the Tahoe-Truckee region.

Project Priority: Medium

Cost Estimate: $50,000

Benefits (Losses Avoided):

- Insure timely and appropriate response to emergencies
- Insure communications with the public and stakeholders as required

- Insure IT and telecommunications resources and work location are available in the area in the event of an emergency.
- Insure that personnel working in the EOC can communicate with field workers and others

Potential Funding: NTPUD Administration funds are insufficient. Potential funding from Placer County OES.

Timeline: 3-5 Years

Action 3. Update Emergency Response Plan

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD's Emergency Response Plan needs to be updated to include response for Sanitary Sewer Overflows, Potable Water Emergencies, Threats to Critical Facilities, Information Technology failures and incidents and creation of an Emergency Communications Plan with District public outreach tools.

Other Alternatives: There are no viable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD's ERP is insufficient in related to tools and assets available for emergency public information communications and is in need of updating for other emergencies as well as including information technology systems and emergency plans. Implementation would be within 6 months of grant approval.

Responsible Office/Partners: NTPUD Engineering and Operations in coordination with other agencies in the Tahoe-Truckee region.

Project Priority: Medium/High

Cost Estimate: $50,000

Benefits (Losses Avoided):

- Insure timely and appropriate response to emergencies
- Insure communications with the public and stakeholders as required
- Conduct evacuation and shelter planning updates to include all critical hazards
- Outreach to residents, 2nd home owners, and hotels with available tools and communication techniques and make sure they know where to go for information.
- Add information technology emergency response plans and systems and identify other risks to be mitigated related to information technology.

Potential Funding: NTPUD Operations funds

Timeline: 1-3 Years

Action 4. Backup Generator Installation at Critical Facilities

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: During power outages for various hazards, the NTPUD does not have backup generators or has insufficient sized backup generators for our critical facilities. The critical facilities include:

- NTPUD Base Facilities – This facility is a satellite Emergency Operation Center. It has an undersized, portable generator that cannot power the entire building during power outages.
- North Tahoe Event Center – This facility is an Emergency Evacuation Center. There is no generator for this facility.
- National Sewer Pump Station – This facility is one of four of the NTPUD's main sewer pump station. The facility is located on the shores of Lake Tahoe. The existing generator cannot effectively power both the Sewer Pump Station and the Water Treatment Plant at the same site.
- Carnelian Sewer Pump Station – This facility is located next to a culvert that flows directly to Lake Tahoe. The existing generator was built circa 1960 and does not meet current Air Quality standards.

Other Alternatives: There are no viable alternatives to these critical facilities

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD either has or will soon have the generators sized. Implementation would be within 6 months of grant approval.

Responsible Office/Partners: NTPUD Engineering

Project Priority: Medium/High

Cost Estimate: $200,000 per generator, $800,000 total

Benefits (Losses Avoided):

- Emergency power to serve the community
- Avoid sanitary sewer overflow into Lake Tahoe
- Ensure quality drinking water

Potential Funding: NTPUD Capital Improvement Program Funds, ARB funds

Timeline: 1-3 Years

Action 5. Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park

Hazards Addressed: Wildfire

Issue/Background: NTPUD's water tanks and booster pump stations are located in heavily forested areas. Most of the water booster pump stations are within wooden structures. The risk of infrastructure failure during a catastrophic wildfire is unacceptable.

The North Tahoe Regional Park is heavily wooded and adjacent to three subdivisions and is in need of fuels reduction for public safety. Also, NTPUD has a water well and tank within the NTRP.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD; North Tahoe Fire Protection District

Project Priority: Medium

Cost Estimate: $75,000 per year

Benefits (Losses Avoided): Minimize damage due to catastrophic wildfire

Potential Funding: None identified

Timeline: 5-10 Years

Action 6. Kingswood West Subdivision Emergency Evacuation Access

Hazards Addressed: Wildfire

Issue/Background: The Kingswood West subdivision has only one road for ingress/egress which goes through two other subdivisions. Through property owned by the CTC, USFS, and NTPUD, the potential may exist to develop an emergency access road through the North Tahoe Regional Park or other areas.

Other Alternatives: None researched

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: Placer County; North Tahoe Fire Protection District; NTPUD; CTC; USFS

Project Priority: Low

Cost Estimate: Unknown.

Benefits (Losses Avoided): Minimize injury/death during emergency evacuations due to catastrophic wildfire

Potential Funding: None identified

Timeline: 10-20 Years depending on feasibility

Action 7. North Tahoe Regional Park Road Improvements for Emergency Access

Hazards Addressed: Wildfire

Issue/Background: The North Tahoe Regional Park is heavily wooded and is heavily used by the public seeking outdoor, mountainous recreation. The existing dirt roads have insufficient access for fire suppression equipment. This project would improve and pave existing dirt roads for fire truck access to NTPUD critical infrastructure, US forest lands, and emergency evacuation.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD; North Tahoe Fire Protection District

Project Priority: Medium

Cost Estimate: $500,000

Benefits (Losses Avoided): Minimize damage due to catastrophic wildfire

Potential Funding: None identified

Timeline: 5-10 Years

Action 8. Seismic Study and Retrofit of Critical Infrastructure

Hazards Addressed: Earthquake

Issue/Background: A seismic study of NTPUD's critical infrastructure has never been done to insure all critical infrastructure is seismically sound. The infrastructure to be studied would be all water tanks constructed prior to 1990 and the 4 main sewer pump stations.

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: None existing

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Medium

Cost Estimate:

- $100,000 for the study
- $75,000 for each water tank retrofit
- $250,000 for each main sewer pump station

Benefits (Losses Avoided):

- Prevent essential water service loss to community
- Prevent sanitary sewer overflows to Lake Tahoe due to infrastructure failure

Potential Funding: Future NTPUD CIP funds

Timeline: 5-10 Years

Action 9. Sewer Main Replacements in Shorezone of Lake Tahoe

Hazards Addressed: Earthquake; Flood

Issue/Background: The NTPUD has approximately 5 miles of sewer mains that are within or immediately adjacent to the shorezone of Lake Tahoe. The NTPUD also has two main sewer pump stations and a number of small, satellite pump stations adjacent to the shorezone of Lake Tahoe. The long-term goal of the Lake Tahoe Basin Framework Study would be to relocate these facilities to the State Highway where the risk of sanitary sewer overflows reaching Lake Tahoe would be minimized to the NTPUD.

The downside of relocating NTPUD's facilities is that private property owners would need to install individual sewer pump stations in order to connect to the relocated NTPUD sewer mains, where preventive maintenance would be the responsibility of the individual property owners.

Other Alternatives: Keep NTPUD's sewer mains and pump stations in their current location.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Lake Tahoe Basin Framework Study

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Low

Cost Estimate: $20,000,000

Benefits (Losses Avoided): Minimize sanitary sewer overflows to Lake Tahoe due to NTPUD infrastructure failure.

Potential Funding: None identified

Timeline: 20 Years

Action 10. Water Booster Pump Station Rehabilitation/Replacement

Hazards Addressed: Wildfire

Issue/Background: NTPUD's water booster pump stations are located in heavily forested areas. Most of the water booster pump stations are within wooden structures. The risk of infrastructure failure during a catastrophic wildfire is unacceptable. This project would either rehabilitate the wooden structures using fire resistant materials or replacing the wooden structures with either underground booster stations or concrete buildings.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD

Project Priority: Medium

Cost Estimate: $250,000 per station

Benefits (Losses Avoided): Prevent essential water service loss to community

Potential Funding: None identified

Timeline: 5-10 Years

Action 11. Increased Storage Capacity for Dollar Cove Water System

Hazards Addressed: Wildfire; Drought; Water Supply

Issue/Background: The existing water 350,000 gallon storage tank for NTPUD's Dollar Cove system has enough capacity for typical residential daily use, but additional storage for fire suppression and during droughts is needed. This project would increase the storage capacity to 500,000 by either an additional 150,000 tank or replacing the tank.

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: None existing

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Low

Cost Estimate: $750,000

Benefits (Losses Avoided):

- Insure sufficient potable water supply during severe droughts where and when needed.
- Insure sufficient water supply for fire suppression.

Potential Funding: Future NTPUD CIP funds

Timeline: 5-10 Years

Action 12. Water System Interties

Hazards Addressed: Drought; Water Supply

Issue/Background: The existing water system interties between the public and private water companies is insufficient to provide reliable potable water supplies in the event of severe drought, fire suppression, and storage.

Other Alternatives: There are no viable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Placer County Water Agency conducted a study to install large diameter water mains and interties within the State rights-of-way.

Responsible Office/Partners: NTPUD, TCPUD, North Tahoe Fire District, PCWA, various private water companies.

Project Priority: Medium

Cost Estimate: $30 to $40 million

Benefits (Losses Avoided):

- Insure sufficient potable water supply during severe droughts where and when needed.
- Insure sufficient water supply and flow for fire suppression.

Potential Funding: Placer County Water Agency

Timeline: 5-10 Years

Annex N Placer County Flood Control and Water Conservation District

N.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Placer County Flood Control and Water Conservation District (PCFCWCD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the PCFCWCD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

N.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table N-1. Additional details on plan participation and City representatives are included in Appendix A.

Table N-1 District Planning Team

Name	Position/Title	How Participated
Brian Keating	District Manager	Attended meetings. Provided logo and hazard ID table. Provided update to previous mitigation actions. Provided new mitigation actions. Provided input on assets at risk. Provided updates to vulnerability sections of the Plan Update. Reviewed and updated 2010 Annex. Reviewed and provided input on flood section of base plan.
Ken Grehm	Executive Director	Provided overall management review and input.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table N-2.

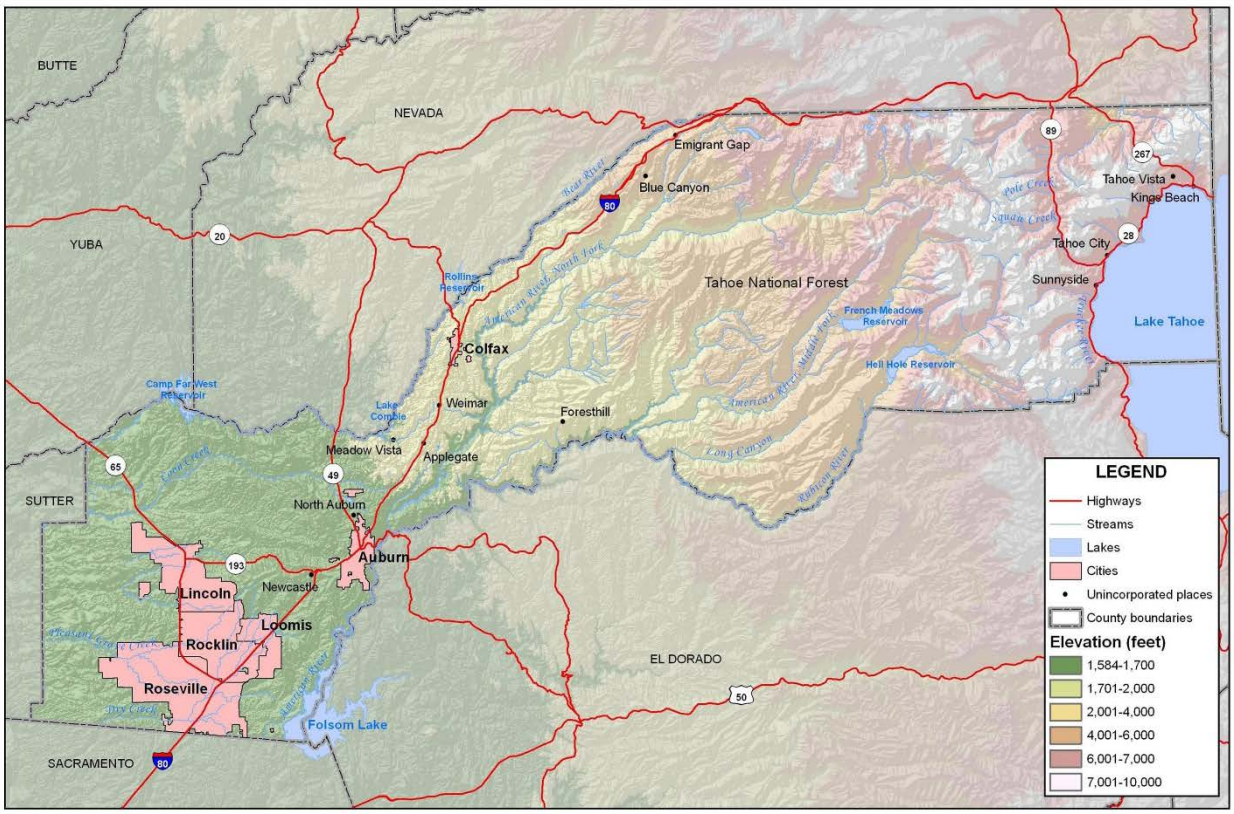
Table N-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
PCFCWCD	District's Annual Short-term and Long-Term (5-year) Work Plans
PCFCWCD	2011 Updated Dry Creek Watershed Flood Control Plan
PCFCWCD	Annual Updates to District's Flood Response Handbook

N.3 District Profile

The District service area is illustrated in Figure N-1.

Figure N-1 Placer County Flood Control and Water Conservation District Service Area



Source: PCFCWCD

N.3.1. District Information and Background

The Placer County Flood Control and Water Conservation District was established in 1984 by the State Legislature as a Special District, separate from County government, to address flood control issues arising with growth. District boundaries are the same as Placer County boundaries.

The primary purpose of the District is to protect lives and property from the effects of flooding by comprehensive, coordinated flood prevention planning. The District uses consistent standards to evaluate

flood risk, and implements flood control measures such as requiring new development to construct detention basins and operation and management of a flood warning system.

The District:

- Implements regional flood control projects;
- Develops and implements master plans for selected watersheds in the County;
- Provides technical planning, support and information during times of flood and drought for the cities, the County, and the development community;
- Operates and maintains the County flood warning system;
- Reviews proposed development projects to see they meet District standards;
- Develops hydrologic and hydraulic models for County watersheds; and
- Provides technical support for Office of Emergency Services activities.

N.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table N-3).

Table N-3 Placer County Flood and Water Conservation District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards				
Avalanche				
Dam Failure	Significant	Unlikely	Critical	High
Drought and Water Shortage	Significant	Occasional	Critical	Medium
Earthquake				
Flood: 100/500 year	Significant	Occasional	Critical	High
Flood: Localized Stormwater Flooding	Significant	Likely	Limited	Medium
Landslides and Debris Flows				
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)				
Severe Weather: Extreme Heat				
Severe Weather: Freeze and Snow				
Severe Weather: Fog and Freezing Fog				
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Likely	Critical	Medium
Soil Bank Erosion				
Subsidence				
Wildfire	Extensive	Highly Likely	Limited	Medium
Hazardous Materials Transport				

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Impacts of past events and vulnerability to specific hazards are discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on Placer County). The District has also created, and annually updates, its own Flood Response Handbook (FRH). The FRH

addresses emergency communications procedures, emergency material supplies and equipment availability, technical resources and data to help predict flooding events, and State level emergency operations manuals. The FRH also contains countywide GIS based Flood Hazard Awareness Mapping, including areas of known flooding, locations of critical facilities such as police and fire stations, government centers, schools, nursing homes, and hospitals. Roads subject to flooding closures and preferred evacuation routes are also identified. This mapping is also posted at the County's Emergency Operations Center (EOC) and distributed to our member agencies.

N.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

N.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table N-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table N-4 Placer County Flood Control and Water Conservation District s Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Stream and rain gages	ALERT type gage (16 gages)	–	$12,000 each	Theft, vandalism, damage due to flooding
Miners Ravine Off-Channel Detention Basin Facility and Dam	Regional Flood Control Facility	7500 Sierra College Boulevard Roseville, California	$4.8 million	Damages due to flooding or dam failure

Source: PCFWCD

Natural Resources

The geographical boundaries of the Placer County Flood Control and Water Conservation District are the same as those for the Placer County Planning Area. As such, the Natural Resources for District boundaries are the same as those for the entire planning area included in Section 4 of the main plan.

Growth and Development Trends

The geographical boundaries of the Placer County Flood Control and Water Conservation District are the same as those for the Placer County Planning Area. As such, the Growth and Development Trends for

District boundaries are the same as those for the entire planning area included in Section 4 of the main plan.

Development since 2010 Plan

The District has seen the same development as the County, as shown in Section 4.3.1 of the base plan.

N.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table N-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

With the geographical boundaries of the Placer County Flood Control and Water Conservation District being the same as those for the Placer County Planning Area, the risk and vulnerability of the agency to identified natural hazards are similar to those presented in Section 4 Risk Assessment portion of the main plan. The sections that follow highlight those hazards of greatest concern to the agency and identify those District assets most vulnerable to these hazards.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

A dam failure can range from a small uncontrolled release to a catastrophic failure, caused by prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam. Dam failure flooding varies by area depending on which dam fails and the nature and extent of the dam failure and associated flooding.

Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Based on analysis provided in the Placer County General Plan Background Report, only four dams within Placer County have the potential to affect more than 100 persons. Again, with the District's boundaries being the same as for the Planning Area, Section 4 of the main plan describes the risk and vulnerability of the District to dam failure.

Those agency assets located within flood inundation areas are the most vulnerable to extensive flooding caused by a dam failure. These include the District's ALERT system of stream level and rain gages listed in Table N-4, as well as the land improvements associated with the District's Miners Ravine Off-Channel Detention Basin Facility and dam located at 7500 Sierra College Boulevard in Roseville, California. A specific dam failure analysis prepared for the State Division of Safety of Dams exists for the District's Miners Ravine Off-Channel Detention Basin Facility and dam as prepared by RBF Consulting in October 2004.

Earthquake

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

As indicated on the Earthquake Shaking Map in Section 4.2.10 of the main plan, the shaking potential is greatest in the eastern portion of the County, but the western portion of the County is also at risk, primarily due to the location of development and population being concentrated in the middle to western portion of the County. The District's risk and vulnerability from earthquake is set forth in Section 4.2.10 of the main plan that includes the earthquake analysis for the entire Placer County Planning Area. Due to their location, year and type of construction, those agency assets most vulnerable to an earthquake include the assets listed in Table N-4.

Flood: 100/500 year and Localized Flooding

Likelihood of Future Occurrence–Occasional/Likely
Vulnerability–High/Medium

Flooding due to heavy rains and snow runoff has been a historical problem in the Placer County Planning Area. Abundant snowfall in the mountains combined with rain and steep terrain can mean rapid runoff and flooding in the mountainous eastern section of the County. Of particular concern in this area of the County are rain-on-snow type events producing high runoff volumes. In the more heavily populated

western portion of the County, flooding is often the result of heavy rains over lower permeability soils found within the relatively large Dry Creek and Cross Canal watersheds. Many of the small creeks within these watersheds respond quickly to heavy rains in the winter season producing peak flood flows within relatively short time frames. The historical practice of development within or in close proximity to floodplains has resulted in frequent and repeated flood losses in specific areas.

Significant flooding events resulting in federal disaster declarations for Placer County occurred in 1986, 1995, and 1997, with the most substantial damages occurring within the Cross Canal, Dry Creek, and Truckee River watersheds. The primary impacts from flooding within the District boundaries include damage to roads, utilities, bridges; and flooding of homes, businesses and critical facilities. Road closures create difficulties in providing emergency services to areas cut off by flooding and limit the area's ability to evacuate. With respect to District-owned assets, areas subject to stormwater flooding are the biggest concern. District assets at the greatest risk include those listed in Table N-4.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the Placer County Planning Area. Often during these events, the local stormwater drainage system can be impacted and landslides and localized erosion can occur. Recent significant events include the heavy rains occurring during December 2005 into January 2006. An estimated 2-year rain event in January 2008 resulted in approximately $14,000 worth of hillside erosion and drainage repairs at the District's Miners Ravine Off-Channel Detention Basin Facility. No other severe weather damages have occurred to date that significantly impacted District assets.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wild lands severely overgrown. Much of the private land in the Placer County Planning Area is in the wildland urban interface with increasing residential development. Those Agency assets at greatest risk to wildland fire include the ALERT system of stream and rain gages listed in Table N-4.

N.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

N.6.1. Regulatory Mitigation Capabilities

Table N-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table N-5 Placer County Flood Control and Water Conservation District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan		
Capital Improvements Plan	Y	Annual Short-term and 5-year Long-Term Work Plans; used to implement mitigation actions
Economic Development Plan		
Local Emergency Operations Plan	Y	Annual updates to District's Flood Response Handbook; not used to implement mitigation actions
Continuity of Operations Plan	Y	Annual District Timeline of Operations
Transportation Plan		
Stormwater Management Plan/Program	Y, 1990	District's Stormwater Management Manual (SWMM) and Amendments
Engineering Studies for Streams	Y, Varies	2011 Updated Dry Creek Watshed Flood Contol Plan, 1992 Auburn Bowman Community Plan Hydrology Study, 1994 Placer/Sutter County Joint Study Auburn Ravine, Coon and Pleasant Grove Creeks
Community Wildfire Protection Plan	N/A	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N/A	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	Score:
Fire department ISO rating:	N/A	Rating:
Site plan review requirements	N/A	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N/A	See Placer County Requirements
Subdivision ordinance	N/A	See Placer County Requirements
Floodplain ordinance	N/A	See Placer County Requirements

Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N/A	See Placer County Requirements
Flood insurance rate maps	N/A	See Placer County Requirements
Elevation Certificates	N/A	See Placer County Requirements
Acquisition of land for open space and public recreation uses	N/A	See Placer County Requirements
Erosion or sediment control program	N/A	See Placer County Requirements
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, codes and ordinances in place. These include regional watershed wide flood control plans and a county-wide stormwater management manual. The District, working cooperatively with Placer County and other local agencies, developed three major flood control plans in the early 1990's which cover a majority of the watersheds within western Placer County. In addition to the Plans listed below the District maintains and references a number of detailed local drainage studies from its library.

Stormwater Management Manual

For policy, guidelines, specific design criteria for the development and management of natural resources, drainage facilities, and infrastructure for stormwater management please download the current version of the Placer County Flood Control & Water Conservation District Stormwater Management Manual (SWMM) (a link to our SWMM is on the District's website page at www.placer.ca.gov). There is currently a planned update to the SWMM to meet Senate Bill 5 and Urban Level of Flood Protection (ULOP) requirements, amongst other necessary updates.

Dry Creek Watershed Flood Control Plan

The purpose of the 1992 Dry Creek Watershed Flood Control Plan is to provide the District and other governmental agencies in both Placer and Sacramento Counties with the information and policies necessary to manage flood waters within the Dry Creek Watershed, which includes Miners Ravine, Linda Creek, Secret Ravine, Antelope Creek, Cirby Creek, and Dry Creek. The Plan evaluates existing flooding problems and identifies flood management options as well as a funding mechanism to achieve Plan recommendations. The plan was first drafted in 1992 and updated for re-publication in 2011. This plan may be found on the District's website.

Placer/Sutter County Joint Flood Study Auburn Ravine, Coon and Pleasant Grove Creeks (Cross Canal Watershed Flood Control Plan)

The purpose of the 1994 Cross Canal Watershed Flood Control Plan is to provide the District and other governmental agencies in both Placer and Sacramento Counties with the information and policies necessary to manage flood waters within the Cross Canal Watershed, which includes Pleasant Grove,

Auburn Ravine, Markham Ravine, and Coon Creek. The Plan evaluates existing flooding problems and identifies flood management options as well as a funding mechanism to achieve Plan recommendations.

Auburn/Bowman Community Plan Hydrology Study

The purpose of the 1992 Auburn Bowman Community Plan Hydrology Study is to provide the District and other governmental agencies in Placer County with the information and policies necessary to manage flood waters within the study area, which includes Auburn Ravine, Mormon Ravine, Dutch Ravine, and many other tributaries. The Plan evaluates existing flooding problems and identifies flood management options as well as a funding mechanism to achieve Plan recommendations.

Countywide Grading Ordinance, 1988:

A countywide grading ordinance was completed in 1988. It has since been adopted by the County and cities and last updated in 2000 as Article 15.44 of the County Code.

Placer County Flood Damage Prevention Regulations:

Placer County has adopted Flood Damage Prevention Regulations, Article 15.52 of the County Code, which have as its purpose "to promote public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas." The regulations provide specific construction and development standards for flood hazard reduction in areas of special flood hazard.

Flood Response Handbook with Flood Hazard Awareness Maps

The District, in conjunction with its member agencies, has developed a Flood Response Handbook (FRH) that includes Flood Hazard Awareness Maps of the unincorporated area and all cities. The FRH details roles, responsibilities, and processes for responding to a flood event.

Flood Hazard Awareness Maps (FHAM) have been created by the District for the purposes of identifying areas of the western County where flood hazards from local creeks are known to exist. The maps delineate the established FEMA 100-year and 500-year floodplains (where established) including a 250 foot setback limit from the 100-year floodplain. The setback limit was selected to assist emergency responders and planners in identifying local flood hazard areas, but is not a regulatory limit. Critical emergency response facilities including police and fire stations are shown as are other facilities which may be useful during a flooding event including hospitals, schools, churches and miscellaneous public facilities. Street crossings potentially impacted by flooding are also highlighted in red and the locations of sand bags for flood fighting purposes are also shown. The District intends to update these maps periodically as new information becomes available

Placer County Flood Prone Map

The District and its member agencies have developed a database and GIS mapping of both residential and commercial structures that are subject to damage from repeat flooding events. The database on these properties has been developed over the years beginning with the 1986 flood event and is helpful in identifying these properties and general flood hazard areas. The database includes information (where

available and recorded) on high water, finished floor elevations, previous flooding impact, and whether or not the structure had been elevated or not through a FEMA sponsored HMGP grant program. A GIS based mapping of these flood prone properties has been created and is color coded to indicate structures that have already been elevated versus those that have not. The mapping is useful in identifying flood hazard areas where it can be expected that most of the flood fighting and emergency response efforts will be focused. It is also useful in planning future flood mitigation strategies, elevation projects and regional flood control projects.

Flood Response Handbook

The District has also created, and annually updates its own Flood Response Handbook (FRH). The FRH addresses emergency communication procedures, emergency material supplies and equipment availability, technical resources, and data to help predict flooding events, and State level emergency operations manuals. The FRH also contains countywide GIS based Flood Hazard Awareness Mapping including areas of known flooding, locations of critical facilities such as police and fire stations, government centers, schools, nursing homes, and hospitals. Roads subject to flooding closures and preferred evacuation routes are also identified. This mapping is also posted at the County's Emergency Operations Center (EOC) and distributed to our member agencies.

N.6.2. Administrative/Technical Mitigation Capabilities

The District is governed by a nine-person board of directors. Members include a representative from each of the six incorporated cities in Placer County, two representatives from the Board of Supervisors and one member-at-large appointed by the Board of Supervisors.

The Cities, the County and the District have adopted a formal coordination agreement to identify responsibilities. There are two District Advisory Committees. The Policy Advisory Committee (PAC) has seven voting members - the six city managers of the incorporated cities and the County Executive Officer. The PAC provides guidance on policy and program issues that affect all jurisdictions. The Technical Advisory Committee (TAC) is composed of representatives of Placer County, incorporated cities, Placer County Resource Conservation District, Placer County Water Agency, Sacramento County Water Agency, Nevada Irrigation District, Sutter County Flood Control and Water Conservation District, and the Reclamation District 1001. The TAC is relied on for technical analysis and interpretation of ideas, policies, and programs.

The State legislation creating the District allows Placer County employees to act as District employees. There are three District staff members: the District Manager; the Development Coordinator; and the District Secretary. The Placer County Director of Public Works and Facilities serves as the Executive Director of the District. Table N-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table N-6 Placer County Flood Control and Water Conservation District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?

Planning Commission		
Mitigation Planning Committee		
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	District staff manage the County's annual stream channel maintenance program
Mutual aid agreements	N/A	See Placer County Requirements
Other	Y	District Board of Directors and Technical Advisory Committee
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official		Utilize Resources of Placer County
Floodplain Administrator		Utilize Resources of Placer County
Emergency Manager		Utilize Resources of Placer County
Community Planner		Utilize Resources of Placer County
Civil Engineer		Utilize Resources of Placer County
GIS Coordinator		Utilize Resources of Placer County
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Everbridge flood warning system, ALERT system of precipitation and stream level gages
Hazard data and information	Y	District's Flood Response Handbook – Updated Annually
Grant writing	Y	District has received FEMA CTP grants, State DWR Prop 84 IRWM grants; DWR Flood Corridor Protection Program grant; DWR USRP grant
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Enlarge and update system of ALERT gages; Pursue flood inundation forecasting software systems		

N.6.3. Fiscal Mitigation Capabilities

Table N-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table N-7 Placer County Flood Control and Water Conservation District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	District's General Fund
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services		
Impact fees for new development	Y	Dry Creek Trust Fund; used for two regional flood control projects within the watershed
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	FEMA CTP program for floodplain mapping studies
State funding programs	Y	State DWR Prop 84 IRWM grants; DWR Flood Corridor Protection Program grant; DWR USRP grant
Other		
How can these capabilities be expanded and improved to reduce risk?		
Help develop new impact fees on new development within the Cross Canal Watershed area of the County		

N.6.4. Mitigation Outreach and Partnerships

Table N-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table N-8 Placer County Flood Control and Water Conservation District's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	American Basin Watershed Council; District staff attend monthly meetings
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)		Utilize Resource of Placer County
Natural disaster or safety related school programs		Utilize Resources of Placer County

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
StormReady certification	N	
Firewise Communities certification	N/A	
Public-private partnership initiatives addressing disaster-related issues	Y	FEMA Flood Mitigation Assistance Program (FMA) to assist with residential and commercial building elevation projects
Other		
How can these capabilities be expanded and improved to reduce risk?		
Additional public outreach and educational efforts		

The District boundaries are the boundaries of Placer County. District programs are accomplished through a cooperative effort involving Placer County and all of the municipalities in the County which include: the City of Auburn, City of Colfax, City of Lincoln, Town of Loomis, City of Rocklin, and City of Roseville. In addition, cooperative agreements have been established with Sacramento and Sutter Counties for addressing issues in commonly shared watersheds, and other governmental agencies, such as Reclamation District 1001, the Nevada Irrigation District, and the Placer County Water Agency who also participate in District programs.

The cities and County formally adopted a Coordination Agreement in February 1986, which was also reaffirmed with minor changes in 1997. The agreement identifies mutual responsibilities and established the Technical Advisory Committee and the Policy Advisory Committee as forums for formulating standards, policies, and programs to be recommended to the Board of Directors.

N.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including public outreach and project activities. These mitigation activities include:

- Provides information and support to the public on flood and drought related issues
- Collects and interprets data from a network of stream and precipitation gages operated by the District and others
- Collects data and coordinates with the National Weather Service
- Performs annual stream maintenance on the Dry Creek Watershed
- Provides technical support to the cities, county, and private sector by reviewing plans for public an private lands and for policy issues in flood control, drainage, and related areas
- Develops and implement master plans for key watersheds
- Supports regional floodplain management, including coordination with the NFIP
- Participates on special flood control and drainage projects.

Specific accomplishments of the District since the 2005 LHMP include:

2004: Land acquisition is completed for the 26 acre Miners Ravine off-channel basin project in Roseville. Major consulting contract for the Miners Ravine off-channel basin facility including planning, permitting, design, and construction oversight is awarded and begun. Land acquisition negotiations begin for proposed Secret Ravine floodplain restoration site in Rocklin. A study of remaining alternative regional detention sites in the Dry Creek Watershed is completed with no viable sites found. ALERT system software upgrades and three new gage installations are completed. An electronic version of the District's Stormwater Management Manual (SWMM) as well as Board meeting agenda/minutes are posted to the web. Biennial audit is completed. Work on development of the County's Local Hazard Mitigation Plan per the Disaster Mitigation Act of 2000 is completed.

2005: The District is awarded $300,000 from the State Department of Water Resources under the Urban Streams Restoration Program and the District procures a consultant to perform planning, design, permitting, and construction oversight of the Secret Ravine floodplain restoration project. A new five-year MOU with the Department of Fish and Game is finalized for continued Dry Creek watershed stream channel maintenance activities. Planning and design of the Miners Ravine off-channel detention basin project reaches a 95 percent level of completion. An update of the District's Flood Response Handbook is completed and distributed.

2006: District staff respond to the New Year's Day flooding event by helping activate the County's emergency operation center and by providing technical assistance as necessary. The Board approves all CEQA related documents and construction bid documents for the Miners Ravine Off-Channel Detention Basin Facility. Construction bids are received, all necessary permits are obtained, a construction contract is awarded, and construction commences on the Miners Ravine Facility in August. Construction reaches an approximate 70 percent completion level prior to winterization of the Miners Ravine site in early November. Planning and design of the Secret Ravine Floodplain restoration project begins and reaches an approximate 30 percent completion level by the end of the year. The District's ALERT flood warning software system is upgraded to the web-based Contrail system and plans are approved to install up to seven new gages.

2007: Construction of the Miners Ravine Off-Channel Detention Basin Facility is completed and the start of long-term operations and maintenance activities begins. A five year long vegetation and debris maintenance contract is executed with the California Conservation Corps (CCC) for the Miners Facility. The Secret Ravine Floodplain Restoration Project is placed on hold and an existing grant with the Department of Water Resources (DWR) is terminated due to easement acquisition difficulties and limited benefits of the proposed project. A $2.8 million grant application for the Scilacci Farms Flood and Conservation Easement Project on Coon Creek is submitted to the DWR Flood Protection Corridor Program. Six new ALERT stream level and precipitation gages are purchased, installed and made operational within the District's ALERT system of gages. A professional services agreement is awarded to complete an update to the 1992 dated Dry Creek Watershed Flood Control Plan.

2008: Significant progress is made towards completing the update to the 1992 dated Dry Creek Watershed Flood Control Plan. The District's Miners Ravine Off-Channel Detention Basin Facility wins an award for engineering excellence and long term operations, maintenance, and monitoring activities continue at the facility. The Scilacci Farms Flood and Conservation Easement project is submitted to the

State of California Department of Conservation grant program for consideration. FEMA coordinates with District to release results of 60 miles of creek study revisions and digitized floodplain mapping.

2010: The updated Dry Creek Watershed Flood Control Plan is released for public and agency review and presentations to our Board and the public are made. Coordinated with PCWA to submit a joint grant application under the State DWR Prop 84 IRWM program for the Antelope Creek Water Efficiency and Flood Control Project. Adopted the 2010 update to Placer County's Local Hazard Mitigation Plan. Coordinated with FEMA and our member agencies in the release and review of the Digital Flood Insurance Rate Maps (DFIRMS). Approved billing rates and methodology for reimbursement of all District staff time spent on development review submittals. Completed job classification studies of the District staff positions.

2011: The District receives a $741,000 grant award under the State DWR Prop 84 IRWM program to assist with Phase 1 of the Antelope Creek Water Efficiency and Flood Control project and procures professional consulting services to assist with the project. The District Board accepts the 2011 Update to the Dry Creek Watershed Flood Control Plan as final and directs staff to move forward with the required financial nexus study and compliance under CEQA. The District receives a $300,000 federal grant award through a FEMA Cooperating Technical Partnership and begins detailed floodplain mapping studies of six creeks in Placer County. Major upgrades to the District's website are completed. The District updated the DCWS plan. It was finalized in 2011.

2012: The District begins work on the preliminary design, permitting and flood easements for the regional Antelope Creek Flood Control project. Considerable progress is made towards completion of a filing under CEQA and financial nexus studies for the 2011 Update to the Dry Creek Watershed Flood Control Plan. The District and its consultant make considerable progress towards completion of the FEMA Cooperating Technical Partnership project including detailed floodplain mapping studies of six creeks in Placer County. FEMA completes additional LIDAR topographic surveys for remaining portions of County. Staff provide information to member agencies regarding local legislative impacts of newly adopted State Department of Water Resources Central Valley Flood Protection Plan and Senate Bill 5 requirements.

2013: CEQA is completed for the Antelope Creek Flood Control Project and the project planning and design reaches a 65% level of completion. The City of Roseville and Placer County enter into a MOU to provide an additional $400,000 of funding for this project. A major land acquisition for a flowage easement across private property is also executed for this project. The Board approves of the financial nexus study and revised fee structure recommended from the 2011 Updated Dry Creek Watershed Flood Control Plan. A second Cooperating Technical Partners agreement is entered into with FEMA wherein the District will provide specific duties during the public outreach phase and release of final floodplain mapping of six creeks in Placer County.

2014: Planning and design activities for the Antelope Creek Flood Control Project reach a 100% level of completion in advance of the start of construction anticipated in summer 2015. Required agency permit applications are submitted and additional required flowage easements on both private and publicly held lands are acquired. A grant application is prepared and submitted under the DWR Urban Streams Restoration Program for additional funding necessary to complete the construction of this project. All

hydrologic modeling work on the first CTP agreement with FEMA is completed and preliminary floodplain mapping activities begin. A multi-agency Flood Emergency Response planning project gets underway including flood forecasting, flood inundation mapping and emergency response plan updates.

2015: Final permitting and land acquisition activities associated with the Antelope Creek Flood Control Project continue but have delayed the start of project construction until June 2016. FEMA produces preliminary FIRM maps for six new floodplain mapping studies of creeks in western and eastern Placer County. Work on the multi-agency Flood Emergency Response planning project continues including flood forecasting, flood inundation mapping and emergency response plan updates.

N.7 Mitigation Strategy

N.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

N.7.2. Mitigation Actions

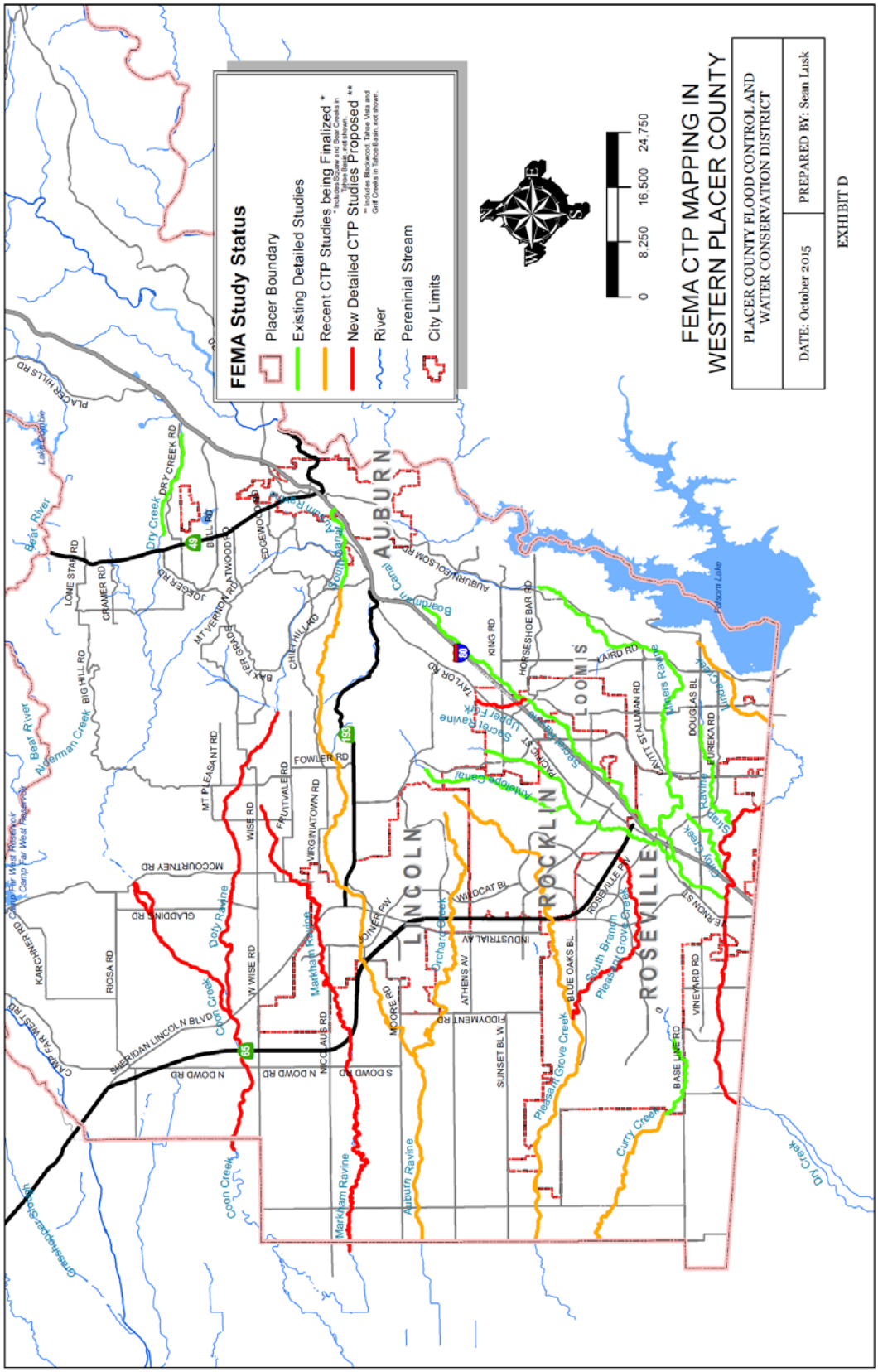
The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. FEMA CTP DFIRM Mapping Study

Hazard Addressed: Flooding

Issue/Background Statement: The Placer County Flood Control and Water Conservation District (District), coordinating closely with local member agencies, has prepared a list of additional study areas within Placer County recommended to be considered for the next round of Risk Map (CTP No.3) floodplain mapping studies. Six areas were identified as priority stream limits, with consideration given to communities at flood risk, population growth, new development, peak flow increases, recent flooding history and changes to special flood hazard areas. A significant portion (over 30 miles) of the remaining un-mapped Zone A areas within the County was included in the request. The total length of proposed new study area, including all existing A and AE zone reaches amounts to approximately 49.2 miles. The map provided below depicts the FEMA FIRM mapping status and proposed new mapping/study reaches for Placer County. This effort would provide hydrologic modeling and data sufficient for FEMA's contractor to utilize this information to produce future DFIRM mapping. The proposed new mapping study areas are shown in Figure N-2.

Figure N-2 FEMA CTP Mapping



Additional and more accurate DFIRM mapping of new study areas will enable the County to better manage their floodplains and reduce flood risk.

Other Alternatives: No action; maintain current mapping

Existing Planning Mechanisms through which Action Will be Implemented: FIS/DFIRM

Responsible Office: Placer County Flood Control District, FEMA

Priority (H, M, L): High

Cost Estimate: As a Cooperating Technical Partner, the District would be able to cost-share by providing in-kind professional labor services, existing hydrologic models, topographic field data (LIDAR), and other background information on the proposed study areas as has been done in the past.

Benefits (Losses Avoided): Increased understanding of flood risk in the County. Better mapping to prevent citizens from building in the floodplain and reducing resulting NFIP flood claims.

Potential Funding: FEMA CTP, District General Fund

Schedule: As soon as funding is available and FEMA is ready to start the process

Action 2. Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds

Hazard Addressed: Flooding

Issue/Background Statement: Historically, flooding in the Dry Creek and Cross Canal watersheds has been a major concern. Placer County is not only concerned with existing flooding problems, but with future problems resulting from increased growth and development in the area. Specifically, this action recommends projects be pursued for regional detention and retention within the Dry Creek and Cross Canal watersheds. Implementation of the regional Antelope Creek Flood Control Project is currently the highest regional priority project for the District. This site was identified within the updated 2011 Dry Creek Watershed Flood Control Plan prepared for the District. Implementation of regional detention and retention projects will reduce future flood-related losses. It is recommended the District continue to attempt to partner with Placer County regarding a possible regional retention project on the Scilacci Farms project in the Cross Canal watershed, along Coon Creek.

Other Alternatives: No action.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Placer County Flood Control and Water Conservation District, in conjunction with its member agencies.

Priority (H, M, L): High

Cost Estimate: $20 million +

Benefits (Losses Avoided): Life safety; reduction in property loss.

Potential Funding: HGMP, PDM, Dry Creek Trust Fund, other grants (federal, state).

Schedule: Within five years.

Action 3. Update the Flood Control Plan for the Cross Canal Watershed

Hazard Addressed: Flooding

Issue/Background Statement: The flood control plan for the Cross Canal watersheds is outdated having been performed in 1993. Rapid urbanization within this watershed has occurred and is projected to continue with significant impacts to creeks within the watershed due to increasing amounts of impervious surfaces and altered land uses. Updated hydrology and hydraulic models are now available for most creeks within this watershed and can be referenced for both flood control and land use planning purposes.

Other Alternatives: Continue to review urbanization projects with outdated models.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Placer County Flood Control and Water Conservation District and its member agencies.

Priority (H, M, L): High

Cost Estimate: $500,000

Benefits (Losses Avoided): Improved flood control and land use planning capabilities throughout western Placer County.

Potential Funding: Placer County Flood Control District reserves, PDM, State Planning Grants

Schedule: Immediate and ongoing.

Action 4. Upgrade Flood Warning System to ALERT 2, Add Additional Gage Locations and Flood Forecasting Capabilities

Hazard Addressed: Flooding

Issue/Background Statement: The Placer County Flood Control District, in conjunction with OES, has installed an ALERT flood warning system in the County consisting of 16 precipitation and stream level gages. The regional system, including ALERT gages owned and operated by the City of Roseville and Sacramento County, consists of approximately 28 rain gages and 22 stream gages. Additionally, the District monitors several rain and stream gages in the Truckee River Watershed. These ALERT gages provide the District with real-time rainfall amounts and stream level data. An upgraded system to include

ALERT 2 type improvements, as well as real time flood warning gages and flood forecasting capabilities for flood-prone areas would increase the warning time for implementation of effective mitigation measures and necessary evacuations. The ALERT 2 type upgrades are being funded by the State DWR FERP program over the next several years. ALERT 2 improvements would include upgrades to Base stations and Site ALERT2 upgrades.

Other Alternatives: No action – continue with current plan

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Placer County Flood Control District and Placer County Office of Emergency Services

Priority (H, M, L): Medium

Cost Estimate: $100,000

Benefits (Losses Avoided): Life-safety, reduction in property loss, improved warning, increased lead time.

Potential Funding: PDM, HGMP, District reserves.

Schedule: Within two years

Annex O Placer County Water Agency

O.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Placer County Water Agency (PCWA), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the Agency. This Annex provides additional information specific to the PCWA, with a focus on providing additional details on the risk assessment and mitigation strategy for the Agency.

O.2 Planning Process

As described above, the Agency followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the Agency formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table O-1. Additional details on plan participation and City representatives are included in Appendix A.

Table O-1 Agency Planning Team

Name	Position/Title	How Participated
Peter Cheney	Risk and Safety Manager	Attended meetings, coordinated participation and content, research, editing and review.
Ed Horton	Consultant	Consult, research, edit and review
Tony Firenzi	Deputy Director of Technical Services	Consult, research, edit and review
Matt Young	Director of Customer Services	Consult, research, edit and review
Michael Wilihnganz	Director of Administrative Services	Consult, research, edit and review
Tom Reeves	Director of Field Services	Consult, research, edit and review
Brent Smith	Director of Technical Services	Consult, research, edit and review
Joseph Parker	Director of Finance	Consult, research, edit and review
Andy Fecko	Director of Resource Development	Consult, research, edit and review

Name	Position/Title	How Participated
Jay L'Estrange	Director of Power Generation	Consult, research, edit and review
Placer County	LHMP Committee	Participated in meetings and forums

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the Agency integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the Agency incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table O-2.

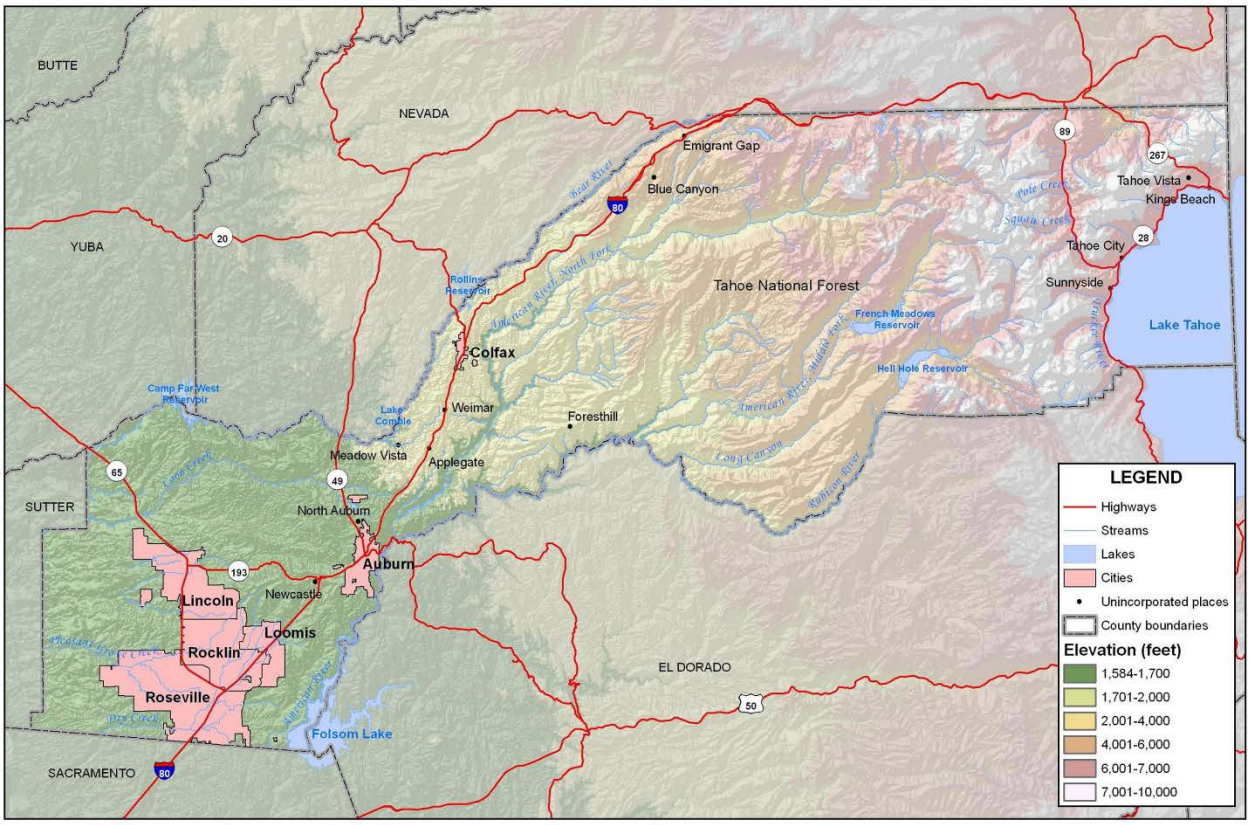
Table O-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
PCWA	Capital Improvement Program: Large projects are reviewed through the Capital Improvement Program (CIP)
PCWA	Many smaller projects and efforts are occurring continually and are incorporated in Operation and Maintenance Budgets. (O&M)
PCWA	FERC Dam Safety Plans & FERC Applications

O.3 Agency Profile

The PCWA service area is illustrated in Figure O-1.

Figure O-1 Placer County Water Agency's Service Area



Source: PCWA

O.3.1. Agency Information and Background

The Placer County Water Agency (PCWA) encompasses the entire, 1,500-square-mile boundary of Placer County, ranging from the rim of the Sacramento Valley on the west to the Sierra Nevada and Lake Tahoe on the east. PCWA is headquartered in Auburn, the County seat of Placer County, nestled into California's Gold Country. The Agency is self-governed with policy and regulatory decisions determined by an independently elected five-member Board of Directors.

The Placer County Water Agency was created under its own state legislation entitled the "Placer County Water Agency Act," adopted in 1957 by the California State Legislature. PCWA carries out a broad range of responsibilities including water resource planning and management, retail and wholesale supply of irrigation, drinking water and production of hydroelectric energy.

PCWA has involvement in various watershed areas including the American River, Yuba and Bear rivers, the Lake Tahoe/Truckee River system, the Central Valley Project, and Bay/Delta system.

Water Supply

The PCWA Water System supplies irrigation and treated water in four service zones in Central and Western Placer County, generally located along the Interstate 80 corridor between Roseville and Alta.

The Agency operates an extensive raw water distribution system that includes 165 miles of canals, ditches, flumes and several small reservoirs. Raw water feeds the treatment plants and a significant amount of Agency raw water irrigates agricultural land and golf courses. Drinking water is produced through a network of eight water treatment plants. About 20 percent of the water supplied by PCWA is retail treated drinking water; about 80 percent is for irrigation and some portion thereof for wholesale transfer. More than 150,000 people depend on PCWA water supplies.

Other water purveyors in Placer County include: PG&E, Alpine Meadows Water Association, Applegate Community Water Association, Central Eden Valley, Christian Valley Community Service District, Dutch Flat Mutual, Eden Valley Line, Foresthill Public Utility District, Heather Glen Community Services District, Meadow Vista County Water District, Midway Heights Community Water District, North Eden Valley Water Association, The Weimar Institute, and The Weimar Water Company.

Treated Water

Surface water supplied by PCWA originates in the Sierra snowpack. Sources for PCWA treated water systems include the Yuba-Bear and American River watersheds. The source water for the treatment plants is supplied by a network of canal systems operated and maintained by PCWA and PG&E. The PCWA treated water systems supply consumers through more than 602 miles of agency maintained pipe to over 38,500 service connections.

The Agency's seven treated water systems including Alta, Applegate, Bianchi, Auburn/Bowman, Colfax, Foothill-Sunset, and Monte Vista. Six of the water systems are supplied through water treatment plants that treat surface water supplied via the PCWA canal system. The Bianchi system serves surface water purchased from the City of Roseville.

Irrigation

About two thirds of the water supplied annually by PCWA is used for irrigation on the farms, ranches, landscapes, parks and golf courses of Placer County. The Agency operates 165 miles of canals, reservoirs, and diversions to supply customers with untreated "raw" water. About 3,700 irrigation water customers purchase deliveries off the canal system. The irrigation season normally runs from April 15 through October 15; however, many customers purchase water year round. The irrigation season typically begins two weeks later in the higher elevation service areas around Colfax. Canal repair outages are typically scheduled in the fall.

The PCWA irrigation water system also provides water for wildlife, riparian habitat, fire protection, recreation and scenic beauty. The Agency is very active in protecting the watershed and the quality of its source water.

Power System

The PCWA Power System operates the Middle Fork American River Project (MFP), which is the eighth largest public power project in California. Completed in 1967 the MFP includes two major reservoirs, Hell Hole and French Meadows, seven dams, five hydroelectric power plants, and 24 miles of tunnels and related facilities. The project also includes recreational opportunities and facilities located adjacent to the high mountain reservoirs.

PCWA has a power generation capacity of 244 megawatts and in the average year produces enough clean, hydroelectric energy to power more than 100,000 homes. PCWA's power output is sold to the Pacific Gas & Electric Company.

O.4 Hazard Identification and Summary

The Agency's planning team identified the hazards that affect the Agency and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the Agency (see Table O-3).

Table O-3 Placer County Water Agency Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Significant	Occasional	Critical	Medium
Avalanche	Limited	Occasional	Limited	Medium
Dam Failure	Significant	Occasional	Catastrophic	High
Drought and Water Shortage	Extensive	Highly Likely	Critical	High
Earthquake	Extensive	Occasional	Catastrophic	High
Flood: 100/500 year	Extensive	Occasional	Limited	High
Flood: Localized Stormwater Flooding	Significant	Highly Likely	Limited	Medium
Landslides and Debris Flows	Significant	Likely	Limited	Medium
Levee Failure	Limited	Occasional	Critical	Medium
Seiche (Lake Tsunami)	Significant	Unlikely	Catastrophic	Medium
Severe Weather: Extreme Heat	Significant	Highly Likely	Negligible	Low
Severe Weather: Freeze and Snow	Significant	Highly Likely	Limited	Low
Severe Weather: Fog and Freezing Fog	Limited	Occasional	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Significant	Highly Likely	Limited	Medium
Soil Bank Erosion	Limited	Likely	Limited	Medium
Subsidence	Limited	Occasional	Critical	Medium
Wildfire	Extensive	Highly Likely	Catastrophic	High
Hazardous Materials Transport	Significant	Likely	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

O.5 Vulnerability Assessment

The intent of this section is to assess the Agency's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

O.5.1. Assets at Risk

This section considers the Agency's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table O-4 lists particular critical facilities and other community assets identified by the Agency's planning team as important to protect in the event of a disaster. The Agency's physical assets consist of the flood control and local drainage structures and real property, the operations center, and equipment. Total values exceed $1.8 billion.

Table O-4 Placer County Water Agency's Critical Facilities, Infrastructure, and Other Agency Assets

Name of Asset	Address	Replacement Value	Hazard Info
Campus/Yard/Housing	Locations throughout Placer County	$30 million	Wildfire/earthquake
Water Treatment	Locations throughout Placer County	$250 million	Wildfire/earthquake/hazmat
Water distribution	Locations throughout Placer County	$320 million	Wildfire/earthquake/hazmat
Dams and diversions	Locations throughout Placer County	$502 million	Earthquake
Power generation	Locations throughout Placer County	$390 million	Storm/earthquake
Tunnels	Locations throughout Placer County	$335 million	Quake/subsidence

Source: PCWA

Natural Resources

The geographical boundaries of the PCWA are the same as those for the Placer County Planning Area. As such, the natural resources for Agency boundaries are the same as those identified for the entire planning area included in Section 4 of the main plan.

Growth and Development Trends

The geographical boundaries of the PCWA are the same as those for the Placer County Planning Area. As such, the Growth and Development Trends for Agency boundaries are the same as those for the entire planning area included in Section 4 of the main plan and within the jurisdictional annexes for the unincorporated communities.

Development since 2010 Plan

Development in the Agency service territory is the same as that of Placer County, as described in Section 4.3.1 of the base plan.

O.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table O-3 as high or medium significance hazards. Impacts of past events and vulnerability of the Agency to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County Planning Area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the Agency to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Agricultural Hazards

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

While PCWA does not have any direct agricultural risk as far as crops, approximately 2/3 of the water supplied by the agency is used for agricultural and the Agency is highly involved with water conservation and planning for the agricultural Industry. About 11% of employment is attributed to Agriculture in Placer County, with marked growth in small farms and “farm to fork” operations. The loss of PCWA’s ability to provide water through our canal system would be devastating to agriculture in the County. The loss of Agriculture in the Western part of the County would equate to a significant revenue loss for the Agency.

Avalanche

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The Power operations in the South Eastern part of the County are located in wilderness areas and most of the operations are at elevations between 2,000 and 5,000 feet. Assets and transportation routes can be profoundly impacted by snow and avalanche. While the Agency owns three snow-cats, safety and mobility can be significantly impacted by snow. This is further compounded by the remoteness of the area and spotty communications. This hazard may be a life safety and operational issue for staff, but is not likely to result in a long-term catastrophic loss to the Agency.

Dam Failure

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Power has four dams and three diversions. A dam failure at the top of the Watershed theoretically could cascade through various facilities downstream causing additional loss or failures. Life safety concerns include gold claims and recreational use downstream, however immediate downstream exposure does not include populated residential areas and is often further reduced by adverse weather. Large property concerns include bridges close to the American River Confluence that could be effected. Folsom Lake would be effected proportionately. See Confidential Federal Energy Regulatory Commission (FERC) Emergency Action Plan (FERC Project No. 2079) for details. Dam failure could lead to a catastrophic operational loss for the agency.

Drought and Water Shortage

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Placer County Water Agency is fortunate to be at the top of the Watershed with plentiful water storage under normal circumstances. The historic drought between 2012 and 2015 resulted in minor reduction in supplies; however, the drought resulted in more significant demand reductions forced by regulatory mandates. In general, summer 2015 water use has been cut by over 30% relative to 2013 levels. Economically the drought has impacted water sales reducing revenues for the Agency. Prolonged drought can affect capital improvement plans and operations over time. Agriculture in the region is suffering a significant economic impact from reductions. The most significant threat to local economy is the concern of major populations not being adequately served from Folsom Lake due to the water surface going below the intake level. There was great risk of this occurring in both 2014 and 2015, but reservoir operations were modified just in time both years to prevent this crisis. The issue is complex statewide water management problem beyond the scope of just Placer County.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Earthquake could have a significate impact on underground drinking water and the fire hydrant supply lines. Additionally, the agency owns 165 miles of canal and flumes that supply water throughout the system. These could be disturbed by earth movement. While there is significant diversification and redundancy with (8) treatment plants, (16) pump stations and (27) storage tanks, the system does share some common threads and interties, but the system is basically designed to flow through descending elevations.

The Power Project area is not prone to earthquake, but earth movement from elevation, falling rock or slope failure remains concerning. These types of failures could be compounded by the volume of water in reservoirs, tunnels and penstocks.

Flood: 100/500 year and Localized Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Placer County Water Agency does not handle storm water systems or reclaimed water. The storm exposures mainly arise from open water supply systems including canals and flumes. During major storm events water storage being released into the canal system is restricted and the agency opens spillway relief systems to allow for extra capacity. The main hazard that remains is debris swept into the canal system that potentially collects to block free flowing water. This can cause overtopping. Crews regularly patrol during storms to prevent debris build up at trash-racks and culverts.

The American River Pump Station has some degree of vulnerability during a 200 to 500 year storm due to its location along the Middle Fork of the American River.

The Power Project has potential storm exposure from over topping of dams at the top of the Middle Fork Project and to power plants along the river through descending elevations. Past forest fires compound watershed hazards with increased sedimentation causing water levels to rise. Additionally floating forest-fire debris can enter into the watershed and cause damage and potential destruction to dams, diversions and related facilities along the river.

Landslides and Debris Flows

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Landslide and debris flow hazards (not included in the Power System Project stated above under Flood or Earthquake Hazards) have not been specifically identified. The Water system does have ten smaller dams, reservoirs and levees. Many of the canal land and water easements are also located along slopes and in mountainous areas and are potentially susceptible to a damaging landslide event.

The Agency has identified several locations where rockfall is problematic and have installed deep anchors for slope stabilization and rockfall nets to protect critical equipment. An example is shown in Figure O-2.

Figure O-2 Rockfall Nets

Source: PCWA

Levee Failure

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Outside the six dams and diversions in the Power system, the Water System has four larger reservoirs/dams registered with the State, and six reservoirs with structures that are not registered because they are smaller. There have been no losses related to any of the Water-side reservoirs in corporate memory. The adjoining canals were designed to have spillways and reliefs built into the system.

Seiche (Lake Tsunami)

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

On the East (top) side of Hell Hole and Lake Anderson there are steep slopes and some potential for earthquake activity, thus there is a seiche potential created by falling rock or subsiding land. This potential has not been realized in the past and has an unknown probability.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the Placer County Planning Area. Often during these events, the local stormwater drainage system can be impacted. Other Agency issues include potential damage to canal system. Storms in 1982, 1983, 1995, and 1997 caused damage to canals and some properties downhill from canals when debris caused canal overflows. Recent significant events include the heavy rains occurring during December 2005 and into January 2006. Agency assets incurred $140,000 in damage. Heavy rains impacted canal operations in 2008. On December 23rd, 2014 a single storm event in an otherwise dry year, caused canal over toppings with some adjacent private property damage from canal overflows. Damage to private property is not accurately tracked as it is considered "weather," and an "Act of God" in relation to insured values.

Soil Bank Erosion

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Soil bank erosion is a significant hazard in multiple areas. Much of the water conveyance system is built upon hillsides and slopes which can be prone to failure. A catastrophic example is the Bear River Canal failure April 19th of 2011 that affected PG&E, PCWA, and NID. About a 50-foot section of the 21-mile long canal fell off a steep hillside cutting off critical water supplies for both PCWA & NID. Secondary water supplies were trucked in from higher altitude reservoirs, and water was pumped from the American River to supplement the loss. Rolling outages were put into place for irrigation customers and a temporary by-pass was put into place roughly 38-days after the break. Service was restored aproximatly June 3rd of the same year. PCWA customers aided in the crisis by conserving water.

Soil Bank Erosion can also be a problem in the Power Project as the majority of access to the Project is logging or rural roads built on hillsides. These roads and other project embankments have failed in the past and generally causing operational challenges until repairs can be made. Most exposures have been considered major operational exposures, but not catastrophic losses.

Subsidence

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Subsidence for the PCWA can be compared to soil bank erosion hazard above.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

The top of the water supply system is located in an area prone to wildfire. Assets include canals, flumes, treatment plants and water storage facilities. While flumes are typically "big timber" (see Figure O-3) they range in age and condition and could limit the flow of water through the water supply system. Emergency Services should give special consideration to water facilities because of the symbiotic working relationship. It is recommended that Emergency Services immediately work with the Agency during emergency situations.

Figure O-3 Traditional Big Timber Flume

Source: PCWA

The Power Project is located in a wilderness area that is prone to wild fire. Facilities have been intelligently planned and have survived multiple fires, but are still susceptible to damages that can be caused by wildfire. Primary weaknesses include access, communications and power lines. Dorms, housing and campgrounds/recreational facilities are also more likely to combust. Water resources are used to assist with firefighting where applicable. Contact the Agency for more information.

Hazardous Materials Transport

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

A substantial portion of the water delivery system is located within close proximity to the Union Pacific Rail System, the Kinder-Morgan Pipeline and a major Interstate Highway. PCWA assets within close proximity include canals, flumes, treatment plants and water storage, as population tends to follow the water and transportation systems. All of these assets are susceptible to pollutants and hazardous materials. On a smaller scale dilution may minimize a problem and there is reasonable redundancy and diversity built into the water supply system. However it is advised that Emergency Services immediately contact and

cooperate with PCWA staff to assure health and safety of the water supply in the event of a hazardous materials release to the environment.

O.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

O.6.1. Regulatory Mitigation Capabilities

Table O-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the Agency.

Table O-5 Placer County Water Agency's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	See Placer County.
Capital Improvements Plan	N	See Placer County.
Economic Development Plan	N	See Placer County.
Local Emergency Operations Plan	N	See Placer County.
Continuity of Operations Plan	N	See Placer County.
Transportation Plan	N	See Placer County.
Stormwater Management Plan/Program	N	See Placer County.
Engineering Studies for Streams	N	See Placer County.
Community Wildfire Protection Plan	N	See Placer County.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Rating:
Site plan review requirements	N	

Land Use Planning and Ordinances	Y/N	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	N	See Placer County
Subdivision ordinance	N	See Placer County
Floodplain ordinance	N	See Placer County
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	See Placer County
Flood insurance rate maps	N	See Placer County
Elevation Certificates	N	See Placer County
Acquisition of land for open space and public recreation uses	N	See Placer County
Erosion or sediment control program	N	See Placer County
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the Agency, in conjunction with Placer County, has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these Agency-specific elements are described in more detail below.

Placer County Water Agency, Integrated Water Resources Plan, 2006

PWCA has a limited supply of water. Population growth has made it important to closely assess available water supplies and future demand. This document is an Integrated Water Resources Plan (IWRP) that presents a detailed assessment of the water supply and demand situation in Western Placer County. The intent of this IWRP is to plan the integration of the variety of available water supply resources to meet future water needs. Findings from this plan are used in the Agency's Urban Water Management Plan that was last updated in 2011 and will be updated again in 2016.

O.6.2. Administrative/Technical Mitigation Capabilities

The Agency is governed by a five-member Board of Directors, elected to four-year terms by voters residing within five geographical Agencies of Placer County. The Board of Directors meets twice monthly in regular session and holds special meetings as needed.

The Board employs a General Manager to administer all Agency activities, services and employment, and retains General Counsel to advise the Agency on legal and regulatory matters. The Agency staffs 215 full-time employees in total. About 73-employees work out of the Auburn Business Center. Departments include Administrative Services, Resource Development, Technical Services, Customer Services, and Financial Services. The Agency participates in the Placer County Local Hazard Mitigation Plan, the Placer County Emergency Operations Plan, and has a room set up to activate as an Agency Emergency Operation Center with radio, telecommunications, satellite phone service and A/V capabilities.

The Power Systems Office is located in Foresthill where operations are conducted for the Middle Fork Project. 32-employees manage the engineering, maintenance and operations of the hydro-electric system which includes 4 dams, 3 diversions, 5 powerhouses and associated tunnels, penstocks and facilities. There are up-to-date Emergency Management Plans, FERC Emergency Action Plans, and a FERC Security Plan for the operations.

Drinking Water Operations are coordinated from offices located on Ferguson Road, across from the Business Center but utilize various treatment plants and water storage facilities. Drinking Water Operations consists of 37-employees who are directly involved in the production and distribution of treated drinking water. A team of water plant operators coordinate operation of eight water treatment plants. Water quality personnel interpret public health laws, monitor water to ensure its safety, perform necessary reporting to the USEPA and California Department of Health Services. Water treatment plant maintenance personnel maintain and repair all the water quality facilities including the treatment plants, pump sites and well sites. Water distribution operators route water through pipeline systems and manage a network of tanks, pumps and pressure-control stations. Drinking Water Operations maintains the Hazardous Materials Business Plan.

Field Service has 54-employees who maintain 165-miles of canal and 602-miles of drinking water delivery systems. The Field corporate yard is located on Maidu Ave close to the edge of the American River Canyon. This yard houses the materials and heavy equipment required to maintain the water delivery systems.

Customer Services has a staff of 35-employees who provide a range of services including assisting the customer with all service related issues, service installations, new accounts, billing, payment processing, collections and water use efficiency. The department coordinates customer notifications during schedule maintenance projects and when water system emergencies arise (outages). Customer Services maintains an Agency Emergency Response Plan.

The meter services crew conducts the agency's meter reading, testing and replacement programs. Other activities include a cross-control program that prevents the reverse flow of water from private services back into the public water system and the constructed conveyance program that assists canal water customers in obtaining alternate water supplies for in-home use. Table O-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the Agency.

Table O-6 Placer County Water Agency's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	See Placer County
Mitigation Planning Committee	N	See Placer County
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements	Y	

Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	See Placer County
Floodplain Administrator	N	See Placer County
Emergency Manager	N	See Placer County
Community Planner	N	See Placer County
Civil Engineer	N	See Placer County
GIS Coordinator	N	See Placer County
Other	N	See Placer County
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	N	See Placer County
Hazard data and information	N	See Placer County
Grant writing	N	See Placer County
Hazus analysis	N	See Placer County
Other		
How can these capabilities be expanded and improved to reduce risk?		

O.6.3. Fiscal Mitigation Capabilities

Table O-7 identifies financial tools or resources that the Agency could potentially use to help fund mitigation activities.

Table O-7 Placer County Water Agency's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	N	
Storm water utility fee	Y	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

O.6.4. Mitigation Outreach and Partnerships

Table O-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table O-8 Placer County Water Agency's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	See items below this table.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	See items below this table.
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	Y	See items below this table.
Other	Y	See items below this table.
How can these capabilities be expanded and improved to reduce risk?		

PCWA has several partners in carrying out Agency objectives. These include:

Water Education Foundation – The Water Education Foundation is an impartial non-profit organization which develops and implements education programs leading to a broader understanding of water issues and to the resolution of water problems. The Agency supports the Foundation and its mission.

County of Placer – PCWA is a supporter of the Placer Legacy program. The Agency has been asked by the US Fish & Wildlife Service to participate in the development of a HCP/NCCP "Natural Communities Conservation Plan" in part to mitigate for the potential secondary impacts of the growth that could be enabled by the continued development of the Agency's existing water rights.

Sacramento River Watershed Program – The SRWP represents a wide coalition of stakeholders who care about the quality of the water and quality of life in the Sacramento River Watershed. Areas of emphasis include: monitoring toxic pollutants, public outreach and education, and biological and habitat preservation. The Agency is studying the feasibility of a Sacramento River diversion in exchange for an equal release of its water right water in the American River. The Agency's proposed Sacramento River diversion project would be consistent with the SRWP goals and objectives.

The United States Forest Service – Is a Federal Agency under the US Department of Agriculture responsible for administering National Forests and Grass Lands which include the Tahoe and El Dorado Forest. PCWA enjoys a strong relationship working alongside the Forest Service as our facilities and watersheds are intermingled.

The United States Bureau of Reclamation –Iis a Federal Agency under the US Department of the Interior which oversees water resource management specifically as it applies to the oversight and operation of diversion, delivery and storage and hydroelectric projects. The USBR still has an interest in the American River at the former site of the Auburn Dam.

The State Department of Parks & Recreation – Auburn State Recreation Area – The Auburn State Recreation Area is a part of the California Department of Parks and Recreation. They are responsible for the conservation and management of approximately 20-miles of park along the confluence of the American River.

Federal Energy Regulatory Commission (FERC) – Is an independent government agency that regulates the generation and transmission of energy, and more specifically licenses the Middle Fork Hydroelectric Project.

Pacific Gas & Electric Company (PG&E) – PG&E in a utility company delivering energy services to Northern and Central California. PG&E has multiple land, operational and watershed connections with PCWA.

Cal-Fire – Is a major incident management responder, providing varied emergency services. Cal-Fire has both State and Local responsibilities and is a primary responder to wildland fire in the Placer/El Dorado Area. PCWA has a working relationship with Cal-Fire that includes water and the sharing of with other Agency resources.

Protect American River Canyons (PARC) – PARC is a community-based non-profit organization located in Auburn that is dedicated to building American River community through collaboration and protection of

the natural, recreational and historical resources for the North and Middle Forks of the American River Watershed.

Department of Water Resources – DWR's mission is to manage the water resources in California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environment. PCWA coordinates with DWR on groundwater monitoring in west Placer County, interstate water resource negotiations regarding the Truckee River system, and on other regional issues.

Water Forum – The Water Forum was a collaborative process of a diverse group of business and agricultural leaders, citizens groups, environmental interests, water managers and local governments in Sacramento County, Placer County, and El Dorado County, with the co-equal objectives to (a) provide a reliable and safe water supply for the region's economic health and planned development to the year 2030, and (b) preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River. Implementation of the Water Forum Agreement will continue under the WF Successor Effort for many years.

Regional Water Authority – The RWA is a joint powers authority, formed to serve and represent regional water supply interests and to assist its members in protecting and enhancing the reliability, availability and quality of water resources. PCWA is a member and supporter of RWA.

City of Roseville – PCWA provides water from its Middle Fork American River Project (MFP) to the City. PCWA also has several interconnections between its treated water system and the cities that enable each to help the other in emergencies.

San Juan Water District – PCWA provides water from its MFP to the Agency to supply its customers within Placer County. PCWA also has several interconnections between its treated water system and the San Juan's that enable each to help the other in emergencies.

Nevada Irrigation District – NID and PCWA have common watershed and multiple interconnections that can be used to support water service.

O.6.5. Other Mitigation Efforts

The Agency is involved in a variety of mitigation activities including public outreach and project activities. These mitigation activities include:

- Public Service Advertisements
- Water Conservation (public outreach) program
- Website Newsletters to the general public

The Agency Water Conservation program includes residential programs and rebates for: high efficiency clothes washing machines, high efficiency toilets, hot-water recirculation systems, point of use hot water heater, new lawn replacement pilot program, free mulch distribution, and water wise house calls. Commercial programs include customer recognition for conservation (Flume Awards) and rebates including: high efficiency toilet rebate program, waterless urinal rebate program, water wise business calls

& large landscape irrigation survey for information on these and other programs customers may visit the PCWA Web site and visit the Customer Service section for the Water Use Efficiency pages at www.pcwa.net.

LL Anderson Dam Spill Way Modification

Placer County Water Agency Middle Fork Power Finance Authority completed a $200 million project to modify the spillway of the LL Anderson Dam. The widened spillway will safely pass the revised probable maximum flood determined by the US Army Corps of Engineers and increase operational flexibility. The French Meadows Reservoir (see picture) is a part of California's watershed management system that increases the capacity and consistency for the delivery of water for all downstream users. The dam spill way construction was completed in 2014

O.7 Mitigation Strategy

O.7.1. Mitigation Goals and Objectives

The Agency adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

O.7.2. Mitigation Actions

The planning team for the Agency identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Hillside Slope Stabilization

Hazard Addressed: Earthquake/Landslide-Debris

Issue/Background: The Middle Fork Power Operations are located in high country areas where mountain slopes and rock formations threaten various facilities and operations. Earth movement and gravitational forces can dislodge rock falls or shift penstocks.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP)

Responsible Office: Placer County Water Agency

Priority (H, M, L): High

Cost Estimate: Over $1.5 million has been spent in slope stabilization, stability, and rock fall precautions over the past five-years. Another 750-thousand has been projected for stabilization projects moving forward through the next five years.

Benefits (Losses Avoided): Rock falls are hazardous employees working in the area and can disable power generation, transmission equipment and operations.

Potential Funding: HGMP, PDM, PCWA, MFPFA.

Schedule: Ongoing. Projects extending from 2011 through 2016 include Middle Fork penstock foundation monitoring, rock fall barriers on the Hell Hole Spillway Channel, and deep hillside stabilization and rock fall barriers above the Ralston Powerhouse.

Action 2. Water System Interties

Hazard Addressed: Drought/Earthquake/Landslide/Wild Fire/Hazardous Materials

Issue/Background: Interties create redundancy and reliability in the water supply. These water system interties are created both internally between PCWA systems, and created externally in cooperation with other water agencies, districts and suppliers.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP) or Operations and Maintenance Funding (O&M)

Responsible Office: Placer County Water Agency and other local water providers.

Priority (H, M, L): High

Cost Estimate: Interties vary in cost depending on the proximity, size and complexity of construction.

Benefits (Losses Avoided): Increases redundancy in the water supply system allowing for transfer of water during critical times

Potential Funding: PCWA/NID/SJWD/Cities of Roseville, Lincoln Loomis and Rocklin

Schedule: Completed projects include the Barton Road Intertie between PCWA & SJWD, the Live Oak Intertie between PCWA and NID. The PG&E South Canal intertie with the Ophir Road Pump Station is anticipated in the near future and is currently in the design review process.

Action 3. Vegetation Management and Brushing

Hazard Addressed: Drought/Wildfire

Issue/Background: PCWA has significant land holdings as necessitated by the distribution of water throughout the County. A drought and wild fire become inextricable tied it is important to maintain land responsibly in an attempt to lessen the likelihood of wildfire.

The Agency uses various methods of maintaining land including goats and sheep for grass work, California Department of Corrections and Rehabilitation (CDCR) hand crews, and Agency weed and brush crews. We attempt to cooperate with neighboring land owners with tree work and have an on-call arborist contract to assist with forestry.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP) or Operations and Maintenance Funding (O&M)

Responsible Office: Placer County Water Agency and adjacent land owners.

Priority (H, M, L): High

Cost Estimate: Costs vary with method and degree of application.

Benefits (Losses Avoided): Reduces the opportunity for, and magnitude of, wildfire while increasing the accessibility to water assets.

Potential Funding: PCWA

Schedule: Ongoing

Action 4. Enhance Canals by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas.

Hazard Addressed: Drought/Landslide-Debris/Hazardous Materials/Wild Fire.

Issue/Background: Gunite-lined canals offer advantages for Drought, Landslide, Wild Fire and the potential for limiting Hazardous Material incidents. During Drought, the gunite lining reduces water loss through seepage that occurs in earthen canals. Lined canals also are less likely to slide because of erosion or failure, and there is a permanent structure in place that has increased potential to be recovered if a landslide occurs. Cal-Fire and most rural Fire Departments depend on canal systems operated by either public or private entities to be a source of water for firefighting. This includes water pumped directly from the canal and canal water fed into water systems that provide hydrant connections for communities. In the event of a Hazardous Materials spill, the gunite lining works well for both chemical containment and diking and makes clean up and restoration much more plausible.

Other Alternatives: Buried pipe where practical, or no action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP) or Operations and Maintenance Funding (O&M)

Responsible Office: Placer County Water Agency, and other canal operators

Priority (H, M, L): High

Cost Estimate: $500,000 per year on average

Benefits (Losses Avoided): Improves reliability of canal systems by saving water, making clean water available and fortifying the integrity and structure of the canal.

Potential Funding: HGMP, PDM, FEMA, PG&E, PCWA, others

Schedule: Historically the Agency has an on-call gunite contract and we continually improve canals based upon need. Typically out of the 165-miles of canal we are able to gunite a little less than 5-miles per year on average. The budget for gunite is a variable cost and the last few years' projects have been reduced due to drought and decreased funding from water sales. Enclosing canals by burying pipe is typically prohibitive in cost, however new construction and some replacement is done with buried pipe as a preferable alternative. Commercial development standards require canal encasement in many situations. The Agency also provides design specifications and the engineering department will work to assist private parties who desire to encase canals crossing their land.

Future plans are consistent with past practice and it is predicted that the application of gunite will continue at the same rate.

Action 5. Replace Wooden Flume Structures

Hazards Addressed: Wildfire/Drought

Issue/Background: Historically flumes allow a gravity flow canal system to cross canyons, valleys and other low spots; aligning the canals up as to maintain the elevation and flow. Currently there are twenty-eight flumes with twenty-five of them above the Auburn water system. Many of these flumes are integral to the supply system. The support structures for flumes are typically made of large wood members (4X4"s or larger) and the chute is frequently wood lined with tin. Wooden structures are vulnerable to wild fires. Changing flumes to in-ground pipe would also be considered a drought water conservation method. While the Agency would like to enhance and enclose many of the flumes, it is likely that they will exist well into the future due to a community fondness for the structures, engineering challenges, and increased construction cost for improvement.

Other Alternatives: Enclose and bury pipe, use modern fire resistant steel or concrete construction, or take no action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP) or Operations and Maintenance Funding (O&M)

Responsible Office: Placer County Water Agency

Priority (H, M, L): Medium

Cost Estimate: Current "like" replacement values from $50,000 to $150,000 per flume. Modernization may be five to ten times the replacement value. There is approximately $1M budgeted for 2016.

Benefits (Losses Avoided): Enclosed and buried pipe would not be as vulnerable to fire or weather. Reduced vulnerability assures access to water supporting public safety and the consistency of the general water supply.

Potential Funding: HGMP, PDM, FEMA, PCWA.

Schedule: Ongoing analysis and improvement where warranted. The Upper Fiddler Green, Turner, Alpine, Lang #1 & #2, Spikes, Cherry Tree and Secret Town flumes have been replaced by a pipe. The Hayford Flume is planned for 2016 reconstruction. The Long Ravine pipeline is also scheduled and will remain encased.

Action 6. De-Silt Reservoirs.

Hazards Addressed: Dam Failure/Drought/Landslide-Debris

Issue/Background: Reservoirs are raw water storage areas and are used to regulate the flow of water in canals for treated water production, agriculture use, power generation, and as a source of water for fire suppression.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: PCWA Capital Improvement Program (CIP) or Operations and Maintenance Funding (O&M)

Responsible Office: Placer County Water Agency and private property owners.

Priority (H, M, L): Low for Water Operations, Currently High in Power Operations

Cost Estimate: Estimate from $200-thousand to $4.6 million depending on size and amount of silt in reservoir.

Benefits (Losses Avoided): Silt and other debris continually accumulate in canals and waterways which ultimately get deposited into reservoirs. As silt levels increase over the years, it decreases storage capacity in the reservoir. Periodic de-silting improves capacity and operational value of the reservoirs as well as frequently restoring environmental health to the body of water.

Potential Funding: HGMP, PDM, PCWA.

Schedule: Ongoing. Priority for desilting projects leans toward the Middle Fork Project where fire and subsequent erosion has created a problem that may span decades of impact upon the operation of the project.

Sediment monitoring is being performed, but Emergency Debris Management for the Ralston Afterbay is a priority. This project includes the removal of large floating debris including trees, root wads and limbs that may impact the ability to control flow or threaten the dam.

The goal of desilting of smaller holding ponds and reservoirs on the canal system have been unobtainable because of the priority of protecting the dams, as well as environmental and logistical challenges for de-silting, and the ultimate cost of performing the work.

Annex P Placer Hills Fire Protection District

P.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Placer Hills Fire Protection District, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Placer Hills Fire Protection District, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

P.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table P-1. Additional details on plan participation and District representatives are included in Appendix A.

Table P-1 District Planning Team

Name	Position/Title	How Participated
Chief Ian Gow*	Fire Chief	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Elsa Hucks	Placer County Fire	Reviewed document. Provided information and edits to Annex.
Luana Dowling	Placer County Firewise Communities Coordinator	Reviewed document. Provided information and edits to Annex.
Gary Kirk	Retired Battalion Chief	Reviewed document. Provided information and edits to Annex.

*Foresthill and Placer Hills FPD share one Chief officer and have no other Administrative staff to support this planning effort.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table P-2.

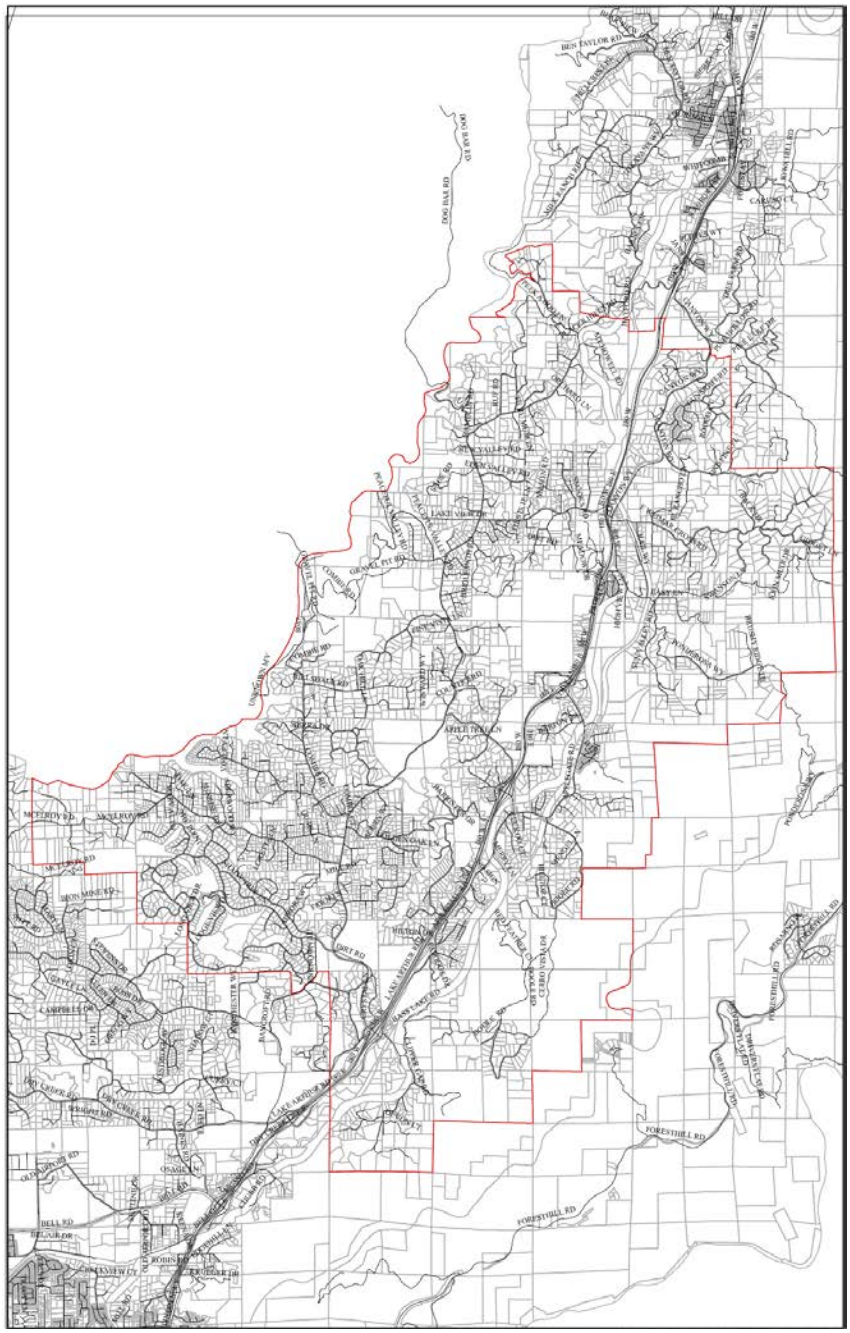
Table P-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Placer Hills Fire Protection District	Overall, the District did not incorporate the 2010 LHMP Update into other planning mechanisms due to lack of funding.

P.3 District Profile

The Placer Hills Fire Protection District service area is illustrated in Figure P-1.

Figure P-1 Placer Hills Fire Protection District



Source: Placer Hills Fire Protection District

P.3.1. District Information and Background

The Placer Hills Fire Protection District (Placer Hills FPD) services a 34 square mile area that houses approximately 3,500 full time residents and a day population of about 12,000 people. The District services the communities of Applegate, Clipper Gap, Eden Valley, Meadow Vista, and Weimar.

In 1949, community members of the Meadow Vista came together through the Grange to create the Meadow Vista Fire Department. In 1988, the Meadow Vista Fire Protection District, Company No. 31 and the Ponderosa Fire Brigade annexed to become the Placer Hills Fire Protection District.

Placer County established Company No. 31 in 1979 at the Weimar Institute to assist in the County contract with the California Department of Forestry. In 1980, members of the Applegate and Weimar communities came together to develop Engine Company No. 31. The community built the fire station in Applegate in 1983 and the County provided an engine and a water-tender. John Velican provided an engine for the Ponderosa Fire Brigade.

With start-up monies budgeted by the Placer County Board of Supervisors, Placer Hills Fire Protection District built a new station at Weimar Crossroads and purchased a new mini-pumper quick attack in 1990. Also in the same year, the Fire Board hired a part-time Fire Marshal to establish a fire prevention program throughout the District. The Placer County Board of Supervisors adopted Ordinance 4225-B, County Code Chapter 7.50 creating the legal authority for fire districts to collect fees in order to mitigate the impacts of new development. The Placer Hills Fire Protection District started collecting the Fire Facilities Fees in late 1990 and has been able to purchase/lease state of the art firefighting engines and equipment.

To further enhance the fire protection of this District, the Fire Board passed a Fire Suppression Benefit Assessment in 1991, which provided daytime staffing during weekdays. Placer Hills Fire Protection District started providing non-transporting Advanced Life Support Services in October 1997. In September 2001 the District staffed one engine with a crew of two, 24 hours per day and an additional engine with 2 during work hours and fire season weekends. The community approved another Benefit Assessment of $49 in June 2004. This enabled the District to staff an engine at both the Meadow Vista and Weimar fire stations 24/7. The Fire District runs approximately 1,000 calls every year.

P.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table P-3).

Table P-3 Placer Hills Fire Protection District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Limited	Low
Dam Failure	Limited	Occasional	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Limited	Unlikely	Negligible	Low
Flood: 100/500 year	Limited	Occasional	Negligible	Low
Flood: Localized Stormwater Flooding	Extensive	Highly Likely	Low	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Limited	Highly Likely	Negligible	Low
Soil Bank Erosion	Limited	Unlikely	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Extensive	Highly Likely	Catastrophic	High
Hazardous Materials Transport	Extensive	Highly Likely	Critical	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

P.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

P.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table P-4 lists District assets identified by representatives from the District as important to protect in the event of a disaster.

Table P-4 Placer Hills Fire Protection District—Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Station 84	Essential	16999 Placer Hills Road Meadow Vista, CA 95722	$4,000,000	N/A
Station 85 (District Office)	Essential	Applegate, CA 95703	$2,000,000	N/A
Station 86	Essential	100 W. Weimar Crossroads Weimar, CA 95736	$3,000,000	N/A

Source: FFPD

It is important to note that there are several elderly, disabled, and low income people in the Placer Hills area. In the case of a wildfire evacuation, these people may not have transportation. Likewise, in the event of a power outage during the winter months, these special populations may not be able to get to a shelter for warmth.

Natural Resources

Population growth and development trends within District boundaries are covered in Section 4.3.1 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District.

Growth and Development Trends

Population growth and development trends within District boundaries are covered in Section 4.3.1 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District.

Development since 2010 Plan

Population growth since 2010 within District boundaries are covered in Section 4.3.1 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District.

P.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table P-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County Planning Area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Drought is a significant hazard, especially to the forested areas of the District. Drought conditions stress and leave the forest susceptible to disease and insect infestation. As a result of recent drought conditions throughout California, infestations of the Pine Beetle are on the rise. Several areas within the District forests show signs of Pine Beetle and thus will become more vulnerable to wildfire. Drought conditions also may impact the water supply of people residing within District boundaries.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Heavy rains occur on an annual basis in the Placer Hills FPD service area. Impacts to the area usually include mild flooding. The District identified flooding impacts in the winter of 2014. Though a drought was affecting much of California, heavy rains caused mild to moderate damages in the area. Property

damage and infrastructure damages were recorded. Damage estimates were unavailable. No injuries or deaths occurred as a result of the flooding.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Extreme heat is a concern to the District. During extreme hot weather, the risk of wildfire increases. This can be further exacerbated during periods of drought. Also vulnerable to the effects of extreme hot weather is the elderly population located within District boundaries. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Freeze and snow is a concern to the District. During periods of freeze and snow, pipes in both residential and commercial buildings freeze and crack, and transit becomes difficult with many roads in the area freezing over. The impact to the area road system is not just a concern to residents, but also to the emergency service crews who can become immobilized during emergency situations. Even the small snow events that occur half a dozen times every year in the Weimar area create significant traffic issues for cars and school buses. According to the Placer Hills FPD planning team, winter storms resulting in up to three feet of snow occurred in 1990 causing moderate property damage, and closing businesses, schools, and roads creating significant impacts to the area. Also vulnerable to the effects of freeze and snow is the elderly population located within District boundaries. The District contains a significant elderly population, with some residing in homes that have not been sufficiently updated to protect against extreme temperatures.

Wildfire

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Several of the communities within the District boundaries are listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.1 of the main plan. These include the communities of: Applegate, Meadow Vista, and Weimer.

The state fire data classifies the entire district as an area of extreme fire hazard. Using state fuel models, the types of fuels present within District boundaries tend to dry out during summer months creating the extreme fire conditions.

The most notable, wildfire to impact the District is the Ponderosa Fire. This fire occurred in 2001 and burned 2,462 acres of forestland. This event closed Interstate 80 for a period of time. In 2009, the 49 fire

burned over 60 structures. In 2014, the Foresthill and Applegate fires did significant damages to property and infrastructure. While not within District boundaries, this fire was located only a mile away. Given the extreme fire hazard specific throughout the District and surrounding areas, similar events are expected to occur in the future.

Hazardous Materials Transport

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Hazardous materials transportation poses a risk to the public and to District staff. These incident pose a physical risk to District staff, and can tie up staff for many hours.

P.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

P.6.1. Regulatory Mitigation Capabilities

Table P-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table P-5 Placer Hills Fire Protection District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	Y	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	

Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 4
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

Source:

As indicated above, the District, in conjunction with the County, has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

New Development: Project Guidelines, 2001

These guidelines contain fire prevention requirements for new development. Key elements include requirements for the following:

- Addresses and Access
- Water Supply
- Sprinkler Systems
- Vegetation Abatement
- Fire Alarm Systems
- Hydrants

P.6.2. Administrative/Technical Mitigation Capabilities

The Board is comprised of 5 members and is selected by registered voters within the District. The Board serves as the governing body for the District's residents. The Board of Directors approves District Rules and Regulations and, through the Fire Chief, ensures adherence to District policies. The Placer Hills FPD provides services through three fire stations: Meadow Vista, Applegate, and Weimar.

Placer Hills FPD's dispatch services are provided by the Placer County Sheriff's Office 911 center in Auburn. The 911 center uses computer aided dispatching to ensure optimal resource monitoring and management utilizing the closest resource backed up by station cover assignments in a multi-tiered alarm structure. Table P-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table P-6 Placer Hills Fire Protection District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	In coordination with Placer County
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y	In coordination with Placer County
Floodplain Administrator	N	
Emergency Manager	Y	In coordination with Placer County
Community Planner	N	
Civil Engineer	Y	In coordination with Placer County
GIS Coordinator	Y	In coordination with Placer County
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	In coordination with Placer County
Hazard data and information	Y	
Grant writing	N	

Hazus analysis	N
Other	
How can these capabilities be expanded and improved to reduce risk?	

P.6.3. Fiscal Mitigation Capabilities

Table P-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table P-7 Placer Hills Fire Protection District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Used for capital expenses
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

P.6.4. Mitigation Outreach and Partnerships

Table P-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. Additional information can be found after the table.

Table P-8 Placer Hills Fire District Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	Y	School programs
StormReady certification	N	
Firewise Communities certification	Y	
Public-private partnership initiatives addressing disaster-related issues	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

The Placer Hills FPD has automatic aid agreements with bordering Districts and mutual aid agreements with other fire agencies throughout the area. The District relies heavily upon this aid from neighbors.

The District also works with other agencies on wildfire-related matters. Working with professional fire experts from the U.S. Forest Service and California Department of Forestry and Fire Protection helps ensure that the District's work complements state and federal work and is up to standard for controlling wildfires.

P.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including public education, fuels management projects, and other activities to reduce fuel loads and fire risk. These mitigation activities include:

- Public Education and Fire Safety
  - ✓ A variety of public outreach activities are conducted throughout the district on an annual basis.
  - ✓ The District has a program where they make address signs and provide them to the public at cost.
  - ✓ The District also coordinates the use of the County Chipper for local residents.
- Defensible Space
  - ✓ In recent years due to lack of funding, the district has limited involvement in the enforcement of the defensible space program. When funding has been available, the District provides annual defensible space inspections of area residents.
  - ✓ The District currently operates an elderly assistance program where they coordinate volunteers to clear properties.

P.7 Mitigation Strategy

P.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

P.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Assess And Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements For Minor Lot Splits

Issue/Background Statement: Rapid containment of wildfires and structure fires are a high priority for the PHFPD. At present, minor lot splits (four or fewer parcels), do not have sufficient requirements for onsite storage of water for firefighting. This project would evaluate appropriate requirements and propose an ordinance for adoption by the Placer Hills Fire Protection District Board of Directors. This ordinance will be based on the NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting and/or on the Urban Wildland Interface Code 2000.

Other Alternatives: The alternative is to continue to rely solely upon the availability of the PHFPD water tender, and mutual aid water tenders from other local government entities.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Fire Chief Ian Gow, Placer Hills Fire Protection District

Priority (H, M, L): High

Cost Estimate: The cost to evaluate requirements and prepare the ordinance would come out of normal operating expenses. The cost to the developers of a minor lot splits would be approximately $2,000 per storage tank. In some cases, multiple homes could share a tank.

Benefits (Losses Avoided): Homes in the PHFPD area are presently valued at a median price of over $400,000 with many homes selling for a far higher cost. The $2,000 cost to the developer for onsite water storage represents one-half of one percent of the value of the median home price. On-site water storage is an inexpensive way to improve fire suppression capabilities for a home. It also increases the fire safety of the surrounding homes and wildlands because the faster a structure fire is contained, the less likelihood there is that it will spread. The water would also be used to protect homes from encroaching wildfire.

Potential Funding: Unknown

Schedule: Complete assessment and ordinance proposal by the end of calendar year 2005.

Annex Q South Placer Fire Protection District

Q.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the South Placer Fire Protection District (South Placer FPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the South Placer FPD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

Q.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table Q-1. Additional details on plan participation and District representatives are included in Appendix A.

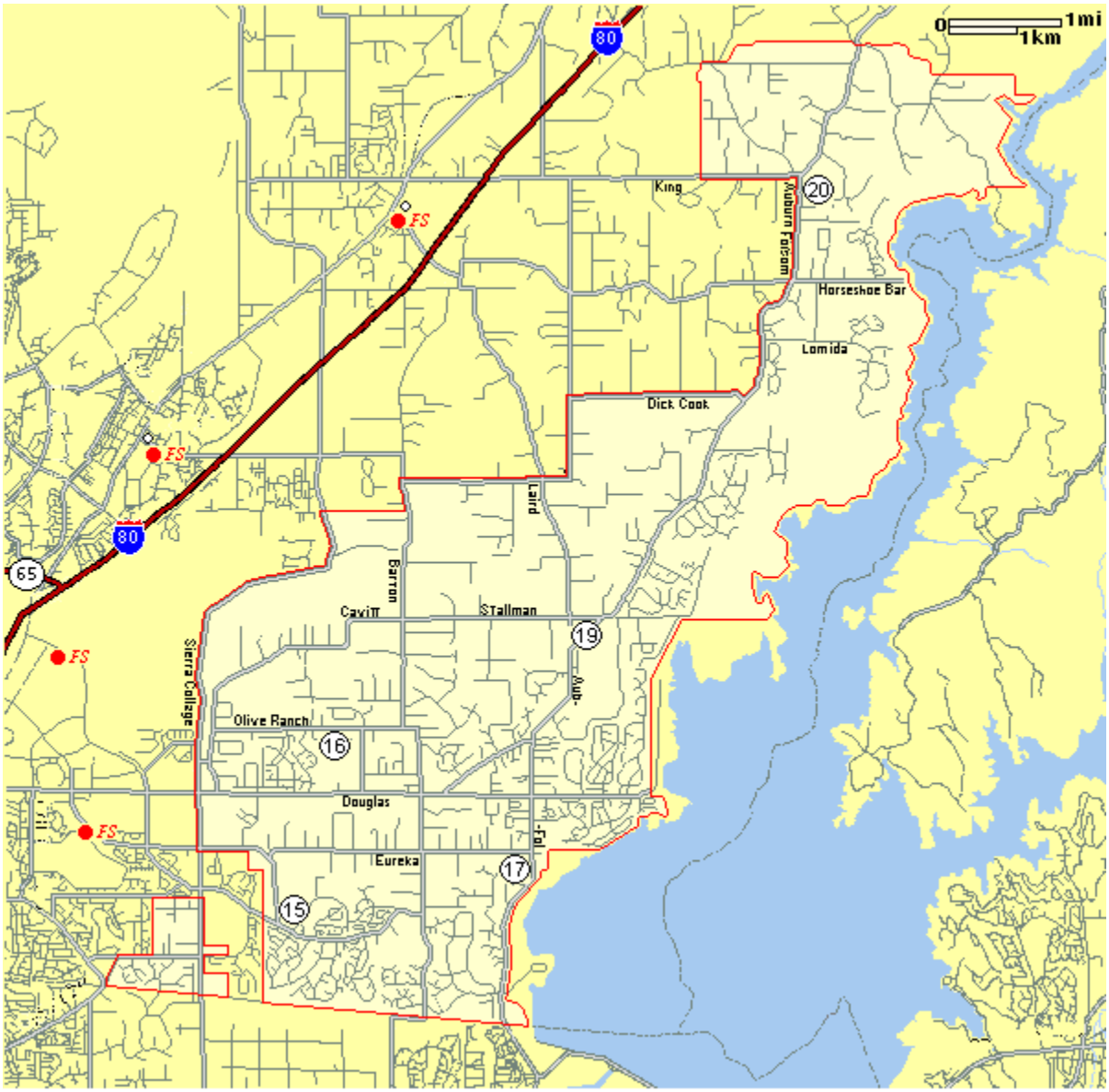
Table Q-1 District Planning Team

Name	Position/Title	How Participated
Mike Ritter	Division Chief	Attended meetings. Provided input on hazard identification and hazards affecting the District. Provided capability tables and mitigation actions. Provided maps and logos.
Eric Walder	Chief	Attended meetings. Provided input on hazard identification and hazards affecting the District. Provided capability tables and mitigation actions. Provided maps and logos.
Karl Fowler	Deputy Chief	Attended meetings. Provided input on hazard identification and hazards affecting the District. Provided capability tables and mitigation actions. Provided maps and logos.

Q.3 District Profile

The District service area is illustrated in Figure Q-1.

Figure Q-1 South Placer FPD Service Area



Source: South Placer FPD

Q.3.1. District Information and Background

SPFPD was formed on January 10, 1952. The principal act that governs the District is the Fire Protection District Law of 1987. The principal act empowers fire districts to provide fire protection, rescue, emergency medical, hazardous material response, ambulance, and any other services relating to the protection of lives and property.

SPFPD is located entirely within Placer County and encompasses about 37 square miles. The District serves approximately 36 square miles of unincorporated Placer County (including the community of Granite Bay and portions of Loomis, Penryn and Newcastle), and approximately one square mile of the Town of Loomis.

The District's boundary area consists of four non-contiguous parts. Three smaller areas are surrounded by the City of Roseville from three sides; in the south they are bordered by Sacramento County. The largest non-contiguous SPFPD portion to the east completely surrounds a small island of the City of Roseville and is bordered by the cities of Roseville and Rocklin in the west, Loomis, Penryn and Newcastle FPDs in the north, and Folsom Lake in the east.

Figure Q-2 South Placer Fire Station 19

Source: South Placer FPD

Q.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table Q-2).

Table Q-2 South Placer FPD Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Likely	Limited	Medium
Earthquake	Extensive	Unlikely	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Significant	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Unlikely	Negligible	Low
Levee Failure	Significant	Unlikely	Limited	Medium
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Significant	Occasional	Limited	Medium
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Unlikely	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Q.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

Q.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table Q-3 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table Q-3 South Placer FPD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value
Station #15	Fire Facility	4650 E Roseville Pkwy	$745,467.00
Station #16	Fire Facility	5300 Olive Ranch Rd	$2,800,00.00
Administration (Portables)	Fire Facility	6900 Eureka Rd	$81,205.00
Station #17	Fire Facility	6900 Eureka Rd	$2,147,757.00
Station #17 Training Cargo Container	Fire Facility	6900 Eureka Rd	$2,602.91
Shop	Fire Facility	6900 Eureka Rd	$277,509.00
Station #19	Fire Facility	7070 Auburn/Folsom	$2,284,962.00
Station #20	Fire Facility	3505 Auburn/Folsom	$591,219.00

Source: South Placer FPD

Growth and Development Trends

There are approximately 26,100 residents within the District. The population density is 725 people per square mile. The District reported that it generally experienced minimal population growth over the last five years although in the last year SPFPD observed an increase in building starts and plan submittals. Population growth thus is trending toward moderate. No formal population projections, however, have been done by the District. SPFPD estimates its future service needs through Placer County General Plan, Granite Bay Community Plan and Placer County Municipal Advisory Councils (MACs) planning meetings. The District also looks at the available lots for residential and commercial construction and plans for future construction.

The population of the District is anticipated to be 34,330 at full build-out of this rapidly developing area. The area is evenly divided between suburban and wildland areas, and mostly comprised of large-scale estates and ranch properties with many subdivisions, including wildland interface subdivisions and medium-scale retail shopping areas. The current average home is 6,110 square feet, with several homes over 15,000 square feet. Commercial building growth has been slower than residential growth.

SPFPD reports that growth has been concentrating in the southern area of the District. There are large parcels of land located near Station 16 (which is currently closed) that will be developed in the future. In fact, there has already been some construction in that area in the last year. Apart from the southern part of SPFPD, there are mainly lot splits and small parcels of land that will be developed on a regular basis until build out.

As already mentioned, the District anticipates moderate population growth over the next 10 years. Service demand is expected to remain relatively stable with unknowns of weather conditions (drought, etc.) affecting the service demand. The continued use of the closest resource agreement and understaffing of local agencies may also impact the District's service demand.

Based on a review of the Granite Bay Community Plan and the Horseshoe Bar Community Plan, as well as through site survey of the properties in the District, District staff estimate that an additional 974 residential units will be constructed in the District over the next 10 to 15 years. SPFPD also anticipates construction of an additional 980,000 square feet of commercial, office, and industrial building space during this time. In total, the District estimates that approximately 6.9 million square feet of building construction will occur in the District over the next 10 to 15 years.

Q.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table Q-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

The District boundaries contain agricultural land. From time to time, fire threatens agricultural areas. According to data provided by the HMPC, there have been four incidents in the District where fire has threatened cultivated vegetation or trees. Damages from these fires was unavailable.

Drought would most definitely affect the crop productions and pre-dry the lighter fuels creating more volatile wildfire conditions in the non-developed open areas of the District.

Earthquake

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Major infrastructure damage and potential fires may occur from earthquake. The District is concerned with the strain on resources due to earthquake response efforts. Mutual aid agreements with surrounding agencies may help reduce this, but would most likely be unavailable due to the regional nature of earthquake.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District is concerned with damage to commercial and residential properties from flooded creeks and ravines. This also may cause reduced crop production in the District.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

There are many localized flooding areas in the District. Problematic areas are shown in Table Q-4.

Table Q-4 South Placer Fire Protection District – Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Auburn Folsom	X						X
Joe Rodgers	X	X	X				X
Barton	X			X			

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Itchy Acres	X			X			X
Cavitt Stallman	X		X	X			

Levee Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Levee failure risk in the District is the same as the flood vulnerability.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

High temperatures create volatile light flashy fuels, creating a severe fire hazard throughout the entire District, especially in the WUI. Reduced crop production would result as well.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence– Highly Likely
Vulnerability–Medium

The District has concerns with reduced crop production, in addition to infrastructure damage due to frozen pipes.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence– Highly Likely
Vulnerability–High

In the District, high winds can cause issues for residents and District personnel. The HMPC provided past occurrences of wind events for the District. Downed power lines, caused by wind events, occurred 143 times between 1985 and 2015. 28 other severe weather events occurred inside District boundaries.

Soil Bank Erosion

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District noted that erosion may be problematic in the District. Washouts, as detailed in the Localized Flooding discussion above, are likely to occur.

Wildfire

Likelihood of Future Occurrence– Highly Likely
Vulnerability–High

The California Department of Forestry and Fire Protection (Cal Fire) provides services throughout the State. Generally, Cal Fire services are focused in wildland areas defined as state responsibility areas (SRA). Similarly, the United States Forest Service (USFS) also provides services in California, primarily within forests and grasslands. Areas where USFS services are focused are defined as federal responsibility areas (FRA). The territory of the District that lies within the Town of Loomis is designated as local responsibility area (LRA) and is not considered by Cal Fire to be a very high fire hazard severity zone. Unincorporated areas in the east and northwestern tip of the District are classified as SRA and considered to be moderate fire hazard severity zones. Cal Fire also provides technical support throughout the County in the form of specialized services such as fire suppression hand crews, dozers, and helicopter services when necessary.

The South Placer Fire Protection District provided past occurrences of fire that the District has responded to from 1985 to 2015. There were 1,485 fires that caused $48,375,358 in total losses. Many of these fires were house, car, or building fires. However, 601 of these fires were in grass, brush, forest, or natural vegetation fires. Damages from these specific fires was unavailable.

Hazardous Materials Transport

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Auburn Folsom Road, Sierra College Blvd and Douglas Blvd are main thorough fairs that connect I-50 to I-80. Many commercial trucks utilize these roads to transport product. South Placer Fire District has 3 fueling stations in the district. Any hazardous incident could result in product release that could contaminate the waterways, create traffic issues, and require potential evacuations. All of which impact our resources.

Q.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

Q.6.1. Regulatory Mitigation Capabilities

Table Q-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table Q-5 South Placer FPD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	Y	The District conducts capital improvement planning through multiple plans, including the apparatus replacement plan, capital facilities plan, long-term facility maintenance plan, and major equipment plan. The purpose of all capital improvements is the reduction of fire risk in the borders of the SPFPD.
Economic Development Plan	N	
Local Emergency Operations Plan	N	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013 CBC and 2013 CFC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 3/3Y
Site plan review requirements	Y	Board adopted standards.
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	

Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

Q.6.2. Administrative/Technical Mitigation Capabilities

The five-member board of directors governs the District. Board members are elected by the general population residing within the district boundaries and serve for staggered four-year terms. Table Q-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table Q-6 South Placer FPD's Administrative and Technical Mitigation Capabilities

Administration	**Y/N**	**Describe capability Is coordination effective?**
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	
Other	N	
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	N	
GIS Coordinator	N	
Other	N	
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	N	
Hazard data and information	N	

Grant writing	N
Hazus analysis	N
Other	N
How can these capabilities be expanded and improved to reduce risk?	

Q.6.3. Fiscal Mitigation Capabilities

Table Q-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities. More information can be found below the table.

Table Q-7 South Placer FPD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other	Y	See below.
How can these capabilities be expanded and improved to reduce risk?		

In FY 12-13, the District received $8,084,253 in revenue, including 66 percent from property taxes, eight percent from special tax, 14 percent from ambulance service charges, two percent from mitigation fees, three percent from OES reimbursements, one percent from cellular tower lease, four percent from proceeds from capital lease, and one percent from other sources. Interest income and fees also constituted a small percentage of the District's income (less than one percent).

The District is primarily funded by property tax, special tax and the District's ability to generate revenue by providing ambulance service and contracting for other services. Reportedly, the District's collection rate on ambulance services is about 42 percent.

Special tax was originally passed in 1980 and 1984 and is collected every year with no cost of living allowance at $70 per residence or $2 per acre of vacant land. The FY 14-15's tax roll is anticipated at $671,000 for 9,500 parcels. Special tax is collected by the County, which charges one percent of collected amount.

Loomis FPD pays SPFPD $100,000 a year with five percent increase annually based on increased personnel costs for fire chief and administrative services according to the contract between the two districts.

Q.6.4. Mitigation Education, Outreach, and Partnerships

Table Q-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table Q-8 South Placer FPD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		

SPFPD is a signatory of the Western Placer County Cooperative Fire Services Response Agreement along with the 12 other fire protection agencies in western Placer County, including Alta Fire Protection District, Cal Fire/Placer County Fire Department, Foresthill Fire Protection District, Loomis Fire Protection District, Newcastle Fire Protection District, Penryn Fire Protection District, Placer Hills Fire Protection District, City of Auburn Fire Department, City of Colfax Fire Department, City of Lincoln Fire Department, City of Rocklin Fire Department, and City of Roseville Fire Department. According to the agreement, the agencies provide automatic aid to each other and make use of the closest resource dispatching fire, rescue, and medical emergency response without regard to jurisdiction or statutory responsibility.

The District provides services to other communities in California under the California State Mutual Aid Plan. SPFPD also supports the statewide mutual aid system by staffing a State Of California Office Of Emergency Services Engine. The District is a part of the Placer County strike team deployment plan. District administrators have served as local area coordinators, strike team leaders, strike team assistants participated on State organized management teams and have sent emergency equipment to incidents all over the State of California and surrounding states.

South Placer FPD has automatic aid agreements with Sacramento Metropolitan Fire Protection District and City of Folsom Fire Department.

The District has a good working relationship with American Medical Response (AMR), which is one of the ambulance service providers in Placer County. SPFPD has automatic and mutual aid agreements with AMR to provide ambulance in some of the AMR service areas within eight minutes of SPFPD travel time, while AMR provides backup as needed. SPFPD is a party to two ambulance automatic aid agreements, one of which additionally involves AMR and Loomis FPD, and the other AMR and Penryn FPD. The District also signed a medical services mutual aid agreement with AMR and Newcastle FPD, according to which the closest provider responds to a request for medical transportation within a specific area in Newcastle FPD.

The District is a member of the California Fire Chiefs Association, Western Placer County Fire Chiefs Association, California State Firefighters Association, Fire Districts Association of California, and Fire Agencies Self Insurance System (FASIS). SPFPD participates in the Placer County Closest Resource Agreement, Placer County Emergency Operations Plan, and Region Four Mass Casualty Incident (MCI) Plan.

SPFPD collaborates with multiple other organizations and agencies.

Q.6.5. Other Mitigation Efforts

The District reported that its actual response capability at an incident consisted of three engines, a truck, ambulance, a battalion chief, and all 14 personnel on duty at any given time. There is also an additional capability of Volunteer and or Intern Firefighters that respond off duty on a regular basis.

SPFPD provides contract services to Loomis FPD (LFPD). According to the Administrative Services Agreement, SPFPD provides fire chief and administrative services to LFPD, including functions of organizational direction and control, supervision of operation, training, fire prevention, administration, fiscal management, and disaster management. LFPD pays SPFPD $100,000 a year in compensation, with five percent increase annually based on increased personnel costs.

Q.7 Mitigation Strategy

Q.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

Q.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Vegetation Management for Open Areas

Hazards Addressed: Wildfire

Issue/Background Statement: The topography, climate, and vegetation throughout the SPFPD is conducive to the spread of wild land fires. It contains extensive grasslands and oak woodlands in rolling terrain and in the WUI.

Other Alternatives: Public Education

Existing Planning Mechanisms through which Action Will be Implemented: Plan review for new subdivisions; Weed abatement; PRC 4291

Responsible Office: South Placer Fire District, Property owners

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Reduce the risks associated with natural hazards

Potential Funding: General Fund, Occasional grants, property owners, mitigation fees

Schedule: Ongoing

Action 2. Address Signs for Rural Residences

Hazards Addressed: Multi-hazard

Issue/Background Statement: The rural areas of the South Placer Fire District have residential homes that do not have visible addresses, make it difficult to locate them during an emergency.

Other Alternatives: No action

Existing Planning Mechanisms through which Action Will be Implemented: Plan review for new subdivisions and residential homes; Offer address signs to residents, at cost; Adopted code standards

Responsible Office: South Placer Fire District, Property owners

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Improved emergency response times.

Potential Funding: General Fund, Occasional grants, property owners, mitigation fees

Schedule: Ongoing

Action 3. Adopt 2016 CFC, CBC, and local standards

Hazards Addressed: Multi-hazard

Issue/Background Statement: The 2013 code cycle is ending. Updates to the 2016 code cycles are crucial.

Other Alternatives: No Action

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: South Placer Fire

Priority (H, M, L): High

Cost Estimate: Unknown

Benefits (Losses Avoided): Gives South Placer Fire District the authority to inspect and enforce codes, improving the general safety of the community.

Potential Funding: Fees associated with code enforcement, plan review, mitigation

Schedule: Ongoing

Annex R Squaw Valley Public Services District

R.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Squaw Valley Public Services District (Squaw Valley PSD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Squaw Valley PSD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

R.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table R-1. Additional details on plan participation and City representatives are included in Appendix A.

Table R-1 District Planning Team

Name	Position/Title	How Participated
Jessie McGraw	Operations Manager	Attended meetings. Provided hazard identification table. Provided mitigation action update. Provided new mitigation actions. Provided new risk and vulnerability data.
Brandon Burks	Operations Specialist III	Attended meetings in a training capacity and provided input

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table R-2.

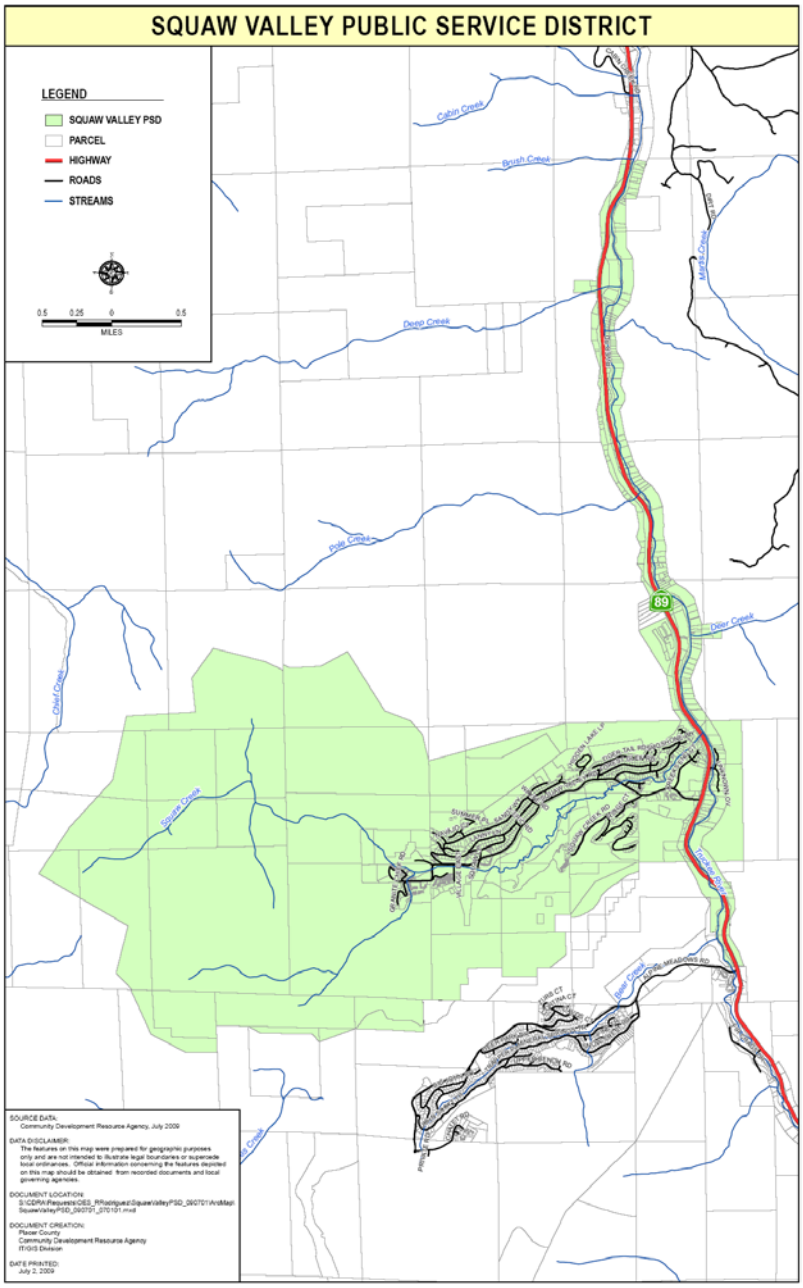
Table R-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
PCWA	Reference to the LHMP is included in the District's Emergency Response Plan. Projects identified in the LHMP will be included in the District's Water and Sewer System Master Plans to be completed in 2016

R.3 District Profile

The District service area is illustrated in Figure R-1.

Figure R-1 Squaw Valley PSD Service Area



Source: Squaw Valley PSD

R.3.1. District Information and Background

The Squaw Valley Public Services District (SVPSD) serves the community of Squaw Valley in providing water, maintaining sewer Lines, contracting garbage service, and providing fire protection services to the

community. The SVPSD encompasses approximately 5,350 acres within the Olympic Valley. Elevations within the District boundaries range from 6,100 to 9,000 feet above mean sea level.

The SVPSD serves a population of approximately 924 year-round residents, with a maximum overnight population of approximately 6,573. Both resident and visiting populations are housed in approximately 663 residential unit, 1,180 condominiums, and approximately 20 commercial entities consisting of private residences, ski resorts, hotels and supporting businesses.

The Olympic Valley is characterized by mild summers and cool, wet winters, with an average high temperature in July of 82 and 42 in January. Annual precipitation in the watershed varies from an average of 65 inches in the west to approximately 40 inches per year in the east. The majority of precipitation occurs as snowfall during the winter months. A relatively small amount of precipitation occurs as rain during the spring and summer months.

R.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table R-3).

Table R-3 Squaw Valley PSD Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Significant	Likely	Limited	Medium
Dam Failure	Limited	Unlikely	Limited	Medium
Drought and Water Shortage	Significant	Occasional	Negligible	Low
Earthquake	Limited	Occasional	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Limited	High
Flood: Localized Stormwater Flooding	Limited	Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Limited	Occasional	Negligible	Low
Severe Weather: Freeze and Snow	Significant	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Significant	Highly Likely	Limited	Medium
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Significant	Highly Likely	Limited	Medium
Soil Bank Erosion	Limited	Occasional	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Likely	Limited	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

R.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

R.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table R-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table R-4 Squaw Valley PSD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Hazard Info
Squaw Ridge Booster and Vault	Essential	$25,000	Earthquake, wildfire
Fire Station & Administrative Center	Essential	$5 million	Earthquake, Landslide, Wildfire
Headquarters & Utility/Fire Station	Essential	$1.6 million	Flood, Earthquake, Landslide
Pumphouse and Generator	Essential	$1.6 million	Earthquake, flood
Utility Garage and Generator	Essential	$575,000	Earthquake, landslide, Wildfire
SCADA System	Essential	$210,000	Extreme Weather
Water Tank #1	Lifeline	$660,000	Earthquake, Landslide
Water Tank #2	Lifeline	$500,000	Earthquake, Landslide
Water Tank #3	Lifeline	$175,000	Earthquake, Landslide
Convault Tank	Lifeline	$25,000	Wildfire
Main Well #2	Lifeline	$1.5 million	Earthquake, Flood
Well #5	Lifeline	$100,000	Earthquake, Flood
Well #3	Lifeline	$30,000	Earthquake, Flood
Well #1	Lifeline	$37,000	Earthquake, Flood
Squaw Valley USA Resort	High Potential Loss	$200 million	Wildfire, Avalanche, Earthquake, Landslide
Resort at Squaw Creek	High Potential Loss	$80 million	Wildfire, Landslide, Earthquake
State Route 89	Transportation	Unknown	Avalanche, Landslide, Flood
Midway Bridge	Transportation	Unknown	Earthquake, Flood
SVPSD Water Distribution System	Lifeline	$25 million	Earthquake, Flood, Landslide
SVPSD Sewer Collection System	Lifeline	$25 million	Earthquake, Flood, Landslide

Name of Asset	Facility Type	Replacement Value	Hazard Info
Squaw Valley Mutual Water Company	Lifeline	$10 million	Earthquake, Flood, Landslide

Source: Squaw Valley PSD

Natural Resources

Several state or federally listed species may be found within the District boundary. These are identified, along with other species of concern found in the District, in Table R-5.

Table R-5 Species of Concern in Squaw Valley Public Services District

Common Name	Scientific Name	CNPS3 Listing Federal Status	State Status
Carson Range rock cress	*Arabis rigidissima var. demote*	1B	
Oregon fireweed	*Epilobium oreganum*	1B	
Starved daisy	*Erigeron miser*	1B	
Nevada daisy	*Erigeron nevadincola*	2	
Donner Pass buckwheat	*Eriogonum umbellatum var. torreyanum*	1B	
American manna grass	*Glyceria grandis*	2	
Plumas ivesia	*Ivesia sericoleuca*	1B	
Long-petaled lewisia	*Lewisia longipetala*	1B	
Slender-leaved pondweed	*Potamogeton filiformis*	2	
Tahoe yellow cress	*Rorippa subumbellata*	1B	
Marsh skullcap	*Scutellaria galericulata*	2	
Munroe's desert mallow	*Sphaeralcea munroana*	2	
Fish, Amphibians, Birds			
Lahontan cutthroat trout	*Oncorhynchus clarkia henshawi*	FT	
Mountain yellow-legged frog	*Rana muscosa*	FE	CSC
Harlequin duck	*Histrionicus histrionicus*	MNBMC	CSC
Cooper's hawk	*Accipiter cooperi*	MNBMC	CSC
Northern goshawk	*Accipiter gentiles*		CSC
Bald eagle	*Haliaeetus leucocephalus*	FT; FPD; MNBMC	SE; CFP
Osprey	*Pandion haliaetus*		CSC
Yellow warbler	*Dendroica petechia brewsteri*	MNBMC	CSC
Willow flycatcher	*Empidonax trailii*	MNBMC	SE
Sierra Nevada mountain beaver	*Aplodontia rufa californica*		CSC
California wolverine	*Gulo gulo*		ST
Sierra Nevada snowshoe hare	*Lepus americanus tahoensis*		CSC
Western white-tailed jackrabbit	*Lepus townsendi*		CSC

Common Name	Scientific Name	CNPS3 Listing Federal Status	State Status
American pine marten	*Martes Americana*		
Sierra marten	*Martes Americana sierrae*		
Pacific fisher	*Martes pennanti (pacifica) DPS*	FC	CSC
Long-legged myotis	*Myotis Volans*		
Sierra Nevada red fox	*Vulpes vulpes necator*		ST

Sensitive habitats in the District include the following:

- Lodgepole pine forest
- Red fir forest
- Montane chaparral
- Montane riparian
- Wet meadows
- Ponds
- Riverine/riparian

Growth and Development Trends

Significant development is contemplated with expansion of the village at Squaw Valley; information may be obtained at Placer County under the Village at Squaw Valley Specific Plan. Additional projects on the near horizon include:

- PlumpJack Squaw Valley Inn: a plan to raze and rebuild an existing 61 unit hotel into a 60 unit hotel plus 34 condos. The project will include an underground parking garage that may be impacted by flooding on Squaw Peak Road.
- The Resort at Squaw Creek Phase II: A fully entitled project that would add a second tower and 18 Lakeside condos totaling 221 units, a parking garage and employee housing.

Projects in Planning include:

- The Palisades: Approximately 65 single family planned unit development currently in the pre-development stage having filed a Notice of Intent
- Carville Property Hotel and Residential Project- a boutique hotel and several homes

None of these projects pose a significant impact to existing hazards

Unique to this part of Placer County is not the growth of full time residents, but the influx of visitors and tourists to the area, especially during the peak summer and winter seasons. While this area is home to only about 924 full time residents, during high season, some 6,500 people, on any given day, may be enjoying the recreational and tourist opportunities. This spike in population creates a unique vulnerability to the area, especially in the event highways become impassable due to flooding, landslides, avalanches or gridlocks due to high volume and extreme weather conditions. Even during the off-season, the lack of multiple transportation routes, if closed, can leave the resident population cut off from necessary and potentially life-saving services.

It is important to note that given the high cost of housing due to the resort nature of the area, much of the work force resides outside of Squaw Valley. With limited access roads to the area, the work force may be isolated when most needed for disaster response.

Development since 2010 Plan

Development of the District area is similar to Placer County as a whole. Placer County development since the last Plan is shown in Section 4.3.1 of the base plan.

Special Populations

Squaw Valley has few residents that fit the category of special populations. The Village project identified below will seek an employee housing project; presently low income workers live mostly outside Squaw Valley.

R.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table R-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Avalanche

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Ski resorts, due to their steep slopes, abundant snow, snowpack, and the presence of people moving throughout the area, are prone to avalanches. The 2004 Placer EOP identities the Squaw Valley area as vulnerable to avalanche activity. In 2001 during a winter storm generating 20 inches of fresh snow, a Class II avalanche occurred resulting in two fatalities. Other avalanches occur throughout each winter ski season, with most of these confined to out-of-bounds areas where damages are limited.

Residential areas subject to avalanche are located along Sandy Way at the base of steep slopes, most significantly in the area known as "the slide" above the 1200 block. The Shirley Lake Condominiums on Squaw Peak Way have been hit by small avalanches on several occasions. The Squaw Valley Fire Department may evacuate these areas during periods of known and extreme avalanche danger.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

There are 7 surface water impoundments in Squaw Valley of about an acre or less in surface area contained behind small earthen or concrete dams. They are Hidden Lake, Gold Coast Snow Making Pond, Olympic Lady Pond, Shirley Lake, an old water supply reservoir on the South fork of Squaw Creek above the base area of the ski resort, and 2 ponds at the Resort at Squaw Creek golf course. These impoundments are known to overflow during extreme flood events such as the 1997 flood and would contribute a moderate surge of additional water if failure were to occur.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

As indicted on the Earthquake Shaking Map in Section 4.2.10 of the main plan, the shaking potential is greatest in the eastern portion of the County, including the SVPSD service area. The 2008 Draft Supplemental Environmental Impact Report for Water and Sewer Service Agreement for the resort at Squaw Creek: Phase II, indicates that six north-northwest, trending north-northeast dipping faults are located in the Olympic Valley watershed, four of which cross the valley floor. Of the four faults, only one has documented evidence of recent movement. However, because of the limited development in the area, and lack of un-reinforced masonry buildings, compared to a more urban setting, the SVPSD service area would likely be of moderate vulnerability to damage from severe ground shaking.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–High

The Olympic Valley watershed is a small subalpine and alpine watershed covering an area of approximately 8.2 square miles. It is characterized by steep, mountainous slopes draining to and through the limited valley area. The watershed includes the drainages of the North Fork, the South Fork, and the main stem of Squaw Creek. Watershed elevations range from approximately 6,200 feet on the valley floor up to 9,000 feet on

the highest peaks adjacent to the valley. Squaw Creek and its tributaries are the only significant surface water bodies in Olympic Valley. The two main forks converge in an area known as the confluence at the western end of the valley. The confluence is a wide gravel-filled portion of Squaw Creek that has been altered due to gravel mining. The primary source of Squaw Creek's annual flow is snowmelt. The snowmelt peaks in the spring and often continues through July and August, when it starts to dry up.

Areas impacted by previous flooding include the North and South forks of Squaw Creek, through the Squaw Valley Ski Area and commercial property, including PlumpJack (Squaw Valley Inn) and Squaw Valley Lodge, and running the entire length of Olympic Valley to its merger with the Truckee River.

Flooding and soil erosion due to heavy rains and snow runoff have been a historical problem. Abundant snowfall in the mountains combined with rain and steep terrain can mean rapid runoff and flooding. Water flow can be high in peak runoff periods with historical downstream flooding. The primary impacts from flooding within the District include damage to roads, utilities, bridges; and flooding of homes, businesses and critical facilities. Historically, mud slides and washouts associated with flooding caused the most damages within the District. The south fork of the Squaw Creek is generally impacted the most. Road closures create difficulties in providing emergency services to areas cut off by flooding and limit the area's ability to evacuate.

A recent flood event impacting the District is flooding occurring in January of 2006. Heavy rains (estimated at over 10 inches in three days) were the primary cause of this flood event. This flooding of Squaw Creek (estimated as a 50-year event) caused erosion, inflow to sewer system, power failures, road closures (from mudslides), and impacts to local businesses cut off by the flooding. Unlike the 1997 flood, there was no damage to the District's facilities or infrastructure.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

There are 3 areas that are historically problematic in Squaw Valley. The South fork of Squaw Creek has overflowed its banks effecting 6 homes on lower Granite Chief Road and the Squaw Valley Lodge. There are 2 sections of Squaw Valley Road that overflow periodically effecting traffic; near the post office East of Christy Hill Road and near the intersection of Squaw Valley Road and Wayne Road. These are shown on Table R-6.

Table R-6Squaw Valley Public Services District – Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Squaw Valley Road 2 locations	X			Tributary of Squaw Creek		X	

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees
Squaw Peak Road	X			South Fork Squaw Creek			

Source: Squaw Valley PSD

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Given the geology, climate, and terrain of the District, landslides can be a significant concern. Notable landslides of record include the landslides occurring along the Truckee River, Squaw Creek and Bear Creek rivers associated with the 1997 flood event. These include the Wayne Road, Sandy Way, and Navajo Court landslides discussed in detail in Section 4.2.15 of the main plan. See Figure 4.23 for a map depicting these landslide areas.

The Sandy Way mudslide area has had several significant releases – the first in about 1983 and the second in 1997. Following the 1983 event, the portion of the drainage just above Sandy Way was widened and deepened somewhat and a larger culvert installed. Debris was removed from the areas downhill of Sandy Way, but the stream channel was not altered significantly nor were improvements constructed. Following the 1997 event (which accompanied significant and widespread flooding and mudslides/debris flows in other areas) the Sandy Way improvements were cleaned out, with little change and without installation of further improvements. The area remains questionable today – it will very likely release again, given similar rainfall intensity and duration.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Extreme winter weather events are a major concern to the District. Extreme weather events, often accompanied by extreme temperatures happen on an annual basis within the SVPSD boundaries. With altitudes ranging from 6,000 to 9,000 feet above msl, extreme cold/freezing temperatures can create significant problems. Of particular concern to the District is the vulnerability of the area to broken utilities and power failures during extreme weather events. Snow and winter weather conditions regularly result in utility outages and the closure of major transportation routes. According to the NTFPD planning team, major winter storms have routinely cut off transportation routes in the District for hours (as resent as March 2007) to over a week (back in the 1950s), stranding thousands and causing a major impact to services and supplies.

Severe Weather: Fog and Freezing Fog

Likelihood of Future Occurrence– Highly Likely
Vulnerability–Medium

Fog and freezing fog occur locally and in outlying areas on an annual basis. Impacts to Squaw Valley include traffic accidents on interstate 80 and highway 89 that disrupt emergency access to Squaw Valley.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence– Highly Likely
Vulnerability–Medium

Heavy rains and severe thunder storms have occurred frequently in Squaw Valley and are likely to occur annually. These events are known to cause localized flooding, erosion, and damage to utility infrastructure. High winds are associated with frequent power loss and although the District maintains 3 emergency generators, personnel responding are often confronted with travel delay due to road closures.

Wildfire

Likelihood of Future Occurrence– Highly Likely
Vulnerability–High

The community of Olympic Valley (commonly known as Squaw Valley) is served by Squaw Valley Public Services District and is listed on the National Fire Plan's "Communities at Risk" list as set forth in Section 4.3.2 of the main plan.

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildland severely overgrown. All of the private land in the District's service area is in the wildland urban interface with residential development throughout.

As more people live in the area on a full-time basis and recreational uses and accompanying impacts increase, there will be more human-caused wildfire starts each year. Of greater concern is the increased number and value of homes developed within the WUI areas of the District. This adds greatly to the complexity and cost of fighting these fires – the 'values at risk' continue to escalate.

Squaw Valley has only one means of ingress and egress as a result of the configuration of the Valley, this will never change. Furthermore, a single road connects Squaw Valley to adjoining communities - California State Route 89 - this can never change because of the configuration of the Truckee River canyon. Evacuating the community or getting a large number of fire suppression resources to the Valley over a single road clogged with panicked residents trying to flee a wildland fire of significant size would be a daunting challenge indeed. Because of the steep terrain and dense forest immediately adjacent to the roadway, it is likely that these routes would have to be closed during a major event, stranding many people - including many visitors - away from their families and homes. To date there has been no loss of life attributed to the limited evacuation routes, but it is likely only a matter of time before people are cut off and

trapped by a major fire event. The Valley has been isolated for days at a time by simultaneous avalanche and mudslide events on State Route 89.

Forest overgrowth due to the efficiency of modern firefighting techniques and to society's current election to limit forest thinning and harvesting is a serious problem. If wildfire does not impact the forest first, native insects will eventually kill millions of trees. Explosions in insect populations usually start during a drought, when the lack of water combined with too many trees per acre render the trees too weak to fight off the insect attacks. Without a change in management practices on public lands, there is little hope of avoiding significant tree mortality similar to that experienced in other mountain environments in Southern California and Colorado.

The most recent major wildfires to impact the District were the Angora and Washoe Fires in 2007, in which over 260 homes were lost, and the 2014 King Fire. The king Fire grew to over 97,000 acres and burned within about 6 miles of the District boundary. It was particularly concerning because of the extreme fire behavior exhibited - including a ten mile run over the course of a few hours in the middle of the night – and it actually caused fire managers and scientists studying fire behavior to reconsider whether accepted norms of fire behavior needed to be reexamined. These are only a few examples of recent, larger wildfire events in the Lake Tahoe Basin and eastern Placer County."

R.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

R.6.1. Regulatory Mitigation Capabilities

Table R-7 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table R-7 Squaw Valley PSD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	1992 1994	Water& Sewer System Master Plans are being updated now and will be complete in 2016
Capital Improvements Plan	2007	Update as part of above master plan work
Economic Development Plan	N	Placer Co
Local Emergency Operations Plan	2014	
Continuity of Operations Plan	N	Water System Operations Plan is 80% complete Sewer System Management Plan 2010

Transportation Plan	NA	Placer Co
Stormwater Management Plan/Program	NA	Placer Co
Engineering Studies for Streams	2007	Placer County funded study by PWA
Community Wildfire Protection Plan	N	Defensible Space Program see 2010 plan description
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	Placer Co
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	NA	Version/Year: Placer Co
Building Code Effectiveness Grading Schedule (BCEGS) Score	NA	Score: Placer Co
Fire department ISO rating:	Y	Rating: 2 in Valley hydrant areas, 5 in river corridor
Site plan review requirements	Y	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	Placer Co
Subdivision ordinance	N	Placer Co
Floodplain ordinance	NA	Placer Co
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	Placer Co
Flood insurance rate maps	N	Placer Co
Elevation Certificates	NA	Placer Co
Acquisition of land for open space and public recreation uses	N	Placer Co
Erosion or sediment control program	N	Placer Co
Other		District Ordinances including Water Code, Sewer Code, and Fire Prevention Code
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District, in conjunction with the County, has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Olympic Valley Groundwater Management Plan, 2007

The Olympic Valley Groundwater Management Plan summarizes the plan process, existing groundwater and surface water conditions, and explores options for providing a sustainable water supply for current and

future beneficial uses. An update of the Olympic Valley Groundwater Management Plan will be completed in 2016.

Codes and Ordinances

Avalanche

Placer County's avalanche management program defines Potential Avalanche Hazard Areas (PAHAs) where the minimum probability of avalanche occurrence is 1 in 100 per year or where avalanche damage has already occurred. According to the Placer County Avalanche Ordinance the following information must be disclosed in PAHAs:

- Identification that a structure is within a PAHA;
- A warning that avalanche control work is conducted in the area and avalanche warnings will be provided as feasible; and
- Identification of sources that provide weather information and general information on avalanches.

In addition, the County limits construction as necessary in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

Squaw Valley Public Services District Codes and Permits

SVPSD has enacted several codes:

- Water Code
- Sanitary Sewer Code
- Fire Prevention Code

In addition, the District has permit requirements specific to:

- Residential Construction
- Commercial Construction
- Multiple Dwelling Units
- Temporary Discharge into Sewer
- Temporary Fire Hydrant Connection

R.6.2. Administrative/Technical Mitigation Capabilities

The District is governed by a five-member Board of Directors elected to four-year terms. Registered voters within District boundaries are eligible to run for office. The Board of Directors approves District codes and policies. Placer County provides the District with the resources of a planner/engineer with knowledge of land development and management practices. The District also utilizes the services of a building official and GIS staff from Placer County. The District also participates in the County's teleminder system for people residing with District boundaries. Table R-8 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table R-8 Squaw Valley PSD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	Placer Co
Mitigation Planning Committee	N	Placer Co
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	Defensible Space program
Mutual aid agreements	Y	Tahoe Truckee Area Emergency Contingency Plan Fire Dept. Mutual Aid Agreement
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	Placer Co
Floodplain Administrator	N	Placer Co
Emergency Manager	N	
Community Planner	N	Placer Co
Civil Engineer	Y	General Manager Mike Geary
GIS Coordinator	Y	District Engineer Dave Hunt Farr West Engineering
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Everbridge
Hazard data and information	N	Placer Co
Grant writing	Y	Staff
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

R.6.3. Fiscal Mitigation Capabilities

Table R-9 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table R-9 Squaw Valley PSD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Squaw Creek Embankment Reinforcement Project
Authority to levy taxes for specific purposes	N	Restricted by Prop 218
Fees for water, sewer, gas, or electric services	Y	Water and Sewer Asset Replacement Plan
Impact fees for new development	Y	Fire Department Apparatus Asset Replacement Plan
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	
State funding programs	Y	Member of Tahoe Sierra Integrated Water Management Plan
Other		
How can these capabilities be expanded and improved to reduce risk?		

R.6.4. Mitigation Outreach and Partnerships

Table R-10 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table R-10 Squaw Valley PSD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Bi annual newsletter

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Natural disaster or safety related school programs	N	Not known
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

The District attempts to work with the local community and solicit public comment and involvement in District programs, system improvements and upgrades. Considerable public outreach and participation was extended during the development and adoption of the Olympic Valley Groundwater Management Plan, preparation and certification of a Supple-mental EIR for the Resort at Squaw Creek's Phase II Expansion, as well as numerous system upgrade projects.

R.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including:

- In 2014 the District as part of a project to produce an Operations Plan updated the Emergency Response Plan
- In 2010 the District completed and adopted a Sewer System Management Plan
- In 2015 the District as part of the Village Master Plan completed a Water Supply Assessment funded by the developer. The WSA looked at projected growth over the next 25 years and modeled impacts to the Squaw Valley Aquifer during multiple drought years. The study shows the Squaw Valley Aquifer is not presently in overdraft and should sustain the growth proposed.
- The District is presently working on a study funded by DWR titled Redundant Water Supply Preferred Alternative Analysis. This study lays the groundwork for a system intertie with the Truckee Donner PUD & Northstar Community Services Districts

Squaw Creek Embankment Reinforcement Project: As a result of bank erosion from a 1986 flood event, the Squaw Valley sewer export line that runs adjacent to Squaw Creek was being threatened. In 1989, the bank was reinforced using boulder rip rap. In 2000, the District completed a $400,000 plus project to armor a 400 foot reach of Squaw Creek where the 1997 flood threatened the Squaw Valley Interceptor sewer main, a pipeline that carries 100 percent of the valley's effluent.

CAT

Defensible Space Program: The Squaw Valley Fire District has had a defensible space program for the past 20 years. This program entails a physical inspection of every property in the District's jurisdiction for compliance with California's defensible space laws. Properties that are not in compliance at the time of the first inspection receive follow-up visits and notices until they are brought into compliance. Every property complies with the defensible space regulations every year. The inspection checklist includes:

- Making sure the street address is visible from the street and contrasts with background—suggested 5" or 6" numbers.
- Cut grasses and mule ears 6" or shorter to 100' from house or to property line.
- Rake and remove pine needles to 100' from house or to property line—okay to leave 1-2" for mulch.
- Remove accumulated pine needles from the roof.
- Cut grasses, thin brush and other flammable vegetation to 100' from house or to the property line.
- Clear debris (slash, pine needle piles, construction debris and flammable storage) from around the structure.
- Clear vegetation to mineral soil around firewood storage piles.
- Remove brush, limbs, grass, needles and debris 10' in all directions from around propane tanks.
- Limb adult trees up to a minimum of 6' from the ground.
- Remove dead tree limbs touching or overhanging roofs and decks.
- Remove all tree limbs a minimum of 10' from chimneys and stovepipes.
- Remove all dead and dying trees from the property.
- Install a ½ inch mesh screen spark arrester on chimneys and stovepipes

R.7 Mitigation Strategy

R.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

R.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Emergency Water Supply Interconnection to Martis Valley

Hazards Addressed: Contamination of sole source aquifer, loss of source wells due to disaster, earthquake, and drought. Wildland fire mitigation through increased fire protection services

Issue/Background: The community of Squaw Valley draws its drinking water from a single source aquifer that is very small, unprotected and is very sensitive. Source water travels rapidly through the aquifer making contamination of the supply of deep concern. Prolonged or extended drought consistent with changing global weather patterns could lead to overdraft of the limited supply.

Squaw Valley is geographically separate from outlying communities that may provide an emergency interconnection. A feasibility study conducted in 2009 determined that a connection to the Truckee Donner PUD or the Northstar CSD to be feasible with no fatal flaws in securing water rights, environmental constraints, or rights of way.

The purpose of the project is to provide a redundant source of supply that is geographically diverse with a reliable means of delivery. The delivery system will provide water service and fire protection to outlying areas while providing a utility corridor for natural gas and high speed communication.

Other Alternatives: The Redundant Water Supply Preferred Alternative Analysis, Farr West Engineering 2015 looked at alternatives in depth and determined that the connection to the Martis Valley Aquifer to be the best most reliable and feasible alternative

Existing Planning Mechanism(s) through which Action Will Be Implemented: The feasibility study and the alternatives analysis were funded by the California Department of Water Resources through Prop. 89. The District will seek additional funding through Prop. 1. The next phase of the project will be the environmental analysis under CEQA and securing permits.

Responsible Office/Partners: The Squaw Valley Public Services District is presently the lead agency for the project and has or is developing partnerships with the Placer County, Placer County Water Agency,

Truckee Donner PUD, Northstar CSD, Tahoe City PUD, Alpine Springs CWD, Sudden Link Cable, Southwest Gas, and other state and local agencies

Cost Estimate: Planning level cost estimates range from $23,520,000 to $25,200,000 depending on the final alignment

Benefits (Losses Avoided): The project would provide an alternative water supply to multiple communities while bringing high speed fiber optics communication and natural gas to the area. The benefits of the project are increased fire protection along the Truckee River corridor between Truckee and Alpine Meadows where there currently is none. A partnership with Southwest Gas bringing natural gas to the area would lower fire danger by eliminating thousands of propane tanks and reducing on road transport by tanker trucks supplying propane. The project seeks to avoid loss of essential services during an emergency or natural disaster.

Potential Funding: Grants, partnerships, bonds, customer service fees

Timeline: The project is presently being pursued with completion of the alternatives analysis to be finished by December 2015. CEQA and project permitting is the next phase. The timeline for permits ranges from 12 to 24 months with construction following final funding.

Project Priority: This project is the District's highest priority

Action 2. Truckee River Siphon

Hazards Addressed: Pollution of the Environment due to Flood or Erosion

Issue/Background: During the 1997 flood the wastewater conveyance system in Squaw Valley was overcome and inundated.

The Truckee River Siphon is a 10" diameter pipe conveying 100% of the valley's wastewater under the Truckee River connecting to the TTSA Interceptor that conveys sewage from the communities of Lake Tahoe, Alpine Springs, and Squaw Valley to the regional treatment facility in Truckee. The Truckee River Siphon serves as a "bottleneck" in the system; sewer flow surcharged upstream of the siphon during the 1997 flood spilling over 1,000,000 gallons of diluted wastewater into the Truckee River. Erosion of the river bottom could result in the siphon being damaged or washed away causing an environmental disaster. Squaw Creek and the Truckee River are environmental treasures that supply drinking water to the citizens along it to include the city of Reno Nevada before reaching its terminus at Pyramid Lake.

The Truckee River Siphon Project seeks to replace the existing siphon with a redundant and larger siphon adjacent to and deeper than the existing siphon.

Other Alternatives: There are no feasible alternatives

Existing Planning Mechanism(s) through which Action Will Be Implemented: The SVPSD Sewer System Master Plan

Responsible Office/Partners: Squaw Valley Public Services District is the lead agency for the project and is a member of the regional waste water treatment facility Board of Directors

Project Priority: High

Cost Estimate: $500,000

Benefits (Losses Avoided): Avoids loss of critical facility and pollution of the environment

Potential Funding: Grants, loans, developer fees, service fees

Timeline: 1 to 4 years

Action 3. Squaw Creek Siphon

Hazards Addressed: Pollution of the Environment due to Flood or Erosion

Issue/Background: During the 1997 flood the wastewater conveyance system in Squaw Valley was compromised due to erosion in multiple locations.

The Squaw Creek Siphon conveys wastewater from around 200 home across and under Squaw Creek where it ties into the Squaw Valley Interceptor. High velocity flood waters cut downward and eroded the creek bottom in the 1997 flood completely exposing the Squaw Creek Siphon. After the flood waters receded the District installed rock gabions upstream, downstream and over the Squaw Creek Siphon to protect the pipeline. The 1997 flood has been characterized by Placer County as a 50 year event, a similar or larger event would potentially damage or wash away the Squaw Creek Siphon causing wastewater to pollute Squaw Creek and the Truckee River.

The Squaw Creek Siphon Project seeks to replace the existing siphon with a redundant and larger siphon adjacent to and deeper than the existing siphon.

Other Alternatives: There are no feasible alternatives

Existing Planning Mechanism(s) through which Action Will Be Implemented: The SVPSD Sewer System Master Plan

Responsible Office/Partners: Squaw Valley Public Services District is the lead agency for the project

Project Priority: Medium

Cost Estimate: $250,000 to $300,000

Benefits (Losses Avoided): Avoids loss of critical facility and pollution of the environment

Potential Funding: Grants, loans, developer fees, service fees

Timeline: 5 to 10 years

Action 4. Easement Abatement/Maintenance of Emergency Access

Issue/Background: Approximately 30 percent of the Public Services District's water distribution and sewer collection systems are located in easements. A survey of residential lots in Squaw Valley found that 240 homes had one or more utility easements for water or sewer pipelines. In many cases homeowners have place obstacles on the easement that prevent access to critical infrastructure. Examples of these encroachments include fences, sheds, propane tanks, trees, brush, and landscaping. Additionally many easements are simply overgrown with Manzanita, trees, and brush. Almost all easements are located on side and rear property lines. Maintaining access to easements is necessary to maintain lifeline facilities or respond to system failures during a disaster. Removal of trees and brush from residential property lines will reduce fuels and increase defensible space. Reduction in fuels and increased defensible space will help to prevent wildland fires and prevent fire from spreading from one structure to the next. During the 1997 flood, significant losses of infrastructure occurred in easement areas leaving residents without lifeline services for extended periods.

This project entails four components:

1. Public Education & Outreach
2. Ordinance Development & Implementation
3. Property Inspections & Enforcement Actions
4. Clearing & Grubbing coupled with Re-vegetation & Erosion Control

The District began work on item 1 in 2006 by posting articles in our semi-annual newsletter. In 2007 the District mailed informational letters to all residents with easements on their property.

Phases 3 & 4 of the project will require significant effort by the District in manpower allocation and contracted services.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Annual budget allocations

Responsible Office: Squaw Valley Public Services District

Priority (H, M, L): Medium

Cost Estimate: $80,000 to $120,000

Benefits (Losses Avoided): Avoid structural losses from fire and loss of lifeline services

Potential Funding: Funding for the project may come from grants, low interest loan, or from District reserves when available.

Schedule: 95% of property inspections have been completed and only a dozen or so remain uncleared as of fall 2015. The remaining properties should be inspected and cleared in summer of 2016.

Action 5. Develop a Community-Wide Emergency Notification System Capable of Providing Information to Both Residents and Visitors by Utilizing Permanent, Roadside Changeable Message Boards and a Low-Power Radio Transmitter.

Issue/Background: Squaw Valley has a number of potential hazards that can impact both residents and visitors. Natural hazards include an avalanche hazard area affecting a significant number of homes and a mudslide that affects a smaller number. Both residences and businesses have been affected by flooding. The Granite Chief Wilderness Area to the west of the Valley poses the threat of wildland fire. During periods of heavy snow, the Valley can be essentially paralyzed until side roads are plowed. Human-caused hazards include frequent periods of very heavy traffic during winter months and occasional, but equally paralyzing traffic during the summer.

The population of Squaw Valley can increase more than ten-fold over the course of several hours on a Saturday morning. Presently, there is no way of effectively alerting residents and visitors of a hazard and the actions to be taken in response.

A community-wide emergency notification system could be implemented with relative ease and cost-efficiency in a compact area like Squaw Valley. Permanent, changeable message boards located along Squaw Valley Road at the west and east ends of the Valley could be used to alert residents and visitors of a hazard and refer them to the frequency for a low-power FM transmitter that would transmit more detailed information and recommended courses of action.

Other Alternatives:

1. No action
2. Emergency siren/air horn
3. Everbridge Alert System (already in place at the County level)

Other alternatives have been considered and/or tried at one time or another. The emergency siren/air horn was in place until the mid-1980s, but was ineffective at providing information – residents might know that there was an emergency, but not what to do; visitors were simply bewildered. The Everbridge Alert System system is in place, but notifies only residents in their homes and only the population for which a valid telephone number is available.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office: Peter A. Bansen, Fire Chief

Priority (H, M, L): High

Cost Estimate: Approximately $70,000.

Cost Benefit: This is a highly effective way of reaching a large number of people at a very low 'per capita' cost. Once installed, the changeable message boards should be very low maintenance and will cost very little to program and operate. The low-power radio transmitter should be even less costly to install and operate. The two components are both necessary – without the radio transmitter the message boards can

provide only minimal information; without the message boards, no one will know to turn their radio to the low power transmitter.

Potential Funding: Potentially funded by a grant or combination of grants.

Schedule: One year or less, depending on permitting and product availability.

Action 6. SVPSD/Mutual Water Company Inter-tie

Issue/Background Statement: There are two water companies in Squaw Valley, the Squaw Valley Public Services District and the Squaw Valley Mutual Water Company. The two entities have a mutual interest in providing emergency service during critical periods. Pipelines of the two entities are close together in several locations but do not connect. The California Department of Public Health recommends that water utilities develop emergency connections for backup emergency supply purposes. This project would entail installing the underground pipes and pressure reducing valve to inter-tie the systems and an above ground booster station to supply water from the SVPSD to the Mutual Water Company, the higher pressure zone. The design phase of the project was completed in 2014 with grant funding from PCWA.

Other Alternatives: No action.

Existing Planning Mechanisms through which Action Will be Implemented:

Responsible Office: Squaw Valley PSD

Priority (H, M, L): Low

Cost Estimate: $150,000 to $200,000

Benefits (Losses Avoided): Pre-disaster planning/avoids loss of lifeline services

Potential Funding: Funding for the project may come from grants, low interest loan, or from District and Mutual Water Company reserves if or when available.

Schedule: None

Action 7. Water Tank Earthquake Retrofit Project

Issue/Background: The Squaw Valley Public Services District owns three water storage tanks, the East Tank, West Tank, and Zone III Tank. The Mutual Water Company owns two steel tanks.

The Public Services District's Zone III Tank is small (135,000 gallon) and does not pose an immediate threat to property due to location. The District's West Tank (1,150,000 gal) was constructed to withstand earthquake and wind shear. The District's East Tank (500,000 gal) was constructed in 1980 and is designed to withstand snow loads but not lateral stress from a substantial earthquake. The East tank is located up gradient from several multi-million dollar homes. The Mutual Water Company Steel Tank (300,000 gal) is located adjacent to a wash that sustained mud flows in the 1997 flood that caused significant erosion of the tanks earth foundation pad. The Mutual Water Company Redwood Tank was replaced in 2011. Both

Mutual Water Company Tanks are located up gradient from numerous single family homes that would be heavily impacted due to a tank failure.

The project would entail a seismic analysis by a qualified geotechnical firm of the Mutual water tank and the Districts East Tank. Seismic retro-fit would be designed and employed of deemed necessary.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office:

Priority (H, M, L): Medium

Cost Estimate: $50,000 to $500,000 depending on scope

Benefits (Losses Avoided): Property protection and loss of lifeline services due to earthquake or land subsidence which could result in catastrophic tank failure

Potential Funding: Funding for the project may come from grants, low interest loan, or from District and Mutual Water Company reserves if or when available.

Schedule: 2015 or beyond

Annex S Tahoe City Public Utility District

S.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Tahoe City Public Utility District (Tahoe City PUD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Tahoe City PUD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

S.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table S-1. Additional details on plan participation and City representatives are included in Appendix A.

Table S-1 District Planning Team

Name	Position/Title	How Participated
Tony Laliotis	Director of Utilities	Attended meetings. Provided hazard identification table. Provided updated assets tables. Provided updated to vulnerability section. Provided capability tables. Provided mitigation actions.
Dan Lewis	Utilities Superintendent	Attended meetings

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table S-2.

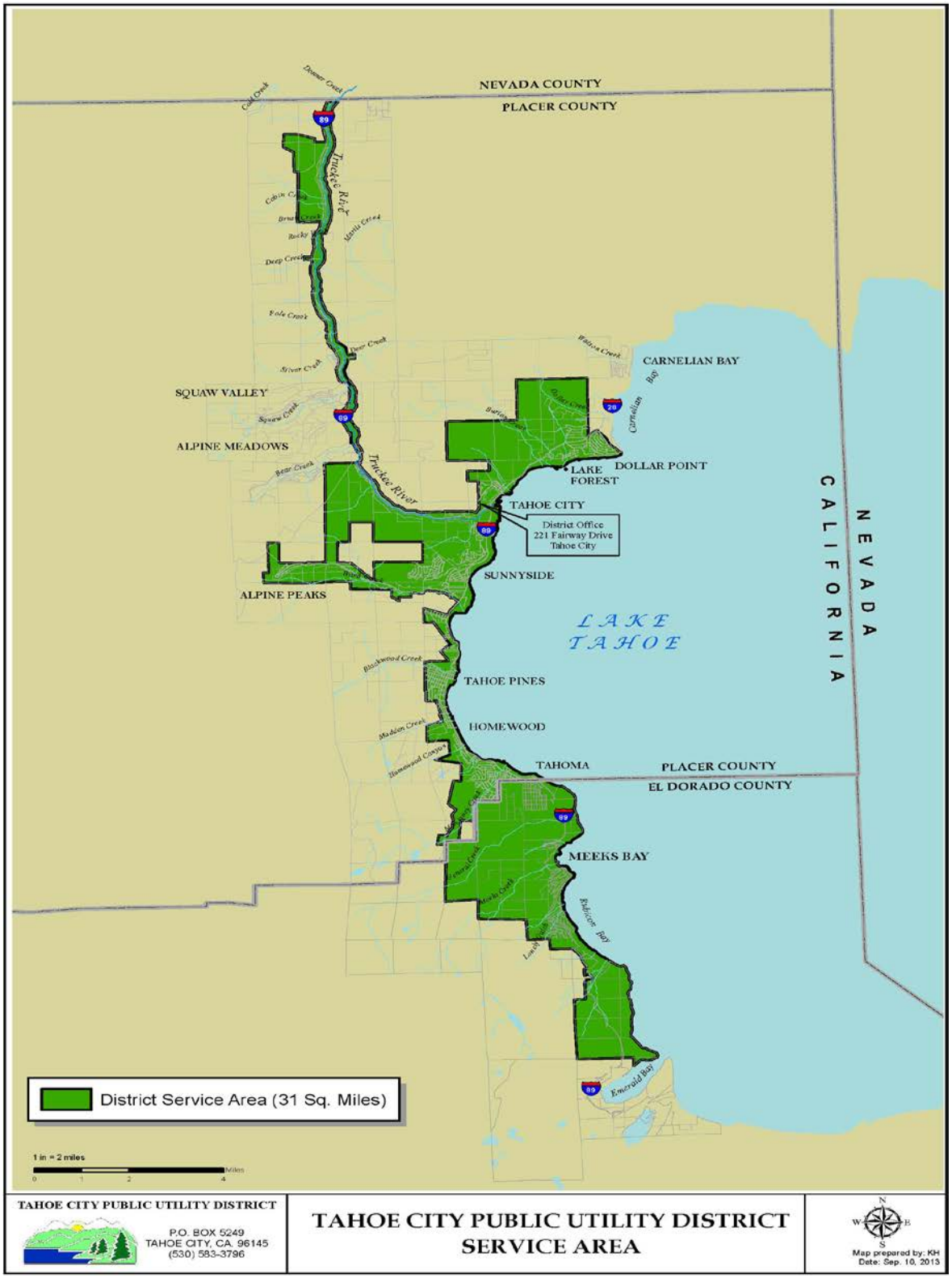
Table S-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
TCPUD	The LHMP was incorporated into the Capital Improvements Plan for the District.

S.3 District Profile

The District service area is illustrated in Figure S-1.

Figure S-1 Tahoe City PUD Service Area



Source: Tahoe City PUD

S.3.1. District Information and Background

The Tahoe City Public Utility District was founded in 1938 to provide some of the governmental needs of the residents of Tahoe City. It is the oldest local government in the Tahoe Basin and was formed initially to provide public water service to the local community. Established under the State of California's Public Utility District Act, the founders of the District chose a form of government that could provide multiple types of services. The boundaries of the District extend from Emerald Bay to Dollar Hill, and along the Truckee River to the Nevada County line. The service area is very large, encompassing almost 22 square miles.

The TCPUD's provides sewer collection, parks facilities, and recreation services for the entire area of the District. Water service is provided in four separate systems and serves approximately half of the homes and businesses in the District. Water service is provided to approximately 4,000 customer; sewer services to 7,800 customers; and parks and recreation customers total over 500,000.

The Tahoe City area is characterized by mild summers and cool, wet winters, with an average high temperature in July of 82 and 42 in January. Annual precipitation in the watershed varies from an average of 65 inches in the west to approximately 40 inches per year in the east. The majority of precipitation occurs as snowfall during the winter months. A relatively small amount of precipitation occurs as rain during the spring and summer months.

S.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table S-3).

Table S-3 Tahoe City Public Utility District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Likely	Critical	High
Dam Failure	Limited	Unlikely	Critical	Medium
Drought and Water Shortage	Significant	Likely	Critical	High
Earthquake	Significant	Occasional	Critical	High
Flood: 100/500 year	Significant	Occasional	Limited	Medium/High
Flood: Localized Stormwater Flooding	Likely	Unlikely	Limited	Low
Landslides and Debris Flows	Limited	Likely	Negligible	Medium/High
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Significant	Unlikely	Critical	Low
Severe Weather: Extreme Heat	Limited	Likely	Limited	Low
Severe Weather: Freeze and Snow	Extensive	Unlikely	Critical	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Highly Likely	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Significant	Highly Likely	Critical	Medium
Soil Bank Erosion	Limited	Unlikely	Limited	Low
Subsidence	Limited	Unlikely	Limited	Low
Wildfire	Significant	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Unlikely	Limited	Low

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

S.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

S.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table S-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster. The District's physical assets consist of the flood control and local drainage structures and real property, the operations center, and equipment.

Table S-4 Tahoe City PUD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Type	Replacement Value	Hazard Specific Info
Fairway Community Center	Community Center	$1,008,230	
Highland Community Center	Community Center	$665,130	
Tahoe Community Center	Community Center	$892,874	
Rideout Community Center	Community Center	Lease	
TCPUD Administration Building	Administration Building	$2,234,370	
Parks & Rec. Corp. Yard	Corp. Yard	$1,450,885	
Blackwood	Sewer Pump Station	$1,500,000	Sewage Release
Coast Guard	Sewer Pump Station	$1,500,000	Sewage Release
Harbor Master	Sewer Pump Station	$1,500,000	Sewage Release
Madden	Sewer Pump Station	$1,500,000	Sewage Release
McKinney	Sewer Pump Station	$1,100,000	Sewage Release
Meeks Bay	Sewer Pump Station	$1,100,000	Sewage Release
North Lane	Sewer Pump Station	$1,100,000	Sewage Release
Rubicon	Sewer Pump Station	$1,500,000	Sewage Release
Sunnyside	Sewer Pump Station	$2,000,000	Sewage Release
Bay Vista	Sewer Pump Station	$800,000	Sewage Release
Dollar 1	Sewer Pump Station	$800,000	Sewage Release
Dollar 2	Sewer Pump Station	$800,000	Sewage Release
Glenridge	Sewer Pump Station	$800,000	Sewage Release
Highway 89	Sewer Pump Station	$800,000	Sewage Release

Name of Asset	Type	Replacement Value	Hazard Specific Info
Lonely Gulch	Sewer Pump Station	$800,000	Sewage Release
Marina	Sewer Pump Station	$800,000	Sewage Release
Park Terrace	Sewer Pump Station	$800,000	Sewage Release
Rubicon Bch	Sewer Pump Station	$800,000	Sewage Release
Tahoma	Sewer Pump Station	$800,000	Sewage Release
Waters Edge	Sewer Pump Station	$800,000	Sewage Release
Commons Beach	Sewer Pump Station	$800,000	Sewage Release
Sewer Gravity Line	4-inch Gravity Sewer Line	$4,449,375	Sewage Release
Sewer Gravity Line	6-inch Gravity Sewer Line	$24,310,589	Sewage Release
Sewer Gravity Line	6-inch Gravity Sewer Line	$59,310,067	Sewage Release
Sewer Gravity Line	6-inch Gravity Sewer Line	$4,864,635	Sewage Release
Sewer Gravity Line	6-inch Gravity Sewer Line	$936,457	Sewage Release
Sewer Gravity Line	6-inch Gravity Sewer Line	$401,712	Sewage Release
Sewer Gravity Line	8-inch Gravity Sewer Line	$2,884,172	Sewage Release
Sewer Gravity Line	8-inch Gravity Sewer Line	$9,933,772	Sewage Release
Sewer Gravity Line	8-inch Gravity Sewer Line	$1,160,531	Sewage Release
Sewer Gravity Line	8-inch Gravity Sewer Line	$631,840	Sewage Release
Sewer Gravity Line	10-inch Gravity Sewer Line	$1,582,395	Sewage Release
Sewer Gravity Line	10-inch Gravity Sewer Line	$2,467,070	Sewage Release
Sewer Gravity Line	10-inch Gravity Sewer Line	$1,924,683	Sewage Release
Sewer Gravity Line	10-inch Gravity Sewer Line	$350,152	Sewage Release
Sewer Gravity Line	10-inch Gravity Sewer Line	$122,559	Sewage Release
Sewer Gravity Line	12-inch Gravity Sewer Line	$676,368	Sewage Release
Sewer Gravity Line	12-inch Gravity Sewer Line	$1,068,389	Sewage Release
Sewer Gravity Line	12-inch Gravity Sewer Line	$865,517	Sewage Release
Sewer Gravity Line	15-inch Gravity Sewer Line	$1,598,464	Sewage Release
Sewer Gravity Line	15-inch Gravity Sewer Line	$1,045,749	Sewage Release
Sewer Gravity Line	15-inch Gravity Sewer Line	$694,154	Sewage Release
Sewer Gravity Line	18-inch Gravity Sewer Line	$449,963	Sewage Release
Sewer Gravity Line	18-inch Gravity Sewer Line	$2,049,435	Sewage Release
Sewer Gravity Line	18-inch Gravity Sewer Line	$236,863	Sewage Release
Sewer Gravity Line	21-inch Gravity Sewer Line	$2,361,980	Sewage Release
Sewer Gravity Line	24-inch Gravity Sewer Line	$1,643,125	Sewage Release
Sewer Gravity Line	24-inch Gravity Sewer Line	$108,082	Sewage Release
Sewer Gravity Line	24-inch Gravity Sewer Line	$191,108	Sewage Release
Sewer Gravity Line	27-inch Gravity Sewer Line	$42,600	Sewage Release

Name of Asset	Type	Replacement Value	Hazard Specific Info
Sewer Gravity Line	27-inch Gravity Sewer Line	$825,612	Sewage Release
Sewer Gravity Line	27-inch Gravity Sewer Line	$335,188	Sewage Release
Sewer Gravity Line	30-inch Gravity Sewer Line	$179,035	Sewage Release
Sewer Gravity Line	30-inch Gravity Sewer Line	$3,355,172	Sewage Release
Sewer Gravity Line	30-inch Gravity Sewer Line	$115,465	Sewage Release
Sewer Gravity Line	33-inch Gravity Sewer Line	$577,395	Sewage Release
Sewer Gravity Line	33-inch Gravity Sewer Line	$83,614	Sewage Release
Sewer Gravity Line	33-inch Gravity Sewer Line	$1,963,259	Sewage Release
Sewer Gravity Line	36-inch Gravity Sewer Line	$107,060	Sewage Release
Sewer Gravity Line	36-inch Gravity Sewer Line	$1,747,666	Sewage Release
Sewer Gravity Line	36-inch Gravity Sewer Line	$2,851,775	Sewage Release
Sewer Gravity Line	36-inch Gravity Sewer Line	$332,640	Sewage Release
Sewer Gravity Line	36-inch Gravity Sewer Line	$130,438	Sewage Release
Sewer Gravity Line	48-inch Gravity Sewer Line	$78,466	Sewage Release
Sewer Force Main	4-inch Force Mains	$749,400	Sewage Release
Sewer Force Main	6-inch Force Mains	$857,925	Sewage Release
Sewer Force Main	8-inch Force Mains	$1,484,297	Sewage Release
Sewer Force Main	10-inch Force Mains	$479,236	Sewage Release
Sewer Force Main	12-inch Force Mains	$3,970,050	Sewage Release
Sewer Force Main	18-inch Force Mains	$531,244	Sewage Release
Sewer Force Main	20-inch Force Mains	$72,281	Sewage Release
Sewer Laterals	4-inch Service Laterals	$15,159,900	Sewage Release
Sewer Manholes	Sewer Manhole 5-Feet	$4,230,000	Sewage Release
Sewer Manholes	Sewer Manhole 10-Feet	$13,143,000	Sewage Release
Sewer Manholes	Sewer Manhole 15-Feet	$3,757,500	Sewage Release
Sewer Manholes	Sewer Manhole 20-Feet	$1,335,000	Sewage Release
Sewer Manholes	Sewer Manhole 25-Feet	$259,000	Sewage Release
Dollar Point	Lake Intake	$750,000	Drinking Water Outage, Sodium Hypochlorite Release
Grove Street	Lake Intake	$1,000,000	Drinking Water Outage, Sodium Hypochlorite Release
Cedar Point	Lake Intake	$750,000	Drinking Water Outage, Sodium Hypochlorite Release
McKinney	Lake Intake	$750,000	Drinking Water Outage, Sodium Hypochlorite Release
Chambers Ldg	Lake Intake	$750,000	Drinking Water Outage, Sodium Hypochlorite Release
Highlands I-III	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss

Name of Asset	Type	Replacement Value	Hazard Specific Info
Rocky Ridge I-II	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss
Rubicon I-II	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss
Tavern I-II	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss
Granlibakken	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss
Upper Highlands	Booster Pump Station	$625,000	Drinking Water Outage, Fire Flow Loss
Alpine Peaks	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Bunker	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Four Seasons	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Highlands	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Upper Highlands	Water Tank	$1,000,000	Drinking Water Outage, Fire Flow Loss
Rocky Ridge	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Rubicon II	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Rubicon III	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Tahoe Hills	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Quail	Water Tank	$700,000	Drinking Water Outage, Fire Flow Loss
Bunker	Water Well	$412,550	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Tahoe City I	Water Well	$666,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Tahoe City II	Water Well	$777,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Tahoe City III	Water Well	$777,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Highlands A	Water Well	$1,295,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Highlands B	Water Well	$1,295,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Crystal Way	Water Well	$1,110,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Rubicon 1	Water Well	$610,500	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Rubicon 2	Water Well	$592,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Rubicon 3	Water Well	$555,000	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Tahoe Tavern	Water Well	$832,500	Drinking Water Outage, Fire Flow Loss, Chlorine Release
Alpine Peaks	4-Inch Water Dist Line	$425,000	Drinking Water Outage, Fire Flow Loss
Alpine Peaks	6-Inch Water Dist Line	$1,725,000	Drinking Water Outage, Fire Flow Loss

Name of Asset	Type	Replacement Value	Hazard Specific Info
Alpine Peaks	8-Inch Water Dist Line	$1,382,813	Drinking Water Outage, Fire Flow Loss
Alpine Peaks	10-Inch Water Dist Line	$1,068,281	Drinking Water Outage, Fire Flow Loss
Alpine Peaks	12-Inch Water Dist Line	$472,500	Drinking Water Outage, Fire Flow Loss
Comstock	4-Inch Water Dist Line	$900,000	Drinking Water Outage, Fire Flow Loss
Comstock	6-Inch Water Dist Line	$2,125,000	Drinking Water Outage, Fire Flow Loss
Dollar Point	2.5-Inch Water Dist Line	$80,000	Drinking Water Outage, Fire Flow Loss
Dollar Point	4-Inch Water Dist Line	$997,500	Drinking Water Outage, Fire Flow Loss
Dollar Point	6-Inch Water Dist Line	$5,900,000	Drinking Water Outage, Fire Flow Loss
Dollar Point	8-Inch Water Dist Line	$996,094	Drinking Water Outage, Fire Flow Loss
Highlands	4-Inch Water Dist Line	$205,500	Drinking Water Outage, Fire Flow Loss
Highlands	6-Inch Water Dist Line	$3,905,000	Drinking Water Outage, Fire Flow Loss
Highlands	8-Inch Water Dist Line	$31,875	Drinking Water Outage, Fire Flow Loss
Highlands	12-Inch Water Dist Line	$2,346,750	Drinking Water Outage, Fire Flow Loss
Chambers-McK	2.5-Inch Water Dist Line	$880,000	Drinking Water Outage, Fire Flow Loss
Chambers-McK	4-Inch Water Dist Line	$4,057,500	Drinking Water Outage, Fire Flow Loss
Chambers-McK	6-Inch Water Dist Line	$4,930,000	Drinking Water Outage, Fire Flow Loss
Chambers-McK	10-Inch Water Dist Line	$201,234	Drinking Water Outage, Fire Flow Loss
Chambers-McK	12-Inch Water Dist Line	$551,250	Drinking Water Outage, Fire Flow Loss
Dollar Condos 1&2	2.5-inch Water Dist Line	$87,500	Drinking Water Outage, Fire Flow Loss
Dollar Condos 1&2	4-inch Water Dist Line	$62,500	Drinking Water Outage, Fire Flow Loss
Dollar Condos 1&2	6-inch Water Dist Line	$87,500	Drinking Water Outage, Fire Flow Loss
Dollar Condos 1&2	12-inch Water Dist Line	$223,125	Drinking Water Outage, Fire Flow Loss
Granlibakken	4-inch Water Dist Line	$25,000	Drinking Water Outage, Fire Flow Loss
Granlibakken	6-Inch Water Dist Line	$125,000	Drinking Water Outage, Fire Flow Loss
Granlibakken	8-Inch Water Dist Line	$766,406	Drinking Water Outage, Fire Flow Loss
Granlibakken	10-Inch Water Dist Line	$549,047	Drinking Water Outage, Fire Flow Loss
Granlibakken	12-Inch Water Dist Line	$454,125	Drinking Water Outage, Fire Flow Loss
Highway 28	12-Inch Water Dist Line	$3,252,375	Drinking Water Outage, Fire Flow Loss
Highway 89	6-Inch Water Dist Line	$337,500	Drinking Water Outage, Fire Flow Loss
Highway 89	10-Inch Water Dist Line	$491,906	Drinking Water Outage, Fire Flow Loss
Highway 89	12-Inch Water Dist Line	$1,123,500	Drinking Water Outage, Fire Flow Loss
Meeks Bay Vista	2.5-inch Water Dist Line	$31,250	Drinking Water Outage, Fire Flow Loss
Meeks Bay Vista	6-Inch Water Dist Line	$1,606,250	Drinking Water Outage, Fire Flow Loss
Panorama	4-inch Water Dist Line	$260,000	Drinking Water Outage, Fire Flow Loss
Panorama	6-inch Water Dist Line	$1,947,500	Drinking Water Outage, Fire Flow Loss
Panorama	8-inch Water Dist Line	$4,688	Drinking Water Outage, Fire Flow Loss

Name of Asset	Type	Replacement Value	Hazard Specific Info
Panorama	12-Inch Water Dist Line	$826,875	Drinking Water Outage, Fire Flow Loss
Rubicon	2.5-inch Water Dist Line	$785,000	Drinking Water Outage, Fire Flow Loss
Rubicon	4-inch Water Dist Line	$362,500	Drinking Water Outage, Fire Flow Loss
Rubicon	6-inch Water Dist Line	$9,353,750	Drinking Water Outage, Fire Flow Loss
Rubicon	8-inch Water Dist Line	$278,906	Drinking Water Outage, Fire Flow Loss
Star Harbor & Pomi	2.5-inch Water Dist Line	$287,500	Drinking Water Outage, Fire Flow Loss
Star Harbor & Pomi	6-Inch Water Dist Line	$100,000	Drinking Water Outage, Fire Flow Loss
Star Harbor & Pomi	8-Inch Water Dist Line	$51,563	Drinking Water Outage, Fire Flow Loss
Star Harbor & Pomi	10-Inch Water Dist Line	$21I,172	Drinking Water Outage, Fire Flow Loss
Lake Forest Glen	2.5-inch Water Dist Line	$500,000	Drinking Water Outage, Fire Flow Loss
Lake Forest Glen	4-inch Water Dist Line	$112,500	Drinking Water Outage, Fire Flow Loss
Lake Forest Glen	6-inch Water Dist Line	$575,000	Drinking Water Outage, Fire Flow Loss
Lake Forest Glen	8-inch Water Dist Line	$539,063	Drinking Water Outage, Fire Flow Loss
N. Shore Condos	8-Inch Water Dist Line	$445,313	Drinking Water Outage, Fire Flow Loss
N. Shore Condos	10-Inch Water Dist Line	$397,500	Drinking Water Outage, Fire Flow Loss
N. Shore Condos	12-Inch Water Dist Line	$157,500	Drinking Water Outage, Fire Flow Loss
Rocky Ridge Condos	2.5-inch Water Dist Line	$470,000	Drinking Water Outage, Fire Flow Loss
Rocky Ridge Condos	6-inch Water Dist Line	$147,500	Drinking Water Outage, Fire Flow Loss
Rocky Ridge Condos	8-inch Water Dist Line	$4I4,844	Drinking Water Outage, Fire Flow Loss
Rocky Ridge Condos	10-Inch Water Dist Line	$1,055,859	Drinking Water Outage, Fire Flow Loss
St. Francis Condos	2.5-inch Water Dist Line	$167,500	Drinking Water Outage, Fire Flow Loss
St. Francis Condos	4-inch Water Dist Line	$112,500	Drinking Water Outage, Fire Flow Loss
St. Francis Condos	8-inch Water Dist Line	$539,063	Drinking Water Outage, Fire Flow Loss
St. Francis Condos	12-Inch Water Dist Line	$341,250	Drinking Water Outage, Fire Flow Loss
Tahoe City	2.5-inch Water Dist Line	$395,000	Drinking Water Outage, Fire Flow Loss
Tahoe City	4-inch Water Dist Line	$350,000	Drinking Water Outage, Fire Flow Loss
Tahoe City	6-inch Water Dist Line	$3,372,500	Drinking Water Outage, Fire Flow Loss
Tahoe City	8-inch Water Dist Line	$977,344	Drinking Water Outage, Fire Flow Loss
Tahoe City	10-Inch Water Dist Line	$186,328	Drinking Water Outage, Fire Flow Loss
Tahoe City	12-Inch Water Dist Line	$1,034,250	Drinking Water Outage, Fire Flow Loss
Tahoe Hills	2.5-inch Water Dist Line	$275,000	Drinking Water Outage, Fire Flow Loss
Tahoe Hills	4-inch Water Dist Line	$674,000	Drinking Water Outage, Fire Flow Loss
Tahoe Hills	6-inch Water Dist Line	$5,430,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Heights	2.5-inch Water Dist Line	$900,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Heights	4-inch Water Dist Line	$545,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Heights	6-inch Water Dist Line	$2,887,500	Drinking Water Outage, Fire Flow Loss

Name of Asset	Type	Replacement Value	Hazard Specific Info
Tahoe Tavern Heights	8-inch Water Dist Line	$1,858,594	Drinking Water Outage, Fire Flow Loss
Tavern Shores Condo	2.5-inch Water Dist Line	$200,000	Drinking Water Outage, Fire Flow Loss
Tavern Shores Condo	4-inch Water Dist Line	$30,000	Drinking Water Outage, Fire Flow Loss
Tavern Shores Condo	6-inch Water Dist Line	$412,500	Drinking Water Outage, Fire Flow Loss
Villa's Condos	2.5-inch Water Dist Line	$75,000	Drinking Water Outage, Fire Flow Loss
Villa's Condos	6-inch Water Dist Line	$95,000	Drinking Water Outage, Fire Flow Loss
Villa's Condos	8-inch Water Dist Line	$747,656	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Condos	2.5-inch Water Dist Line	$375,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Condos	4-inch Water Dist Line	$50,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Condos	6-inch Water Dist Line	$650,000	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Condos	8-inch Water Dist Line	$421,875	Drinking Water Outage, Fire Flow Loss
Tahoe Tavern Condos	10-Inch Water Dist Line	$37,266	Drinking Water Outage, Fire Flow Loss
Tamarack MW	6-inch Water Dist Line	$147,500	Drinking Water Outage, Fire Flow Loss
Tamarack MW	8-inch Water Dist Line	$1,155,469	Drinking Water Outage, Fire Flow Loss
T-T Forest Track	2.5-inch Water Dist Line	$200,000	Drinking Water Outage, Fire Flow Loss
T T Forest Track	6-inch Water Dist Line	$225,000	Drinking Water Outage, Fire Flow Loss
T T Forest Track	8-inch Water Dist Line	$585,938	Drinking Water Outage, Fire Flow Loss

Source: Tahoe City PUD

Growth and Development Trends

Unique to this part of Placer County is not the growth of full time residents, but the influx of visitors and tourists to the area, especially during the peak summer and winter seasons. This spike in population creates a unique vulnerability to the area, especially in the event highways become impassable due to flooding, landslides, avalanches, heavy snow, or gridlocks due to high volume and extreme weather conditions. This tourist industry continues to grow. Even during the off-season, the lack of multiple transportation routes, if closed, can leave the resident population cut off from necessary and potentially life-saving services.

Development since 2010 Plan

Other specific population growth and development trends within TCPUD boundaries are covered in Section 4.3.1 of the main plan.

S.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table S-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County Planning Area). Methodologies for calculating loss estimates are the same as those described in Section

4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Avalanche

Likelihood of Future Occurrence–Likely
Vulnerability–High

Historically, avalanches occur within the eastern portion of the county, between the months of December and March following snowstorms. According to the 2004 Placer County EOP, areas where the potential for avalanches to occur are zoned as moderate or high avalanche hazard zones and have been identified using maps available at the Placer County Planning Department. Areas of particular concern within the District include: West shore of Lake Tahoe (Homewood & Ward Creek Tract) and the Truckee River Corridor/Highway 89 Corridor.

There are no known fatalities or significant damage to the built environment due to avalanches occurring within District boundaries. Damages from historic avalanches have primarily involved impacts to roads and damages to trails and other natural areas.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

A dam failure can range from a small uncontrolled release to a catastrophic failure, caused by prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam. Dam failure flooding varies by area depending on which dam fails and the nature and extent of the dam failure and associated flooding.

Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Based on analysis provided in the Placer County General Plan Background Report, only four dams within Placer County have the potential to affect more than 100 persons. Of these four, a failure of the Lake Tahoe Dam (outlet on the Truckee River) could potentially impact areas within the NTFPD. Failure of this dam would be contained within the Truckee River floodway to Nevada County and could impact in excess of 1,000 people

Drought and Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

The impact of a drought on the District is primarily one of water supply. All water provided by the TCPUD comes from deep groundwater wells located in various locations in the Lake Tahoe Basin. Continued drought can severely compromise the water supply within the district. Most recently, after multiple years of below-average rainfall and very low snow-melt run off, Governor Brown in signed emergency regulations into place in 2015 requiring all of California to reduce water use by 25%. TCPUD has adopted Ordinance 284, Water Conservation and Drought Response Standards since the last LHMP and has been actively working with customers to meet the State mandates.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–High

As indicted on the Earthquake Shaking Map in Section 4.2.11 of the main plan, the shaking potential is greatest in the eastern portion of the county, including the TCPUD service area. Extreme eastern Placer County borders the Basin and Range province that entails most of Nevada and western Utah. This area is riddled with active faults that are responsible for and form the boundary between each basin or valley and the neighboring mountain range.

In 2003/2004, volcanic magma migrating about 20 miles below the surface of the Sierra Nevada Mountains caused a swarm of about 1,600 small earthquakes. Since February of 2008, more than 600 earthquakes of magnitude greater than 1.0 have been recorded in nearby Reno, Nevada, with the most powerful one recorded at 4.7 magnitude. It is unknown to what extent these earthquakes were felt by residents in the Tahoe area, but clearly the District lies within a seismically active area.

Flood: 100-/500-year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Flooding due to heavy rains and snow runoff has been a historical problem in the Tahoe area. Abundant snowfall in the mountains combined with rain and steep terrain can mean rapid runoff and flooding. Water flow can be high in peak runoff periods with historical downstream flooding. The primary impacts from flooding within the district include damage to roads, utilities, bridges; and flooding of homes, businesses

and critical facilities. Road closures create difficulties in providing emergency services to areas cut off by flooding and limit the area's ability to evacuate.

Recent, notable flood events impacting the District include the following:

- In late 1996 to early 1997, flooding of the Lower Truckee River occurred along Highway 89. Known damages included those to storm drainage coverts. Bike trails also were washed out along the highway. A federal disaster declaration was declared for these floods.
- Also occurring in 2006 was flooding of the Blackwood Sewer Station. Flooding caused extensive erosion of the river banks. To prevent further damage, sand bags were used and a large snow barrier was built to protect the station and the banks of the river. A federal disaster declaration was also declared for these floods. Currently, the District is working on retrofitting the building and repairing the river banks. Flood mitigation measures have been completed to protect this station in the event of flooding.

Landslides and Debris Flows

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Given the geology, climate, and terrain of the District, landslides can be a significant concern. During the storms and flooding in December of 2006, land sliding occurred in the Truckee River corridor along Highway 89 and associated bike trail. Damages for repairs were estimated at $355,000.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Extreme weather events, often accompanied by extreme temperatures happen on an annual basis within the TCPUD boundaries. With altitudes ranging from 6,000 to 10,000 feet above msl, extreme cold/freezing temperatures can create significant problems. Of particular concern to the District is the vulnerability of the area to broken utilities and power failures during extreme weather events. Also occurring during the storms of December 2006 was a power outage in the Tahoe Basin affecting both the West and North Shore of Lake Tahoe for 3-5 days. The District was forced to run the generators throughout the District to pump down the sewer stations to prevent spill and water stations to keep the storage tanks full of water. Area schools were closed during the outage. Other water districts were running out of water (meaning negative fire suppression in some areas).

Extreme winter weather events are a major concern to the District. Snow and winter weather conditions regularly result in utility outages and the closure of major transportation routes. According to the TCPUD planning team, major winter storms have routinely cut off transportation routes in the district stranding thousands and causing a major impact to services and supplies.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly likely
Vulnerability–Medium

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the TCPUD service area. Often during these events, the local stormwater drainage system can be impacted. The primary impact to the area within District boundaries is the localized flooding caused by these heavy rains.

Wildfire

Likelihood of Future Occurrence–Highly likely
Vulnerability–High

Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildlands severely overgrown. Much of the private land in the District's area is in the wildland-urban interface with increasing residential development. The current buildup of fuels within the Tahoe Basin area is at a critical level

Further, many of the communities in the District are limited to one route access and egress in the event of a major wildfire. Historically, these routes are closed during major events, stranding many people, including visitors, away from their families and homes. So far there has been no loss of life attributed to the limited evacuation routes, but it is likely only a matter of time before people are cut off and trapped by a major fire event.

The most notable, recent wildfire to impact the District is the Washoe fire. This fire occurred in the wildland urban interface area of Tahoe Park and Tahoe Woods Subdivision, along the West shore of Lake Tahoe. The fire was caused by a failure of some propane equipment. Although no lives were lost, the fire destroyed 5 residential structures and encompassed 19 acres. Power and gas utilities were incurred damages. There were also losses to timber assets, loss of watershed protection, and loss of the aesthetic value of a scenic corridor. This event caused major disruptions to west shore and Tahoe City traffic and business on a busy summer weekend. Highway 89, West Lake was closed for a period of time.

S.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

S.6.1. Regulatory Mitigation Capabilities

Table S-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table S-5 Tahoe City PUD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	Y	
Economic Development Plan	N	
Local Emergency Operations Plan	Y 2013	TCPUD Emergency Response Plan, Jan. 2013
Continuity of Operations Plan		
Transportation Plan	N	
Stormwater Management Plan/Program		
Engineering Studies for Streams	N	
Community Wildfire Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	Sewer System Management Plan, May 2014 Urban Water Management Plan, July 2011
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: $
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	

Acquisition of land for open space and public recreation uses	N
Erosion or sediment control program	N
Other	
How can these capabilities be expanded and improved to reduce risk?	

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Tahoe City Public Utilities District Emergency Response Plan, 2013

The TCPUD Emergency Response Plan serves as a guide for the District's response to emergencies/disasters within District boundaries, and to coordinate and assist with disaster response in neighboring jurisdictions.

Tahoe City Public Utilities District Sewer System Management Plan, 2014

The TCPUD Sewer System Management Plan serves as a guide for Districts response to emergencies/disasters within District boundaries as it relates to its sewer collection system.

Codes and Ordinances

Avalanche

Placer County's avalanche management program defines Potential Avalanche Hazard Areas (PAHAs) where the minimum probability of avalanche occurrence is 1 in 100 per year or where avalanche damage has already occurred. According to the Placer County Avalanche Ordinance the following information must be disclosed in PAHAs:

- Identification that a structure is within a PAHA
- A warning that avalanche control work is conducted in the area and avalanche warnings will be provided as feasible
- Identification of sources that provide weather information and general information on avalanches

In addition, the county limits construction as necessary in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

Tahoe City Public Utilities District Ordinances and Permits

TCPUD has enacted several ordinances:

- Water Ordinance 263
- Sewer Ordinance 255

In addition, the District has water and sewer permit requirements specific to:

- New Construction
- Tear Down-Rebuilds and Remodels

S.6.2. Administrative/Technical Mitigation Capabilities

Tahoe City Public Utility District is governed by a five person elected Board of Directors. These Directors determine the policies and set the agenda for the District. The Board appoints a General Manager who oversees the day to day operations of the District. In addition, The Board forms special citizen advisory committees when complicated issues need more community outreach or focused study.

Under the direction of General Manager Cindy Gustafson, forty-one full time employees, and 30 seasonal employees provide the listed services. Employees serve in four departments: Utilities; Parks & Recreation; Engineering; and General & Administrative. Table S-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table S-6 Tahoe City PUD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	TCPUD maintains and implements a preventative maintenance program on all of its facilities. TCPUD maintains a staff, fleet and equipment capable of implementing this maintenance program.
Mutual aid agreements	Y	TCPUD actively participates in a local mutual aid agreement with other agencies
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	Y FT	Utilities/Risk Coordinator is trained on hazards and mitigation.
Community Planner	N	
Civil Engineer	Y FT	Engineering/Senior Civil Engineer is trained on hazards and mitigation.
GIS Coordinator	Y FT	Information Systems and Technology Administrator is trained on hazards and mitigation.
Other		

Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Fire and Security alarm. Telemetry for the sewer and water stations. Cell phone and radio communications.
Hazard data and information	N	
Grant writing	Y	Grants and Community Information Administrator
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

S.6.3. Fiscal Mitigation Capabilities

Table S-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table S-7 Tahoe City PUD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	Both the Lake Tahoe Restoration Act and USFS Omnibus Funding have been used for Fuels Thinning and Water System Improvements to enhance fire protection capabilities. Future funding may be available pending approval of a new Lake Tahoe Restoration Act.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
State funding programs	Y	Funding sources from Propositions 50 and 84 and the State Revolving Fund have been used for water and sewer system improvements improving fire protection capacity of the water system and sewer storage and pumping capacity of the sewer system. Future funding may be available in future Propositions as well as State Revolving Funds pending approval of submitted projects.
Other		
How can these capabilities be expanded and improved to reduce risk?		

S.6.4. Mitigation Outreach and Partnerships

Table S-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table S-8 Tahoe City PUD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	Truckee River Basin Working Group, Red Cross, Truckee River Watershed Council
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	TCPUD water conservation programs. See http://conservation.tcpud.org/
Natural disaster or safety related school programs	No	
StormReady certification	No	
Firewise Communities certification	No	
Public-private partnership initiatives addressing disaster-related issues	Yes	Work with Red Cross on storage of their emergency response equipment for local use.
Other	N/A	
How can these capabilities be expanded and improved to reduce risk?		

S.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including public outreach and project activities. These mitigation activities include:

- Staff educated in the Safety Program
- Website and Quarterly Newsletters to the general public
- Upgrading generators at all pump stations
- Retro fit stations (fire proofing, flood proofing, etc.)
- Fuel Reduction around facilities
- Staff training

Water System, Fire Protection Improvements

Also in the aftermath of the Angora fire in 2007, TCPUD has completed a full analysis of its water systems and is prioritizing the capital improvements necessary to increase fire protection capabilities. Since a significant amount of the District's sub-regional water systems are more than 40 years old and were acquired at various times from developers or other companies, extensive infrastructure work is necessary to meet current standards. TCPUD has successfully worked with the local fire departments, state and federal legislators, and officials to help secure the millions of funding needed to implement recommended improvements. Since 2008, the District has received over $5,000,000 in finding from various sources for water system improvements.

2007 Phase 1 – Highlands Fuel Reduction

Fuel reduction, mastication and track chipping on 25 acres of District owned open space. This property is bounded by North Tahoe High School and single family homes. The fire potential was considered high. This work was completed in 2010.

2008 Blackwood Pump Station Storm Damage

1996 Blackwood Creek overflow flood damage to the Blackwood sewer pump station. F.E.M.A. repair assistance received in the amount of $46,645.00. The T.C.P.U.D. funded a complete retrofit of the pump station at an additional cost of $108,000.00. This retrofit protects the pump station from future flooding and the potential for a large sewage spill into Lake Tahoe. The project was completed in 2008.

2009 Fuel Reduction Program – Chambers Foothills and Quail Lake

Chambers Foothills and Quail Lake Fuel Reduction program, mechanical & hand treatment on 70 acres. Project funded by Nevada and California Fire Safe Council and T.C.P.U.D. participation funding. Grant funding not to exceed $175,000. District participation will be $56,000. The property is bounded by single family homes and commercial business property.

Seismic Stability Study and Retrofit

The District owns eleven (11) water storage tanks. The seismic stability of these tanks was last analyzed in a report prepared by Nolte Associates dated January 2006 and September 2010. Of the 11 analyzed tanks:

- One (1) was built in 2005 and is seismically stable and requires no retrofits (Upper Highlands).
- One (1) is seismically unstable and requires a major foundation and shell retrofit or requires a change in its operational water level (Lower Highlands).
- One (1) is seismically unstable and due to its age and material requires a complete replacement (Bunker).
- Eight (8) are seismically stable with minor improvements recommended.

S.7 Mitigation Strategy

S.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

S.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Bunker Water Tank Replacement

Hazards Addressed: Earthquake and Wildfire

Issue/Background: As identified in the Seismic Stability Study, the Bunker Tank is seismically unstable and due to its age and material and requires a complete replacement. The District's 5-year water capital plan includes $2,300,000 for 2016-2017 to complete this replacement. It is also constructed of Redwood and susceptible to wildfire.

Other Alternatives: No action

Responsible Office: T.C.P.U.D. Engineering Department/c.o. Jon LeRoy

Priority (High, Medium, Low): High

Cost Estimate: $2,300,000

Benefits (Avoided Losses): Prevent essential water service loss to community.

Potential funding: No funding, other than TCPUD internal sources have been identified.

Schedule: 2016-2017

Action 2. West Lake Tahoe Regional Water Treatment Plant

Hazards Addressed: Drought and Wildfire

Issue/Background: Long term reliability of groundwater supplies is decreasing due to drought conditions and subsequent lack of snowpack. Utilizing Lake Tahoe as a source of drinking water and fire protection water offers a clear long term source solution to the west shore region of Lake Tahoe. However, all surface water requires treatment and a plant capable of treating Lake Tahoe water will need to be constructed to accomplish this change of source water. A regional plant will be capable of serving multiple water purveyors and service areas.

Other Alternatives: Dramatic reductions in outdoor watering and water use in general.

Responsible Office: T.C.P.U.D. Engineering Department/c.o. Matt Homolka

Priority (High, Medium, Low): High

Cost Estimate: $9,500,000

Benefits (Avoided Losses): Prevent essential water service loss and negative economic impacts to community.

Potential funding: State Revolving Fund and State Propositions

Schedule: 2017

Action 3. Tahoe Main Emergency Water Supply

Hazards Addressed: Drought and Wildfire

Issue/Background: Long term reliability of groundwater supplies is decreasing due to drought conditions and subsequent lack of snowpack. Utilizing Lake Tahoe as a source of drinking water and fire protection water offers a clear long term source solution to the north shore region of Lake Tahoe. However, all surface water requires treatment and a plant capable of treating Lake Tahoe water will need to be constructed to accomplish this change of source water. This project will convey untreated lake water to a specific location to be treated or distributed.

Other Alternatives: No action

Responsible Office: T.C.P.U.D. Engineering Department/c.o. Matt Homolka

Priority (High, Medium, Low): High

Cost Estimate: $500,000

Benefits (Avoided Losses): Prevent essential water service loss to community.

Potential funding: No funding, other than TCPUD internal sources have been identified.

Schedule: 2016-2017

Annex T Tahoe Truckee Unified School District

T.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Tahoe Truckee Unified School District (TTUSD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the TTUSD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

T.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table T-1. Additional details on plan participation and City representatives are included in Appendix A.

Table T-1 District Planning Team

Name	Position/Title	How Participated
Rebecca McGough	Administrative Assistant	Attended meetings. Updated hazard ID table. Provided update on previous action items. Provided updated assets information. Provided updates to 2010 Annex.
Tiffany Hambrick	Administrative Assistant	Completed Mitigation Action Worksheet
Mark Burton	Director of Facilities, Maintenance & Operations	Oversaw process.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table T-2.

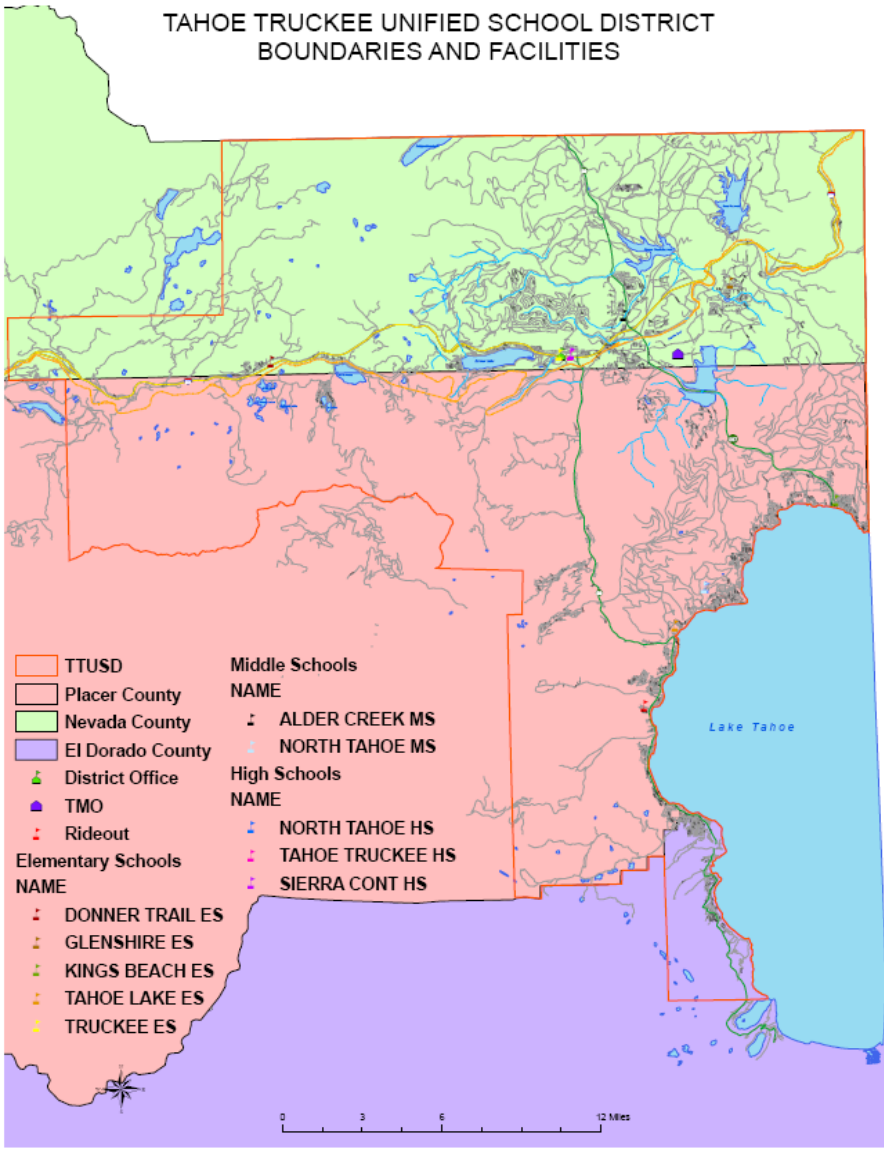
Table T-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Tahoe Truckee Unified School District	The District did not integrate the 2010 Plan into other planning mechanisms, as no other major planning were done in the interim.

T.3 District Profile

The District boundaries are illustrated in Figure T-1.

Figure T-1 Tahoe Truckee Unified School District Service Area



Source: TTUSD

T.3.1. District Information and Background

The Tahoe Truckee Unified School District is located in the Sierra Nevada mountain range, 100 miles northeast of Sacramento. The TTUSD serves approximately 4,200 students in Nevada, Placer and El Dorado Counties. The District offices are located in Truckee, California and the school facilities are located in both Placer and Nevada Counties. Although TTUSD is comprised of portions of three (3) counties, the District falls under the jurisdiction of the Placer County Office of Education. The District boundaries stretch from the Sierra County line, twenty-seven miles North of Truckee, to Emerald Bay, near South Lake Tahoe; and from Cisco Grove, twenty miles to the west, to the Nevada state line, ten miles to the east. TTUSD's Eastern Boundary follows nearly the entire length of the Western shore of Lake Tahoe. The District encompasses more than 720 square miles. Within this vast geographic area are many different communities, severe climate zones, and three County jurisdictions, all of which create unique planning challenges. See map of TTUSD Boundaries and facilities Figure T-1.

School District Facility Composition

The Tahoe Truckee Unified School District currently owns/operates fourteen facilities: one comprehensive high school, one middle school/high school, one continuation high school, one middle school, one facility used for District personnel and community programs, six elementary schools, a District Office, and a Transportation Maintenance and Operations building. The respective attendance areas of the active schools are divided between the Truckee area (facilities in Nevada County) and the Lake area schools (facilities in Placer County).

In the Tahoe area there are two active elementary schools - Kings Beach and Tahoe Lake - that create two elementary school attendance areas. A third elementary facility, Rideout Elementary School, is currently being used as a Community Center. The two elementary schools feed into the area middle school, North Tahoe Middle School and the middle school feeds into the area high school, North Tahoe High School.

The Truckee area schools also have one high school, Truckee High School; one continuation high School, Sierra Continuation High School; and one middle school, Alder Creek Middle School, that serve all of the students in the area. The middle school is fed by three K-5 elementary schools - Donner Trail, Glenshire and Truckee Elementary. Donner Trail is a magnet K-5 and draws students from other attendance areas, but also has its own attendance area. The Truckee Area is also home to Sierra Mountain Middle school which is currently being utilized by District Administrative staff, state and federal preschool programs, and other community programs. The main District Office is also located in Truckee.

District Mission

The primary mission of the District is to provide education to all children within the boundaries of the District. TTUSD is often seen as the hub of the community and our facilities are open to all members of public. Many meetings, sporting events, and community enrichment activities are held at District facilities. In collaboration with local law enforcement and public safety agencies, our facilities also act as emergency operations centers, shelters, and staging areas during emergency and disaster situations. Due to the importance of the facilities to the community during these situations, TTUSD facilities are considered critical facilities.

The Tahoe City area is characterized by mild summers and cool, wet winters, with an average high temperature in July of 82 and 42 in January. Annual precipitation in the watershed varies from an average of 65 inches in the west to approximately 40 inches per year in the east. The majority of precipitation occurs as snowfall during the winter months. A relatively small amount of precipitation occurs as rain during the spring and summer months.

T.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table T-3).

Table T-3 Tahoe Truckee Unified School District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Likely	Limited	Low
Dam Failure	Limited	Occasional	Negligible	Low
Drought and Water Shortage	Extensive	Highly Likely	Critical	High
Earthquake	Extensive	Likely	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Limited	Low
Flood: Localized Stormwater Flooding	Extensive	Likely	Critical	Medium
Landslides and Debris Flows	Significant	Occasional	Limited	Low
Levee Failure	Limited	Occasional	Negligible	Low
Seiche (Lake Tsunami)	Limited	Occasional	Limited	Low
Severe Weather: Extreme Heat	Significant	Likely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Catastrophic	High
Severe Weather: Fog and Freezing Fog	Significant	Occasional	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Catastrophic	High
Soil Bank Erosion	Significant	Likely	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Likely	Catastrophic	Medium
Hazardous Materials Transport	Significant	Occasional	Limited	Low

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

T.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

T.5.1. Assets at Risk

This section considers the District's assets at risk. All facilities owned by the District would be categorized as critical facilities. Damage to these facilities would have a large impact on students, personnel, and members of the community. In addition to the social costs associated with the identified hazard, there is potential for extremely high monetary costs as well. Damage as a result of a natural hazard can range from minor repairs that can be performed with minimal maintenance staff time to catastrophic, requiring major repair, replacement, and reconstruction of buildings and their components. These costs can range from minimal staff salary expenditures to entire building replacement.

Table T-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table T-4 South Placer FPD's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value
Kings Beach Elementary School	High Potential Loss Facility	$15,000,000
Rideout Elementary School	High Potential Loss Facility	$10,000,000
Tahoe Lake Elementary School	High Potential Loss Facility	$24,000,000

Name of Asset	Facility Type	Replacement Value
North Tahoe Middle/High School	High Potential Loss Facility	$100,000,000
Donner Trail Elementary School	High Potential Loss Facility	$4,200,000
Glenshire Elementary School	High Potential Loss Facility	$35,000,000
Truckee Elementary School	High Potential Loss Facility	$40,000,000
Alder Creek Middle School	High Potential Loss Facility	$51,000,000
Truckee High School	High Potential Loss Facility	$138,000,000
Sierra High School	High Potential Loss Facility	$3,200,000
Transportation, Maintenance, Operations Building	High Potential Loss Facility	$13,000,000
District Office	High Potential Loss Facility	$15,000,000

Source: South Placer FPD

It is important to reiterate that TTUSD buildings and equipment are utilized by the community during disasters and severe weather. For example, in 2007, one of the campuses was used as a shelter for travelers when Interstate 80 was closed due to heavy snow. The importance of maintaining the facilities and providing a safe environment goes far beyond the students, personnel, and community.

Growth and Development Trends

There has been recovering in the areas of development and population growth within the boundaries of TTUSD over the last 10 years. As growth continues, the number of students at the various facilities is expected to increase. The increase in new students may require additional school facilities and/or expansion of existing facilities. This would increase the number and value of District-owned assets and potentially, the vulnerability of District facilities, students and staff.

Development since 2010 Plan

Development in the TTUSD is similar to that of Placer County. Placer County's development since 2010 is discussed in Section 4.3.1 of the base plan.

T.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table T-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is

measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

The impact of a drought on the District is primarily one of water supply. A multiple-year drought can severely compromise the water supply within the District. Recently, after 2 years of below-average rainfall and very low snow-melt run off, Governor Schwarzenegger in June of 2008 declared a state of emergency for drought conditions statewide. The final California Department of Water Resources showed snowpack water content at only 67 percent of normal. With the unknowns of drought and globally changing climate conditions, the TTUSD continues to be vulnerable to the effects of drought.

Restrictions in water use could affect the ability of the District to provide sufficient water to students, operate lunch programs, maintain clean facilities, and maintain playing fields and landscaping at school sites. This could impact the health and safety of children and result in significant costs to the District. The challenges were seen this in the summer of 2015 with required water restrictions. Due to the water restrictions that had been implemented by the State and local agencies, the District's field suffered and were not able to be properly maintained. This has brought the awareness that not being able to properly maintain our fields may result in increased numbers of student, athlete, and community member injuries due to uneven surfaces and divots due to lack of watering ability.

Earthquake

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

As indicted on the Earthquake Shaking Map in the base plan, the shaking potential is greatest in the eastern portion of the County, including within the TTUSD boundaries. Extreme eastern Placer County borders the Basin and Range province that entails most of Nevada and western Utah. This area is riddled with active faults that are responsible for, and form the boundary between, each basin or valley and the neighboring mountain range.

In 2003/2004, volcanic magma migrating about 20 miles below the surface of the Sierra Nevada Mountains caused a swarm of about 1,600 small earthquakes. Since February of 2008, more than 600 earthquakes of magnitude greater than 1.0 have been recorded in nearby Reno, Nevada, with the most powerful one recorded at 4.7 magnitude. It is unknown to what extent these earthquakes were felt by residents in the Tahoe area, but clearly the District lies within a seismically active area. According to the District, none of its facilities have incurred any substantial damage during past earthquake events. However, several of the District's schools were built as many as 50 years ago and have never been structurally retrofitted to withstand large scale earthquakes. These older schools include: Tahoe Lake Elementary School, Kings Beach Elementary School, Truckee Elementary School, Donner Trail Elementary School, and Truckee High School. These schools will have seismic retrofits completed as part of the Measures U & E Bond projects.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Localized flooding has occurred at the District in the parking lots, school grounds, and in the current District Office building. The District Office was once a middle school which flooded in 1997, forcing students and staff to wade through water to work and learn. The flooding in the parking lots and school grounds pose accessibility issues for our students and staff getting from building to building; this issue can be a particular problem for the District and community's persons with disabilities. Accessibility issues can occur with parents, transportation, and first responders in being able to safely and successfully access our school sites. The accessibility and drainage issues are being addressed through the projects that have been identified by Measures E & U Bond projects.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–High

Temperatures during winter months can drop very low with average highs of 42° and average lows of 18°. On the extreme side, the temperature has been known to drop as low as -39° F. These extreme temperatures during the winter have created many problems for the District over the years such as frozen water pipes in the building as well as underground. The frozen pipes can lead to flooding and water damage but also limit the water supply of the building. In addition, the extreme cold has also frozen and damaged heating coils which has caused flooding and affected the heating of the school site. The cold temperatures can also cause building materials and equipment to break down at a more rapid pace.

Snow events are a major concern to the District. Between the months of November and April, most precipitation occurring within TTUSD falls in the form of snow. However, snowfall has occurred even during the summer months. Depending on the location of the District, snowfall can average from just less than 200 inches to over 400 inches per year. Heavy snowfall can be associated with high winds (blizzard conditions), extreme temperatures, avalanches, and dangerous traveling conditions. Snow and ice falling from roofs and slippery surfaces are just some of the dangers to our students and staff. Snowfall has caused

numerous school closures and power outages throughout the history of the District. Snow accumulation can also create obstacles involving the safe transportation of students and stress the structural integrity of building and infrastructure. The District spends approximately $125,000 to $225,000 on snow removal annually to reduce the risks of injury to the community and damage to structures.

Damage to Structures

Heavy snowfall from fast moving storms can test the structural integrity of school buildings (specifically the roof strength), thus directly impacting the safety of children and employees of the District. Recognizing the inherent structural dangers to buildings during snowstorms, local building departments have increased the snow load requirements for roofs extensively over the last fifty years. New schools constructed within the District must meet or exceed roof snow loads ranging from 166 to 260 pounds per square foot according to current local building codes. Most of the school buildings within the District were built under old building codes and therefore do not meet the new snow load requirements. Some facilities have snow loads as low as 40 pounds per square foot in certain areas of the building. It is not uncommon for District personnel (or hired crews) to shovel off the roofs at these sites after or during a storm to bring the snow load below its recommended threshold and prevent damage to the structure. This is a regular task during heavy winters and can be extremely costly to the District. It also can present a danger to the staff or crews who are performing the snow removal from the rooftops.

The District experienced the collapse of a DOH classroom in 1996 because shoveling crews were unable to keep up with a major storm. Although shoveling is often needed to mitigate the potential hazard of roof collapse, the action also creates a new hazard for the personnel performing these duties. The act of shoveling the roof can also cause an imbalance in the live load of the roof making it more susceptible to collapse. In addition, snow covered buildings deficient in the snow load requirement would also be more vulnerable to collapse during an earthquake.

Snow/Ice Fall

Snow and ice falling from roofs can also create a danger to students and others at ground level and inside buildings. It can also potentially block emergency exits and damage building and building systems as well as neighboring structures and property (e.g., broken windows, torn roofs, etc.).

Infrastructure

Snow and ice buildup on structures can cause building system failures and ventilation blockage which can affect the health and safety of students and personnel.

Power Outages

As previously mentioned, power and utility outages often occur due to winter storms. The outages are usually minor but on occasion have lasted as long as one week at some school sites. These power outages can also require that students be sent home early and/or school being cancelled, as the school may not be able to maintain an ambient temperature to be conducive to a safe environment for the students.

Vehicle Damage

A large portion of our maintenance vehicles and buses are not housed in covered areas, exposing them to the harsh elements. Not only does this contribute to wear and tear and ultimately reduce the useful life of these vehicles, but it also can affect the performance of the vehicles. There is great potential for the freezing of vehicle fluids and ice buildup on mechanical components which could inhibit the normal operation of these vehicles. This in conjunction with operating the vehicles in harsh weather conditions during student transport increases the hazard to students and personnel. There is also and increase risk of vehicle accidents during these storms.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Likely

Severe rain/thunderstorms can occur within the District during all seasons. These thunderstorms often produce high winds and lightning which can damage District structures and cause power outages. Heavy rains can also create flooding of creeks of drains which can also damage structures and impede the transportation of students. In addition, lightning can ignite forest and structure fires which can cause damage to buildings and endanger the lives of students and personnel. The impacts associated with heavy rains/thunderstorms can potentially affect the District's ability to operate and carry out their mission.

TTUSD has experienced significant damages from heavy rain and thunderstorms over the years. TTUSD sustained over $300,000 in damages ranging from pothole repair and replacing walls and insulation to a major oil/fuel spill from underground tanks as a result of the 1997 floods. In addition, TTUSD experiences regular power and gas outages caused by storms. These power and gas outages can be lengthy and can impact the ability to heat the building and operate the school.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

All areas of the Sierra Nevada are surrounded by forest and are prone to major wildfires. Over one hundred years of aggressive fire suppression under the national fire suppression policy has rendered wildlands severely overgrown. The District has school facilities in areas that are heavily wooded and could be at risk during a major forest fire. Rideout Elementary School and North Tahoe Middle/High School, located in Tahoe City, are two school sites that are surrounded by forest. In addition, there is only one major in/out access road for both sites increasing the risk to students in the event an evacuation was required during a major wildfire.

The most notable recent wildfire to impact the District is the Washoe fire. This fire occurred in the wildland urban interface area of Tahoe Park and Tahoe Woods Subdivision, along the West shore of Lake Tahoe. The fire was caused by a failure of some propane equipment. Although no lives were lost, the fire destroyed 5 residential structures and encompassed 19 acres. Power and gas utilities were incurred damages. There

were also losses to timber assets, loss of watershed protection, and loss of the aesthetic value of a scenic corridor. This event caused major disruptions to west shore and Tahoe City traffic and business on a busy summer weekend. Highway 89, West Lake was closed for a period of time.

T.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

T.6.1. Regulatory Mitigation Capabilities

Table T-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table T-5 Tahoe Truckee Unified School District's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	No	TTUSD has a Facilities Master Plan. All General Plans are under the jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado
Capital Improvements Plan	Yes	TTUSD Facilities Master Plan
Economic Development Plan	N	Jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado
Local Emergency Operations Plan	Y	The plans that the District are involved in are run through Placer and Nevada County OES', along with local first responders and other outside agencies.
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado

Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Truckee Donner Fire District, North Tahoe Fire District
Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	Jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado
Subdivision ordinance	N	Jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado
Floodplain ordinance	N	Jurisdiction of Town of Truckee and Counties of Placer, Nevada, and El Dorado
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Tahoe-Truckee Unified School District Facilities Master Plan, April 9, 2014

The Tahoe Truckee Unified School District Facilities Master Plan was adopted on April 9, 2014. It is a comprehensive plan that addresses the current and future facility needs of the District. The plan includes information on student demographics, existing school facilities and condition assessments, short range and long range facility planning issues, and the routine and deferred maintenance plan for facilities in the District. This plan is considered a living document and will be updated as conditions in the District change.

Tahoe-Truckee Unified School District School Site Safety Plans, April 8November 20th and 21st, 200915

TTUSD has prepared a comprehensive School Safety Plan for each site that includes all school and administrative/support sites staff. The most recent update of the School Safety Plans was adopted on April 8, 2009.November 20th and 21st, 2015. The Comprehensive School Safety Plans created and enforces policies procedures that promote a safe, caring, and disciplined environment for students and staff. The plan includes: and Emergency Operations Plan for school emergencies and disasters, action guides,

individual Safe School Plans for each site, ingress/egress plans, and evacuation and emergency response procedures.

T.6.2. Administrative/Technical Mitigation Capabilities

TTUSD is governed by a Board of Trustees consisting of five members. Each member is elected by the public for a four year term and represents a specific constituency of the District. Table T-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table T-6 Tahoe Truckee Unified School District's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements		
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	N	
GIS Coordinator	N	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	All sites have warning systems and communications devices.
Hazard data and information	N	
Grant writing	N	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

T.6.3. Fiscal Mitigation Capabilities

Table T-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table T-7 Tahoe Truckee Unified School District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	State School Building Program, FEMA Disaster Funding and Assistance (PDM, etc.) CAL Trans/Federal Safe Routes to School, general fund, developer impact fees
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Residential and Commercial Developer Fees (Restricted Uses)
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		

T.6.4. Mitigation Outreach and Partnerships

Table T-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table T-8 Tahoe Truckee Unified School District's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	This has been done through educational resources available through the schools, as well as information contained on the District's website.
Natural disaster or safety related school programs	Y	All of the schools participate in regular safety drills, and the District works regularly on our natural disaster plan.
StormReady certification		
Firewise Communities certification		
Public-private partnership initiatives addressing disaster-related issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		

TTUSD has partnered with many other public agencies, emergency service organizations, and local districts to either prevent and/or minimize loss of life and property in the event of emergencies and natural disasters. TTUSD has partnered with North Tahoe Fire District in conjunction with Nevada Fire Safe Council to increase the defensible space surrounding lake area school sites. We have also established partnerships with CAL FIRE, U.S. Forest Service, and local fire crews to provide housing and central command facilities on our sites for firefighters during wildland fires. In addition to fire crew housing, TTUSD has also established school facilities as safety shelters for civilians, law enforcement, other emergency service and public personnel in the event of natural disasters and emergencies such as storm and road closures. TTUSD also works in close cooperation with local hospitals and County health departments to inform students, staff, and community members during epidemiological outbreaks and other health concerns.

T.6.5. Other Mitigation Efforts

The District is involved in a variety of mitigation activities including public outreach and project activities. These mitigation activities include:

Emergency and Safety Education Programs at School Sites

TTUSD's Comprehensive School Safety Plans details how the school district will operate during critical incidents affecting students, faculty, staff, or facilities. The District's Emergency Operations section of the plan provides guidance for personnel who discover or are notified of an emergency situation. The Emergency Operations Plan is based on the nationally recognized Incident Command System (ICS). ICS establishes common standards and procedures consistent with local emergency service agencies. This allows for quicker reaction time and better communication with emergency services which will lower the risk of life and property loss during a natural disaster.

Flood

The District has experienced damage to its facilities during major floods. However, the damages were caused by conditions exceeding the capability of minor on-site mitigation actions (e.g. stormwater drain backup). All major mitigation actions to prevent flooding of school site would fall under the responsibility of other jurisdictions. The District will continue to comply with local storm water control requirements and implement any mitigation measures that the responsible authorities see fit in order to prevent damage to existing and future facilities.

T.7 Mitigation Strategy

T.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

T.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. North Tahoe High School and Middle School, Tahoe Lake Elementary School Emergency Generators.

Hazards Addressed: Multi-hazard

Issue/Background: All school sites are deemed Emergency Shelters in the event of a disaster. Buildings need to remain operational for occupancy in the event of a disaster.

Other Alternatives: Portable Generators

Existing Planning Mechanism(s) through which Action Will Be Implemented: Planning is complete. TTUSD Electrician will perform work. An engineer will be used for the design and a bid package will be sent out.

Responsible Office/Partners: Tahoe Truckee Unified School District

Project Priority: High

Cost Estimate:

- Tahoe Lake Elementary – $150,000
- North Tahoe High School/ Middle School – $180,000
- Rideout – $120,000
- Kings Beach Elementary School – $150,000

Benefits (Losses Avoided):

- Benefits – Uninterrupted occupancy of building
- Losses Avoided – Resorting to secondary shelters

Potential Funding: FEMA Funding and Operations, 25%

Timeline: 2016-2017 Project

Action 2. School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.

Hazards Addressed: Multi-Hazard

Issue/Background: TTUSD is in the process of creating a District wide safety plan which documents safety and emergency procedures and for students and teachers. Selected representatives from each school site have attended special training sessions highlighting these procedures and the proper actions to take during an emergency. In addition TTUSD is standardizing the emergency communications equipment. All sites have received narrow-band Motorola handheld radios which will operate in most regions of the District. These devices enable all sites to notify the administration and local School Resource Officers in the event of an emergency. The District believes that proper safety training of personnel, in addition to an efficient alert system will significantly reduce the risks of serious injury or death in the event of an emergency or natural disaster. The training can also reduce the potential for physical damage to buildings and property. Since this mitigation project is currently being implemented and will become part of the District's administrative policy, it has not been rated as a prioritized mitigation action.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: This project has been completed, with ongoing activity and improvements. Safety and emergency training meeting will occur regularly and plans will be updated annually.

Responsible Office: Facilities Department

Priority (High, Medium, Low): Medium

Cost Estimate: $50,000

Benefits (Losses Avoided): Life safety, property loss

Potential Funding: Federal and state safety grants and TTUSD General Fund

Schedule: D Continued District-Wide safety training, increase of training for disaster preparedness and awareness.

Action 3. HVAC Control Upgrades

Hazards Addressed: Freeze/Snow

Issue/Background: Extreme temperature drops can damage heating coils, plumbing, and HVAC operating systems. Often this damage can be prevented if control systems are triggered to increase the building heat. Upgrades to the central HVAC operating system controls can shorten the response time in heating the buildings and prevent further damage caused by freezing temperatures. In addition, the upgraded building controls would have the capacity to control the building ventilation and could shut down the ventilation system in the event of a localized HAZMAT or chemical spill near the site.

Other Alternatives:

Existing Planning Mechanism(s) through which Action Will Be Implemented: This project is being evaluated again to see if there are further improvements to efficiencies can be made, and safety processes such as shutting off outside air due to smoke and other environmental hazards. Additionally, we are examining changing controls systems the current proprietary system that we currently have for improved maintenance and comfort for our scholars and staff.

Responsible Office: Facilities Department

Priority (High, Medium, Low): Medium

Cost Estimate: $300,000

Benefits (Losses Avoided): reduction in property loss, life safety

Potential Funding: Unknown

Schedule: Within five years.

Annex U Truckee Fire Protection District

U.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the Truckee Fire Protection District (Truckee FPD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Truckee FPD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

U.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table T-1. Additional details on plan participation and City representatives are included in Appendix A.

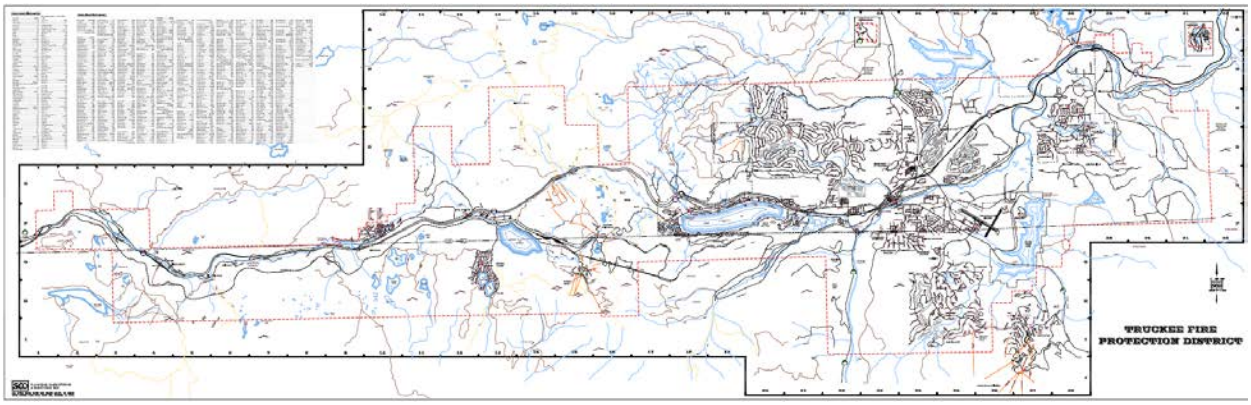
Table T-1 District Planning Team

Name	Position/Title	How Participated
Bill Seline	Fire Chief	Attended meetings. Provided logo and pictures. Provided hazard identification table. Provided information on vulnerability of the District to hazards of concern.
Larry Ochoa	Battalion Chief	Review of local hazards, priorities and possible mitigation.
Rod Brock	Battalion Chief	Review of local hazards, priorities and possible mitigation.
Bill Rust	Battalion Chief	Review of local hazards, priorities and possible mitigation.
Craig Harvey	WUI Specialist	CWPP, maps and projects concerning wildland fire mitigation and fuel reduction.
Bob Belden	Division Chief	CWPP, maps and projects concerning wildland fire mitigation and fuel reduction.
Jeff Dowling	Division Chief (CAL FIRE)	CWPP, maps and projects concerning wildland fire mitigation and fuel reduction.
Barry Calenberger	Consultant	CWPP, maps and projects concerning wildland fire mitigation and fuel reduction.

U.3 District Profile

The District service area is illustrated in Figure T-1.

Figure T-1 Truckee Fire Protection District Service Area



Source: Truckee FPD

U.3.1. District Information and Background

Truckee Fire Protection District is officially responsible for 125 square miles and is one of the oldest fire districts in the Truckee Tahoe area of Northern California. A public agency, supported by public funds, the District operates under Fire District Law established in 1987 and is an independent Special District.

The District's business is the protection of life and property through the provision of fire rescue and emergency medical services. This District offers a high level of service to our mountain community and outlying areas and is made up of 49 full time and 9 part time and/or volunteer members.

Figure T-2 Truckee Fire Department Station 92

Source: Truckee FPD

U.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table T-3).

Table T-2 Truckee Fire Protection District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Extensive	Occasional	Limited	Low
Avalanche	Limited	Occasional	Limited	Low
Dam Failure	Limited	Unlikely	Negligible	Medium
Drought and Water Shortage	Extensive	Occasional	Limited	Low
Earthquake	Extensive	Unlikely	Critical	High
Flood: 100/500 year	Limited	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Limited	Occasional	Negligible	Low
Landslides and Debris Flows	Limited	Occasional	Negligible	Low
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Catastrophic	High
Severe Weather: Extreme Heat	Extensive	Unlikely	Limited	Low
Severe Weather: Freeze and Snow	Extensive	Highly likely	Limited	High
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Likely	Negligible	Low
Soil Bank Erosion	Limited	Likely	Negligible	Low
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Extensive	Likely	Catastrophic	High
Hazardous Materials Transport	Limited	Occasional	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

U.5 Vulnerability Assessment

The intent of this section is to assess the District's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

U.5.1. Assets at Risk

This section considers the District's assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table T-4 lists particular critical facilities and other community assets identified by the District's planning team as important to protect in the event of a disaster.

Table T-3 Truckee Fire Protection District's Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Hazard Info
Fire station 91	Administrative station	$6 million	WUI
Fire Station 92	Ambulance and Engine	$6 million	WUI
Fire Station 95	Ambulance and Engine	$2.5 million	WUI
Fire Station 96	Ambulance and Engine	$3 million	WUI
Fire Station 97	Ambulance and Engine	$2 million	WUI

Source: Truckee FPD

Growth and Development Trends

Current development includes over 500 large single family residence that have been or being built in the Martis Camp subdivision. Other longer range developments are planned in the Donner Summit area and the area east of the Glenshire. Other commercial and residential structures continue to be built in the fire district. All of the new and proposed developments are within the wildland urban interface.

U.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table T-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Lake Tahoe and the Truckee River that could affect 10-15 homes along the river in the District, in Placer County, and continue to create significant critical infrastructure damage throughout the Truckee River corridor. Martis Lake Dam, Prosser Dam, Boca Dam and Stampede Dam could affect 20 homes in the community of Hirshdale and damage critical road and power infrastructure. The Donner Lake Dam could affect critical road and power infrastructure as well as flood a nearby residential trailer park with 94 residences.

Earthquake

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

No masonry constructed buildings in the Placer Co. portion of our District. Mostly residential homes built for snowload and to recent earthquake standards.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

In 96/97, there was a 100 year flood which caused the Truckee River to rise and caused damage to homes along the river. About 10-15 homes in the Placer County portion. Also West end Donner Lake had flooding of homes from Donner lake and area streams rising during flood events.

Seiche (Lake Tsunami)

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Water coming over the dam could cause flooding and damage to the river properties 10-15 homes along SR 89

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly likely
Vulnerability–Medium

82/83, 92/93, 2002/03, 2010/11. Heavy snow or rain on snow caused damage to homes and infrastructure during each of these winters. During 2010/11 over 50 homes had major propane gas leaks into the snow and caused evacuation of the area and long term mitigation efforts throughout the winter. One home exploded and others were damaged from the snow.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–High

Only small few acre fires at most in our Placer areas. Last fire was the King 2014 and the American 2013 that were within 10 miles of our Placer area (Serene Lakes). All of the residential and commercial structures in the Truckee area are in the wildland urban interface and are at risk from a catastrophic fire event.

Hazardous Materials Transport

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Railroad potential with crude and other haz mat is becoming more of a concern with recent increase of rail traffic and these materials being transported.

U.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

U.6.1. Regulatory Mitigation Capabilities

Table T-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table T-4 Truckee FPD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	Town of Truckee Plan, no mitigation
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	In progress	Complete in 2016
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: Town of Truckee, Placer Co, Nevada Co. It is adequately enforced
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating:	Y	Rating: 5
Site plan review requirements	Y	WUI
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	Wildfire and WUI management of property
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Truckee Fire Evacuation Plan

Truckee Fire Protection District is a bi-county District that also encompasses the incorporated Town of Truckee. Truckee Fire follows the Placer, Nevada counties as well as the Town of Truckee evacuation plans. Each year the agencies meet to coordinate and exercise on the plan.

Fire Hydrant Snow Plan

The winter months bring a special concern to the citizens of Truckee, Donner Summit, and the Truckee Fire District. Winter storms often hide fire hydrants under a mountain of snow, making them impossible to find quickly. In the event of a fire, firefighters have to locate and clear hydrants of snow before they are able to connect hose and establish a water supply to aid in fighting fire. District crews stop at hydrants to clear them of snow. In most locations within the Fire District, hydrants are located 500 feet from one another. Because of the great number of hydrants located within the Fire District, it is virtually impossible to clear every hydrant of snow after each storm. The Fire District has adopted a strategic plan of which hydrants are to be cleared of snow after a snowstorm, depending on life-hazards and proximity to other hydrants which are maintained.

CWPP

Truckee Fire recently received a CAL FIRE grant to hire a consultant to develop a CWPP for the Truckee Fire Protection District. The process was started in the summer of 2015 and is expected to be completed by summer of 2016. Many local stakeholders are involved in the process including the USFS, CAL FIRE, various homeowner associations, State Parks, Town of Truckee, both counties, to name a few. The plan outlines and prioritizes the wildfire risk in the fire district and outlines various projects that will help mitigate the hazard.

U.6.2. Administrative/Technical Mitigation Capabilities

The District is governed locally by a five member Board of Directors, elected during the general elections held in November. The Board of Directors is responsible for setting policy and general administrative procedures for the District. The policies and procedures set by the board are then administered by the Fire Chief of the District. Table T-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table T-5 Truckee FPD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	

Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	In-house forest and WUI experts that inspect residential and commercial properties
Mutual aid agreements	N	
Other	N	
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y	Town of Truckee and County has these offices and coordinates well with TFPD
Floodplain Administrator	N	Town
Emergency Manager	Y	Town and Fire Department
Community Planner	Y	Town
Civil Engineer	Y	Town
GIS Coordinator	N	
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Town of Truckee and both Counties have abilities to communicate with the public. The Fire District can communicate via Nixle
Hazard data and information	Y	Town
Grant writing	Y	TFPD
Hazard analysis	Y	Town
Other		
How can these capabilities be expanded and improved to reduce risk?		

U.6.3. Fiscal Mitigation Capabilities

Table T-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table T-6 Truckee FPD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	With 2/3 vote.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Mitigation fees have supported fire station improvement and additional apratus
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	
State funding programs	Y	
Other		
How can these capabilities be expanded and improved to reduce risk?		

U.6.4. Mitigation Outreach and Partnerships

Table T-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table T-7 Truckee FPD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Various community educational programs including community events and annual school fire safe program
Natural disaster or safety related school programs	Y	School fire safety
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
How can these capabilities be expanded and improved to reduce risk?		

U.7 Mitigation Strategy

U.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

U.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Community Wildfire Protection Plan

Hazard Addressed: Wildfire

Issue/Background Statement: The Truckee Fire Protection District is facilitating the development of a Community Wildfire Protection Plan to identify various fuel management projects in the District.

Other Alternatives: None at this time

Existing Planning Mechanisms through which Action Will be Implemented: The CWPP involves all local stakeholders including residents during a series of public meetings

Responsible Office: Truckee Fire Protection District

Priority (H, M, L): Medium

Cost Estimate: The CWPP planning was paid for by a grant from CAL FIRE for 27k. The various projects will have varying degrees of costs.

Benefits (Losses Avoided): Reducing the fuels in the WUI will help reduce the loss of residences and commercial structures as well as life and other property.

Potential Funding: Various fuels management programs

Schedule: The plan will be complete in 2016

Action 2. Severe Winter Weather and Propane Issues Mainly in Serene Lakes

Hazard Addressed: Multi-hazard

Issue/Background Statement: During the 2010/11 winter large amounts of snow piled up in the Serene Lakes area. The weight and shifting of the snow caused a number of residential propane lines to break causing propane to leak into the snow and a few residences including one explosion. Widespread evacuations were initiated. It was determined that many of the propane systems that were installed many years ago were not at current building codes. Since that time many of the problems have been rectified by the homeowners and the propane companies.

Other Alternatives: Natural gas into the area. Money available for homeowners to upgrade propane system as well as more frequent inspections of existing propane systems.

Existing Planning Mechanisms through which Action Will be Implemented: Unknown

Responsible Office: TF Prevention and HOA

Priority (H, M, L): Medium

Cost Estimate: Unknown

Benefits (Losses Avoided): potentially reduce the possibility of a major propane release in the future.

Potential Funding: To be determined

Schedule: When funding is available

Appendix A Planning Process

A.1 Placer County Step 1: Organize to Prepare a Plan

(a). Involvement of Community Land Use and Comprehensive Planning

In addition to attending meetings, providing draft text for inclusion in the plan, reviewing plan documents, and coordinating input from other departments and stakeholders, Placer County planners also provided information on development since the last plan, mapping and details on future development areas, input on current mitigation capabilities, coordination with other planning mechanisms, and in-progress modifications to the General Plan and associated documents specific to Placer County's floodplain management provisions for regulating to the 200-year level of flood protection.

Placer County Planners

- Crystal Jacobsen, Principal Planner/Advance Planning– Placer County Community Development Resource Agency
- Chris Schmidt, Senior Planner – Placer County Community Development Resource Agency

Also in supporting roles are two additional County planners: Nikki Steegan, Associate Planner with the Placer County Community Development Resource Agency and Christina Hansen, with Placer County Public Works and Facilities, Planning and Building Services. Other planners to the process included Jeanine Foster and Chris Morrison, professional planners with Foster Morrison, the consultant for this LHMP Update, as well as other planners and staff from the incorporated communities and other participating jurisdictions involved in future land use development decisions for the Placer County Planning Area.

(b). Staff of Community Departments on HMPC with Expertise on CRS Step 7 Activities

In order to promote the integration of CRS into this planning process, the representatives from the County were selected based on their areas of expertise relative to the CRS mitigation categories as detailed in Table A-1.

Table A-1 Placer County Staff Capability with Six Mitigation Categories

Placer County Departments/Staff	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Community Development Resource Agency/Planning Services Division– Crystal Jacobsen, Chris Schmidt	X	X	X			X	X
Emergency Services/Fire– John McEldowney, Young Rodriguez, Luana Dowling	X	X	X	X	X	X	X

Placer County Departments/Staff	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Public Works and Facilities, Planning and Building Services – Christina Hansen	X	X	X		X		X
Public Works and Facilities Department, Parks Division – Andy Fisher	X	X	X			X	X
Public Works and Facilities – Flood Management & Engineering – Bob Costa, Mary Keller	X	X	X		X	X	X
Community Development Resource Agency/GIS-Information Technology – Kelly Berger, Chris Brown	X					X	X
Community Development Resource Agency, Planning Services Division– Chris Brown	X	X	X			X	X

(c) Placer County Resolution formally recognizing and establishing the planning process/planning committee

Before the Board of Supervisors
County of Placer, State of California

Resol No: 2015-135

In the matter of
INITIATING THE PLANNING PROCESS AND ESTABLISHING A HAZARD MITIGATION PLANNING COMMITTEE FOR AN UPDATE TO THE PLACER COUNTY LOCAL HAZARD MITIGATION PLAN

The following **RESOLUTION** was duly passed by the Board of Supervisors of the County of Placer at a regular meeting held JULY 07, 2015 by the following vote on roll call

Ayes	DURAN, WEYGANDT, HOLMES, MONTGOMERY, UHLER
Noes	NONE
Absent	NONE

Signed and approved by me after its passage.

Chairman, Board of Supervisors

Attest:
Clerk of said Board

WHEREAS Placer County and its incorporated communities are exposed to numerous natural and manmade hazards, including flood, drought, wildfire, severe weather, and other hazards, that increase the vulnerability to life, property, environment and the County's economy, and

WHEREAS hazard mitigation planning will create an operational framework for reducing losses from these hazards, and

WHEREAS hazard mitigation planning is a requirement of the Robert T Stafford Disaster Mitigation Act of 2000 (DMA 2000) and continued eligibility for certain sources of FEMA mitigation funding programs that support loss reduction activities, and

WHEREAS Placer County participates in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) Program which through certain activities reduces the effects of flood hazards and therefore the cost of flood insurance to residents of the County, and

WHEREAS the County is currently maintaining a CRS Classification Rating of "five" (5) thereby saving residents within the FEMA Special Flood Hazard Area (SFHA) twenty-five percent (25%) on the cost of flood insurance and those outside the SFHA a total of ten percent (10%) on the cost of flood insurance, and

WHEREAS the CRS Program also requires the County to adopt a Local Hazard Mitigation Plan with a Floodplain Management Plan component to reduce repetitively flooded properties and flood loss in the County, and

WHEREAS Placer County is initiating its update to the 2010 Placer County Local Hazard Mitigation Plan (LHMP) as required by FEMA's DMA 2000 and CRS on a 5-year basis in order to remain eligible for future federal disaster mitigation funding and to achieve the goals of CRS Activity 510 for Floodplain Management Planning, and

WHEREAS FEMA and the CRS Program encourage public participation and involvement from the public and other stakeholders throughout the planning process, and

WHEREAS it is necessary to create a Hazard Mitigation Planning Committee (HMPC) with the responsibility to meet and fulfill the obligations of FEMA's DMA 2000 and the CRS Program Floodplain Management planning requirements through organizing to prepare the plan, involving the public, coordinating with other agencies, assessing the hazards, assessing the problem, setting goals, reviewing possible activities, drafting a mitigation action plan, adopting the plan and implementing, evaluating and revising the plan, and

WHEREAS a multi-jurisdictional and public HMPC will be established to lead this mitigation planning effort The HMPC will be widely advertised and open to all attendees and will consist of representatives of various county departments, the incorporated communities, special districts, other federal, state, and local agency stakeholders, and the public who could be affected by or interested in the impacts of natural hazards in Placer County, and

WHEREAS the County Board of Supervisors wishes to establish the overall HMPC as well as an HMPC Steering Committee comprised of 50% membership of public stakeholders for this purpose As the principal coordinating agency for this 2015 LHMP Update, Placer County OES is the delegated entity for the selection of HMPC and Steering Committee members.

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of the County of Placer hereby supports the update of the 2010 Placer County LHMP and establishes the creation of the new HMPC and steering committee comprised of representatives from·

A Placer County departments
  a Office of Emergency Services
  b Public Works
  c Facilities Services
  d. Community Development Resource Agency
  e Health and Human Services
  f Fire Services
  g Sheriff
  h Administrative Services
  i Assessor's Office
  j Agricultural Commissioner
  k Risk Management

B Incorporated communities
  a City of Auburn
  b City of Colfax
  c. City of Lincoln
  d Town of Loomis
  e City of Rocklin

C Other participating jurisdictions to include special districts and others seeking FEMA approval of the plan

D Other private citizens, members of the public, and stakeholders including local, regional, state, and federal agencies and partners appointed by the Placer County Office of Emergency Services.

A.1.1. HMPC and Steering Committee Initial Invitation List

Name	Agency
Althof, Kurt	Tahoe City PUD
Alves, George	Placer County OES(Fire Mitigation)
Armstrong, Gabe, Wes Heathcock	City of Colfax, Public Works
Anderberg, James	Placer County Office of Education
Angelocci, Rick Snipes, Brit	Town of Loomis
Arsenith, Joe Romero, Mike	Placer County Health & Human Services, Public Health
Bailey, Kit	US Forest Service, Lake Tahoe Basin Management Unit
Bansen, Peter	Squaw Valley Fire Department
Barela, Tony	San Juan Water District
Battles, Scott	Placer County, Facility Department
Berger, Kelly Brown, Chris	Placer County, GIS Division
Bettencourt, Lawrence Walder, Eric	South Placer Fire Protection District (FPD)
Boemecke, Wendy	Cal OES, Hazard Mitigation
Booth, George	Sacramento County, Public Works
Borden, Kevin	Placer County Sheriff Office (Auburn)
Buelna, Steve	Placer County, Planning (Tahoe)
Carlisle, Tom	Auburn City FD
Castillo, Ricardo	Cal OES, Hazard Mitigation (Grant)
Cheney, Peter	Placer County Water Agency (Special District)
Christofk, Tom	Placer County Air Pollution District
Close, Chip	Nevada Irrigation District
Collins, John	Alpine Springs County Water District
Cordell, DeDe	Placer County, Communications & PIO
Costa, Bob	Placer County, Public Works Department
Davis, Mike	Lincoln City FD
Dowling, Luana	Placer County OES(Fire Mitigation)
Ferrera, Vic	Nevada County OES
Fisher, Andy	Placer County, Facility Dept, Parks Division
Fitch, Mike	Placer County, PIO
Forstall, Rick	City of Rocklin, Public Works
Garabedian, Michael	Public Citizen
Gibeaut, Jason	NorthStar FD

Name	Agency
Gow, Ian	Placer Hills FPD & Foresthill FPD
Gustafson, Cindy	Tahoe City PUD
Hanson , Christina	Placer County, Planning Division
Hawk, Doug Unholz, Rod	Placer County, Facility Services, Capital Improvement Division
Higgins, Mitch	Penryn FPD & Newcastle FPD
Holley, Michael	Tahoe Donner PUD
Hucks, Elsa	CALFIRE. Forestry & GIS
Huntsinger, Joshua Mitani, Darryl	Placer County Agriculture
Ince, Roger	Sacramento County OES
Irwin, Colin	Sierra College
Ivaldi, EJ	Placer County, Planning Division
Jacobsen, Crystal Schmidt, Christ	Placer County, Planning Division
Keating, Brian	Placer County Flood Control District
Kirk, Gary	Foresthill FPD
Victor Lyon Knox, Jesse Joanne Robique	US Forest Service, Tahoe National Forest
Kraatz, Peter	Placer County, Public Works (Tahoe)
LaMar-Hass, Victoria	Cal OES, Hazard Mitigation
Lindgren, Scott	Placer County Fire/CALFIRE
Liske, Scott	CA State Parks
Lorenz, Kim	Cal OES, Inland Region
Machado, Marty	Placer Foothill Amateur Radio Services
Martin, Tami	American Red Cross
McEldowney, John	Placer County OES
McGough, Rebecca Button, Mike	Tahoe Truckee Unified School District
McGraw, Jesse	Squaw Valley Public Service District
Mead, Michelle	National Weather Service, Sacramento
Medina, Edgar	City of Auburn
Merchant, Jennifer Matijevich, Cadence	Placer County, County Executive Office (Tahoe)
Miller, Mark Heathcock, Wes	City of Colfax
Miller, Robert	Placer County, PIO
Mohlenbrok, David	City of Rocklin, Public Works

Name	Agency
Mooshian, Mark	US Bureau of Reclamation
Noble, Elisa	Placer County Resource Conservation District
Parker, Jane (?)	Tahoe Truckee Sanitation Agency
Pecoraro, Victor John Ruffcorn	City of Auburn
Staudenmeyer, Michael	NorthStar Community Service District
Ramirez, John	Placer County, Facility Services, Parks
Rivera, Todd	Tahoe Truckee Unified School District
Rizzi, Jason	Roseville FD
Sacksteder, Vicki	San Juan Water District
Shadowens, Mark	NorthStar FD
Storey, Brett	Placer County, Planning
Ruffcorn, John	City of Auburn
Summers, Jim Snyder, Kurt Holmes, Rick	Rocklin FD
Taber, Kevin	Placer County, Public Works
Thickens , Rich	Alta FPD
Walker, Carl	City of Roseville, Public Works
Walsh, Dennis Weaver, John	Placer County Sheriff Office (Tahoe)
Wegner, Tim	Placer County, Building
Whitelaw, Duane Schultz, Paul Gibbons, Susan	North Tahoe PUD

HMCP Meeting #1 – HMPC and Steering Committee Kickoff Meeting

Email invite to Kickoff Meeting

Kick-off meeting to update the Placer County Local Hazard Mitigation Plan - Message (HTML)

FILE MESSAGE ADOBE PDF

Fri 3/27/2015 10:24 AM

Young Rodriguez <YRodrigu@placer.ca.gov>

Kick-off meeting to update the Placer County Local Hazard Mitigation Plan

To ☐ ' (Elsa.Hucks@fire.ca.gov)'; ☐ ' (vlyon@fs.fed.us)'; ☐ '(mhiggins@penrynfire.org)'; ☐ Andy Fisher; ☐ 'Bettencourt, Lawrence'; ☐ 'bfragiao@loomis.ca.gov'; ☐ Bob Costa; ☐ Brett Storey; ☐ Brian Keating; ☐ 'Carl Walker (CWalker@roseville.ca.us)'; ☐ 'Chip Close (close@nidwater.com)'; ☐ Chris Brown; ☐ Christina Hanson; ☐ 'Colin Irwin (cirwin@sierracollege.edu)'; ☐ 'csuarez@fs.fed.us'; ☐ 'Davis, Mike'; ☐ 'Edgar Medina'; ☐ 'Elisa Noble (elisa@placercountyrcd.org)'; ☐ 'Eric Walder'; ☐ 'Gabe Armstrong (colfaxarmstrong@foothill.net)'; ☐ 'Gary Kirk (gkirk@foresthillfiredept.org)'; ☐ 'iangow@usamedia.tv'; ☐ 'JAnderberg@placercoe.k12.ca.us'; ☐ 'Jason Rizzi (JRizzi@roseville.ca.us)'; ☐ 'Carl Walker (CWalker@roseville.ca.us)'; ☐ John Ramirez; ☐ 'John Ruffcorn (jruffcorn@auburn.ca.gov)'; ☐ Kelly Berger; ☐ Kevin Taber; ☐ 'Lindgren, Scott';

Cc ☐ John McEldowney; ☐ DeDe Cordell; ☐ Robert Miller; ☐ Mike Fitch; ☐ Jennifer Merchant; ■ Jeanine Foster; ■ Chris Morrison; ☐ Dorothy Walsh

Greetings,

Placer County is kicking off efforts to update the County's 2010 Local Hazard Mitigation Plan (LHMP). The purpose of the LHMP Update process is to help reduce the impacts of natural hazards to the citizens, property, and critical infrastructure in Placer County. The Plan is due for its 5-year update as required by the Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires that local governments have a FEMA approved Hazard Mitigation Plan in place in order to maintain their eligibility for certain pre- and post-disaster funding utilized to protect communities from future disaster related losses. Another benefit of this mitigation planning update is to enhance the floodplain management programs of the county and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS). You are receiving this notice because we would like to invite you to take part in this Plan update as a member of the Hazard Mitigation Planning Committee (HMPC).

Community participation and coordination is a requirement of an approved Plan, as is the inclusion of any proposed project your organization may want to submit for future FEMA mitigation funding (e.g., a flood, wildfire or severe weather mitigation project). Thus, participation in this process by stakeholder at local levels and allied agencies from state and federal agencies to provide your inputs and reviews of plan drafts are important and encouraged to comprehensively update the Plan. You have key knowledge and data that will be needed to update this Plan, and thus your input will be critical to our joint success. Many of you, or a representative from your organization, participated in the HMPC and assisted in the development of the original LHMP (2005) and in the last update (2010). By actively participating in this plan update, and upon your Board/Council adoption of the FEMA approved LHMP Update, this Plan will become your organization's Plan, and thus secure your eligibility for potential FEMA mitigation grant funding. The LHMP update and formal adoption cycle takes place every 5 years. We highly encourage participation both from agencies involved in previous updates, and from agencies who may not have participated in the past. Participation entails the following:

- Attending and actively participating in the HMPC meetings (4 anticipated over the next 6-8 months)
- Providing available data/information requested of the HMPC
- Reviewing and providing comments on the plan drafts

The Placer County Office of Emergency Services is taking the lead on coordinating the Plan update for the County. Duplicate project kickoff meetings will be held in the following locations for your convenience:

- 4/28, 2pm-5pm, Community Development Resource Agency, Planning Commission Hearing Room, 3091 County Center Drive, Auburn, CA 95603
- 4/29, 2pm-5pm, North Tahoe Fire Protection District, Station 51, Training Room, 222 Fairway Drive, Tahoe City, CA 96145

The kickoff meeting will explain the process and get the Plan Update started. Please plan on attending the meeting date and location, or send a representative, that works best for your schedule. A meeting for the general public will also be held from 6pm-7pm on the same day in both the Auburn and Tahoe City areas. Details on the public meetings will be forthcoming.

For your reference the existing plan can be accessed here: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan

Please let me know if you have questions.

Young (Rod) Rodriguez
Emergency Services Coordinator
Placer County Office of Emergency Services Main Office
175 Fulweiler Ave
Auburn, CA 95603
W – 530-886-4602

Reminder Email invite to Kickoff Meeting

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Friday, April 17, 2015 11:22 AM
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Cc: John McEldowney <JMcEldow@placer.ca.gov>; DeDe Cordell <DCordell@placer.ca.gov>; Robert Miller <RMiller@placer.ca.gov>; Mike Fitch <MFitch@placer.ca.gov>; Jennifer Merchant <JMerchan@placer.ca.gov>; Jeanine Foster <jeanine.foster@fostermorrison.com>; Chris Morrison <chris.morrison@fostermorrison.com>; Dorothy Walsh <DIWalsh@placer.ca.gov>
Subject: REMINDER - Kick-off meeting to update the Placer County Local Hazard Mitigation Plan

Good morning,

A reminder of the kick off meetings on April 28, 2015 in Auburn and April 29, 2015 in Tahoe City. Attached is the agenda for the HMPC/Committee Meetings and the 2010 Actions List of mitigation projects from the 2010 LHMP that will need to include a status report in the updated LHMP. For agencies with specific projects listed, please review and provide a written status update and bring the list to the kick-off meeting. The updates provide us with a starting point to update your agency annex/section in the Plan.

Please let me know if you have any questions.

Young (Rod) Rodriguez
Emergency Services Coordinator
Placer County Office of Emergency Services Main Office
175 Fulweiler Ave
Auburn, CA 95603
W – 530-886-4602

Press Release for Kickoff Meeting

March, 2015

FOR IMMEDIATE RELEASE
CONTACT: Rod Rodriguez Placer County OES, 530-886-4602

PLACER COUNTY INVITES PARTICIPATION IN HAZARD MITIGATION PLAN UPDATE

Placer County is leading a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards such as floods, wildfires and severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the county and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). Partnering with the County in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the County.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

The Placer County Office of Emergency Services (OES) will be hosting two meetings to kick off the process to update their current 2010 LHMP. Officials from Placer County; incorporated communities; state and local agencies; members of the public and other interested stakeholders are invited to participate in this planning effort. A hazard mitigation planning committee will be established as part of the plan development process.

Separate (duplicate) meetings are scheduled for 2 p.m. (planning committee meeting) and 6 p.m. (public meeting) as follows:

4/28, Community Development Resource Agency, Planning Commission Hearing Room, 3091 County Center Drive, Auburn, CA 95603
2-5 pm: Planning Team Meeting
6-8 pm: Public Meeting
4/29, 2pm-5pm, North Tahoe Fire Protection District, Station 51, Training Room, 222 Fairway Drive, Tahoe City, CA 96145
2-5 pm: Planning Team Meeting
6-8 pm: Public Meeting

The 2 pm meeting is targeted for the planning committee; the 6 pm meeting is for the public. However, the public is encouraged to come to either meeting at their convenience. The purpose of the kickoff meetings is to inform the planning committee, participating jurisdictions, and other interested stakeholders about the purpose and process of the plan and to describe how to participate and the benefits of doing so.

Placer County OES is taking the initiative to develop this plan update utilizing the expertise of consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management. Please come to the kickoff meeting to learn more about hazard mitigation and the LHMP Update process.

For more information on this project and how you can be involved, contact Rod Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Kickoff Meeting Agenda

AGENDA
PLACER COUNTY
LOCAL HAZARD MITIGATION PLAN (LHMP) UPDATE
HMPC MEETING #1
APRIL 28 & 29, 2015

1. Introductions
2. Hazard Mitigation & the Disaster Mitigation Act Planning Requirements
3. National Flood Insurance Program's (NFIP) Community Rating System, 2013 CRS Schedule Overview
4. The Role of the Hazard Mitigation Planning Committee (HMPC)
5. Planning for Public Input
6. Coordinating with other Agencies
7. Hazard Identification
8. Data Needs
9. Questions and Answers

Placer County Office of Emergency Services
Local Hazard Mitigation Plan – Hazard Mitigation Planning Committee

April 28, 2015, 2pm-5pm

Placer County Planning Commission Hearing Room

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SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mtg ~~**Early Public Meeting #1**~~ **(Tahoe)**
April 29, 2015

Please print legibly

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SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mtg ~~Early Public Meeting~~ #1 (Tahoe)
April 29, 2015

Please print legibly

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YOUNG (ROD) RODRIGUEZ	YRODRIGU@PLACER.CA.GOV	(530) 886-4602	Placer Co OES

HMPC Meeting #2 – HMPC and Steering Committee Risk Assessment Meeting

HMPC and Steering Committee Email invites to HMPC #2 - Risk Assessment Meetings

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Thursday, June 04, 2015 11:05 AM
To: Young Rodriguez; ' (Elsa.Hucks@fire.ca.gov)'; ' (vlyon@fs.fed.us)'; '(mhiggins@penrynfire.org)'; Andy Fisher; 'Bettencourt, Lawrence'; 'bfragiao@loomis.ca.gov'; Bob Costa; 'Boemecke, Wendy@CalOES (Wendy.Boemecke@CalOES.ca.gov)'; Brett Storey; Brian Keating; 'Carl Walker (CWalker@roseville.ca.us)'; 'Chip Close (close@nidwater.com)'; Chris Brown; 'chris.paulus@fire.ca.gov'; Christina Hanson; 'Colin Irwin (cirwin@sierracollege.edu)'; Crystal Jacobsen; Daniel Blair; Darryl Mitani; 'David Mohlenbrok (David.Mohlenbrok@rocklin.ca.us)'; 'Davis, Mike'; DeDe Cordell; Dorothy Walsh; 'Edgar Medina'; 'Elisa Noble (elisa@placercountyrcd.org)'; 'Eric Walder'; 'Gabe Armstrong (gabe.armstrong@colfax-ca.gov)'; 'Gary Kirk (gkirk@foresthillfiredept.org)'; 'George Alves (galves.pcs@earthlink.net)'; 'George Booth (boothge@saccounty.net)'; 'glofrano@placerhillsfire.org (glofrano@placerhillsfire.org)'; 'iangow@usamedia.tv'; 'JAnderberg@placercoe.k12.ca.us'; 'Jason Rizzi (JRizzi@roseville.ca.us)'; 'jcorrea@pcwa.net'; Jeanine Foster; Jennifer Byous; Joe Arsenith; John McEldowney; John Ramirez; 'John Ruffcorn (jruffcorn@auburn.ca.gov)'; Joshua Huntsinger; 'Katie Maloney'; Kelly Berger; Kevin Taber; 'Knox, Jesse -FS'; 'Lindgren, Scott'; 'Luana Dowling (dowlingluana@gmail.com)'; 'mark.miller@colfax-ca.gov'; Mary Keller; 'Michael Garabedian'; Michael Romero; 'Michelle Mead - NOAA Federal (michelle.mead@noaa.gov)'; Mike DiMaggio; Mike Fitch; 'Mike Ritter'; 'Mooshian, Mark'; 'PCWA Risk Management (Peter Cheney) (pcheney@pcwa.net)'; 'Ricardo Castillo (ricardo.castillo@caloes.ca.gov)'; 'Rich Thickens'; 'Rick Forstall (Rick.Forstall@rocklin.ca.us)'; 'Rick Holmes (Richard.Holmes@rocklin.ca.us)'; Robert Miller; 'Roger Ince (incer@SacOES.Org)'; Scott Battles; 'Scott.Liske@parks.ca.gov'; 'Summers, Jim (james.summers@rocklin.ca.us)'; 'Tom Carlisle (tcarlisle@auburn.ca.gov)'; Tom Christofk; 'Tony Barela (tbarela@sjwd.org)'; 'Vic Ferrera (victor.ferrera@co.nevada.ca.us)'; 'Vicki Sacksteder'; 'Victoria LaMar-Haas (victoria.lamar-haas@calema.ca.gov)'; Wayne Woo; 'Marty Machado (saturn@starstream.net)'; Christopher Schmidt; Chris Morrison
Subject: Meeting #2 (Western) - Local Hazard Mitigation Plan (LHMP) - Hazard Mitigation Planning Committee (HMPC)
When: Wednesday, August 05, 2015 9:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Community Meeting Room, Auburn Justice Center, 2929 Richardson Dr, Auburn, CA 95603

Good morning,

You are invited to the second meeting of the Local Hazard Mitigation Plan (LHMP) Update.

First, this meeting is intended for County departments, Cities, fire districts, and special & utility districts in Placer County participating or wanting to participate in the LHMP Update project. However, invitation is open and encouraged for all allied agencies as inputs and participation is needed to comprehensively complete the updated Plan. The purpose of this meeting is to provide an overview of the updated Risk Assessment and to solicit additional stakeholder input. The Risk Assessment is comprised of a Hazard Identification and Profiles, Vulnerability Assessment, and Capability Assessment. The overview will include a review of maps and tables and how the risk and vulnerability to specific hazards varies across the planning area and from jurisdiction to jurisdiction. Discussion will be held on outstanding data needs and how to get final input on jurisdictional annexes. We will also start prepping for the Goals development piece of the mitigation strategy. As such, it is critical you provide and or follow-up with info/data being requested by Jeanine Foster or me to prepare for the meeting and to complete this phase of the project.

Second, for participating agencies that have not completed the following key items, please do so as it's much needed and being requested to move the process forward. **Please complete and return the following by June 22nd.**

1). Review your agency Annex in the current LHMP (2010) Here is a weblink to the current LHMP and Annexes: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan. If you would like a Word version, as it may be more easy to review and provide the updates using track changes, let me know and I'll email it to you. Please provide updated information to this Annex as needed. Please focus on text describing how the priority hazards specifically affect your jurisdiction. Give dates and descriptions, where available, associated with past hazard events. The consultant will be updating hazard maps and tables.
2). Provide a completed Hazard Identification Table (attached) and any Historical Hazard Worksheet updates (also attached) and we can incorporate into your Annex.
3). For jurisdictions participating in the last plan, provide updates to your past mitigation projects (see attached mitigation strategy update form)
4). Submit a letter of intent if you haven't already done so. If your agency submitted a letter of support/intent to me for the grant application process in 2014, no need to submit another letter. **The deadline to submit a letter to me is July 1st.**

We are working on a very tight timeline and I can't emphasize enough on FEMA requirement to have the commitment letter and other documentation of your agencies active participation thru attending scheduled working meetings such as this and 2-3 others and providing/responding to requested info/data. If you're not sure on the letter or have any questions, please contact me or Jeanine Foster as soon as possible.

Third, recap on the subject of participation. In deciding to participate or not, a "Participating Jurisdiction" should weigh the ability to attend meetings, provide information in a timely manner, and consider whether your agency have mitigation projects over the next five years to include in the Plan as your agency will only receive FEMA approval with one or more projects identified. If you decide not to be an official participating jurisdiction, your attendance at meetings and input for the plan is still welcomed.

Fourth, please use the attached meeting and phone conversation forms if/when you conduct your own community/public outreach within your agencies or outside. This will help to receive FEMA credits and to meet their documentation requirements.

If you have any questions or need assistances on any matters pertaining to the LHMP Update project, please contact me or Jeanine Foster at Jeanine.foster@fostermorrison.com.

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From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Thursday, June 04, 2015 11:14 AM
To: Young Rodriguez; 'Bansen, Peter'; Cadence Matijevich; 'Cindy Gustafson (cindyg@tcpud.org)'; Dennis Walsh; 'dlewis@tcpud.org'; Fred Guitron; Jennifer Merchant; 'Jesse McGraw'; 'John Collins'; John Weaver; 'jparker@ttsa.net'; 'jroubique@fs.fed.us'; 'kbailey@fs.fed.us'; 'Kurt Althof'; 'Mark Shadowens'; 'mbeals@ttsa.net'; 'mbutton@ttusd.org'; 'Michael Schwartz (schwartz@ntfire.net)'; 'michaelholley@tdpud.org'; 'mikes@northstarcsd.org'; 'Paul Schultz (pschultz@ntpud.org)'; Peter Kraatz; 'Rebecca McGough (rmcgough@ttusd.org)'; 'sgibbons@ntpud.org'; 'simons@ntfire.net'; 'smith@ntfire.net'; 'Tim Alameda (alameda@ntfire.net)'; 'Todd A. Rivera'; John McEldowney; Dorothy Walsh; Jeanine Foster; Chris Morrison
Subject: Meeting #2 (Eastern/Tahoe) - Local Hazard Mitigation Plan (LHMP) - Hazard Mitigation Planning Committee (HMPC)
When: Thursday, August 06, 2015 9:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

Good morning,

You are invited to the second meeting of the Local Hazard Mitigation Plan (LHMP) Update.

First, this meeting is intended for County departments, Cities, fire districts, and special & utility districts in Placer County participating or wanting to participate in the LHMP Update project. However, invitation is open and encouraged for all allied agencies as inputs and participation is needed to comprehensively complete the updated Plan. The purpose of this meeting is to provide an overview of the updated Risk Assessment and to solicit additional stakeholder input. The Risk Assessment is comprised of a Hazard Identification and Profiles, Vulnerability Assessment, and Capability Assessment. The overview will include a review of maps and tables and how the risk and vulnerability to specific hazards varies across the planning area and from jurisdiction to jurisdiction. Discussion will be held on outstanding data needs and how to get final input on jurisdictional annexes. We will also start prepping for the Goals development piece of the mitigation strategy. As such, it is critical you provide and or follow-up with info/data being requested by Jeanine Foster or me to prepare for the meeting and to complete this phase of the project.

Second, for participating agencies that have not completed the following key items, please do so as it's much needed and being requested to move the process forward. **Please complete and return the following by June 22nd.**

1). Review your agency Annex in the current LHMP (2010) Here is a weblink to the current LHMP and Annexes: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan. If you would like a Word version, as it may be more easy to review and provide the updates using track changes, let me know and I'll email it to you. Please provide updated information to this Annex as needed. Please focus on text describing how the priority hazards specifically affect your jurisdiction. Give dates and descriptions, where available, associated with past hazard events. The consultant will be updating hazard maps and tables.
2). Provide a completed Hazard Identification Table (attached) and any Historical Hazard Worksheet updates (also attached) and we can incorporate into your Annex.
3). For jurisdictions participating in the last plan, provide updates to your past mitigation projects (see attached mitigation strategy update form)
4). Submit a letter of intent if you haven't already done so. If your agency submitted a letter of support/intent to me for the grant application process in 2014, no need to submit another letter. **The deadline to submit a letter to me is July 1st.**

We are working on a very tight timeline and I can't emphasize enough on FEMA requirement to have the commitment letter and other documentation of your agencies active participation thru attending scheduled working meetings such as this and 2-3 others and providing/responding to requested info/data. If you're not sure on the letter or have any questions, please contact me or Jeanine Foster as soon as possible.

Third, recap on the subject of participation. In deciding to participate or not, a "Participating Jurisdiction" should weigh the ability to attend meetings, provide information in a timely manner, and consider whether your agency have mitigation projects over the next five years to include in the Plan as your agency will only receive FEMA approval with one or more projects identified. If you decide not to be an official participating jurisdiction, your attendance at meetings and input for the plan is still welcomed.

Fourth, please use the attached meeting and phone conversation forms if/when you conduct your own community/public outreach within your agencies or outside. This will help to receive FEMA credits and to meet their documentation requirements.

If you have any questions or need assistances on any matters pertaining to the LHMP Update project, please contact me or Jeanine Foster at Jeanine.foster@fostermorrison.com.

Young (Rod) Rodriguez
Emergency Services Coordinator
Placer County Office of Emergency Services Main Office
175 Fulweiler Ave
Auburn, CA 95603
W – 530-886-4602

HMPC #2 - Risk Assessment Meeting Agenda

AGENDA

Placer County
Local Hazard Mitigation Plan (LHMP) Update
Risk Assessment Meetings: August 5 & 6, 2015
9:00 – 12:00 am

1. Introductions
2. Status of the DMA Planning Process
3. Review of Risk Assessment
4. Review of Data Needs
5. Next Steps

Placer County Office of Emergency Services
Local Hazard Mitigation Plan – Hazard Mitigation Planning Committee

August 5, 2015

SIGN-IN

Name	Agency	Initial	Email	Phone
Mary Keller	Placer Co		mkeller@placer.ca.gov	530 745 7503
John McEldowney	PC OES	JM	jmceldow@placer.ca.gov	530 886-5300
Rob Baguera	Roseville	RB	RBaguera@roseville.ca.us	916 7745808
Marvin Curry	ASRA	MC	Marvin.Curry@Parks.Ca.Gov	530 308 3357
MIKE SCHNEIDER	AUBURN S.R.A	M.S	MICHAEL.SCHNEIDER@PARKS.CA.GOV	530-863-8848
DARRYL MITANI	PLACER Co. AGRICULTURE	DM	dmitani@placer.ca.gov	530-889-7372
Peter Cheney	PCWA	P	Pcheney@PCWA.NET	530 823 4957
Travis Wilson	National Weather Service	TW	Travis.Wilson@noaa.gov	
George Alves	PC OES	GA	galves.pcs@earthlink.net	916 408 2725
Craig Shoemaker	National Weather Service	CS	Craig.Shoemaker@noaa.gov	916-979-3051
YOUNG RODRIGUEZ	Placer Co OES	YMR	YRODRIGU@PLACER.CA.GOV	(530) 886-4602

Placer County Office of Emergency Services
Local Hazard Mitigation Plan – Hazard Mitigation Planning Committee

August 5, 2015

SIGN-IN

Name	Agency	Initial	Email		Phone
MICHAEL RITTER	SOUTH PLACER FIRE LOOMIS FIRE	MER	mritter @ southplacerfire.org		916-791-7059 [redacted]
Chris Schmidt	PLACER Co. PLANNING	CRS	CRSchmid@PLACER.CA.GOV		530-745-3076
Chris Hanson	Placer Co/ Facilities	CH	Chanson@placer.ca.gov		530-886-4965
Carl Walker	City of Roseville	CW	cwalker@Roseville.CA.US		916-746-1349
David Mohlenbrock	City of Rocklin	DM	david.mohlenbrok@rocklin.ca.us		916 625-5162
MIKE DAVIS	City of Lincoln	MA	MADAVIS@CI.LINCOLN.CA.US		916 934-2418
Chip Close	NID	AC	Close@NIDwater.com		530 273-6185
Sam Paresek	OES	[illegible]	SParesek@PLACER.CA.GOV		530 889-7600
Luana Dowling	P.C.	LD	dowlingluanac@gmail.com		530-277-3755
Matt Wheeler	City of Lincoln	MW	Matthew.wheeler@lincolnca.gov		916-434-3241
Bob Costa	Placer Co DPW	RC	bcosta@placer.ca.gov		530-745-7524

Morrison

Placer County Office of Emergency Services
Local Hazard Mitigation Plan – Hazard Mitigation Planning Committee

August 5, 2015

SIGN-IN

Name	Agency	Initial	Email		Phone
Brian Keating	P.C. Flood Cntrl	EBK	bkeating@placer.ca.gov		530-745-7592

Morrison

Placer County Office of Emergency Services
Local Hazard Mitigation Plan – Hazard Mitigation Planning Committee

9am – Noon, August 6, 2015
North Tahoe Fire, Station 51, 222 Fairway Drive, Tahoe City, CA 96145

SIGN-IN

Name	Agency	Initial	Email	Phone
Jason Gibeaut	Northstar ~~Fire~~ C.S.D.	JG	jgibeaut@northstarfire51.com	530-386-7703
Matt Ryan	Northstar C.S.D	MR	mryan@northstarcsd.org	530-308-6050
Rebecca McGough	Tahoe Truckee USD	RM	rmcgough@ttusd.org	530-582-2540
Mark Shadowens	Northstar ~~Fire~~ C.S.D.	MS	mshadowens@northstarfire51.com	530-562-1212
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Bill Seline	TFPD	BS	billseline@truckeefire.org	530 414-6871
Jesse McGraw	SVPSD		jmcgraw@svpsd.org	530 583 4692
Steve Simons	North Tahoe Fire	SS	simons@NTFIRE.NET	530-584-2323

HMPC Meeting #3 and #4 – HMPC and Steering Committee Mitigation Strategy Meeting

HMPC and Steering Committee Email Invite to Mitigation Strategy Meeting

From: Young Rodriguez
Sent: Tuesday, June 30, 2015 5:15 PM
To: Young Rodriguez; Bansen, Peter; Cadence Matijevich; Cindy Gustafson (cindyg@tcpud.org); Dennis Walsh; 'dlewis@tcpud.org'; Fred Guitron; Jennifer Merchant; 'Jesse McGraw'; 'John Collins'; John Weaver; 'jparker@ttsa.net'; 'jroubique@fs.fed.us'; 'kbailey@fs.fed.us'; Kurt Althof; 'Mark Shadowens'; 'mbeals@ttsa.net'; 'mbutton@ttusd.org'; Michael Schwartz (schwartz@ntfire.net); 'michaelholley@tdpud.org'; 'mikes@northstarcsd.org'; Paul Schultz (pschultz@ntpud.org); Peter Kraatz; Rebecca McGough (rmcgough@ttusd.org); 'sgibbons@ntpud.org'; 'simons@ntfire.net'; 'smith@ntfire.net'; Tim Alameda (alameda@ntfire.net); Todd A. Rivera; John McEldowney; Dorothy Walsh; Jeanine Foster (Jeanine.foster@fostermorrison.com); 'chris.morrison@fostermorrison.com'; aguitron@gmail.com; 'lgriffin@ttsa.net'; 'Mark Shadowens'; 'Jason Gibeaut'; ' (billseline@truckeefire.org)'; (Zaski@ntfire.net)
Cc: 'Matt Ryan'; Candace Rousselet; 'dabrew30@gmail.com'; 'mbeser@sbcglobal.net'; 'morton@jutland.com'; 'les@carnelianbay.net'; DeDe Cordell
Subject: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Eastern) - Mitigation Strategy
When: Thursday, September 24, 2015 9:00 AM to Friday, September 25, 2015 12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: North Tahoe Public Utility District, Event Center, 875 National Avenue, Tahoe Vista, CA 96148

All,

Please note this is a 2 days back-to-back meeting and not the same meeting/agenda held on separate day. The meetings are being held on September 24 & 25, 2015, for the eastern side. If you are not able to make these meetings, the same meetings are being held for the western side on September 22 & 23, 2015, at the Auburn Justice Center, Auburn. If you like I can forward the meeting invites.

These are the two most important meetings for this LHMP Update. This is where the plan goals and objectives will be updated and mitigation projects identified and prioritized. For these meetings, it is very important that we have the right people attending from each participating jurisdiction as well as from other interested stakeholders. Specifically, the county and incorporated communities should have their public works/facilities people well represented, including staff and representatives from outside agencies involved with wild land fire and flood projects. All participating Districts should likewise send representatives familiar with their mitigation projects for this plan update.

Anyone with suggested mitigation projects to address their priority hazards should be attending both of these meetings.

Young (Rod) Rodriguez
Emergency Services Coordinator
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W – 530-886-4602

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Thursday, September 17, 2015 5:38 PM
To: 'Bansen, Peter' <pbansen@svpsd.org>; Cadence Matijevich <CMatijev@placer.ca.gov>; 'Cindy Gustafson (cindyg@tcpud.org)' <cindyg@tcpud.org>; Dennis Walsh <DWalsh@placer.ca.gov>; 'dlewis@tcpud.org' <dlewis@tcpud.org>; Fred Guitron <FGuitron@placer.ca.gov>; Jennifer Merchant <JMerchan@placer.ca.gov>; 'Jesse McGraw' <jmcgraw@svpsd.org>; 'John Collins' <john@alpinesprings.org>; John Weaver <JWeaver@placer.ca.gov>; 'jparker@ttsa.net' <jparker@ttsa.net>; 'jroubique@fs.fed.us' <jroubique@fs.fed.us>; 'kbailey@fs.fed.us' <kbailey@fs.fed.us>; 'Kurt Althof' <kalthof@tcpud.org>; 'Mark Shadowens' <mshadowens@northstarfire31.com>; 'mbeals@ttsa.net' <mbeals@ttsa.net>; 'mbutton@ttusd.org' <mbutton@ttusd.org>; 'Michael Schwartz (schwartz@ntfire.net)' <schwartz@ntfire.net>; 'michaelholley@tdpud.org' <michaelholley@tdpud.org>; 'mikes@northstarcsd.org' <mikes@northstarcsd.org>; 'Paul Schultz (pschultz@ntpud.org)' <pschultz@ntpud.org>; Peter Kraatz <PKraatz@placer.ca.gov>; 'Rebecca McGough (rmcgough@ttusd.org)' <rmcgough@ttusd.org>; 'sgibbons@ntpud.org' <sgibbons@ntpud.org>; 'simons@ntfire.net' <simons@ntfire.net>; 'smith@ntfire.net' <smith@ntfire.net>; 'Tim Alameda (alameda@ntfire.net)' <alameda@ntfire.net>; 'Todd A. Rivera' <TRivera@ttusd.org>; John McEldowney <JMcEldow@placer.ca.gov>; Jeanine Foster <jeanine.foster@fostermorrison.com>; Chris Morrison <chris.morrison@fostermorrison.com>; 'aguitron@gmail.com' <aguitron@gmail.com>; 'lgriffin@ttsa.net' <lgriffin@ttsa.net>; 'Mark Shadowens' <MShadowens@northstarcsd.org>; 'Jason Gibeaut' <JGibeaut@northstarcsd.org>; ' (billseline@truckeefire.org)' <billseline@truckeefire.org>; ' (Zaski@ntfire.net)' <Zaski@ntfire.net>
Cc: 'Matt Ryan' <MattR@northstarcsd.org>; Candace Rousselet <CRoussel@placer.ca.gov>; 'dabrew30@gmail.com' <dabrew30@gmail.com>; 'mbeser@sbcglobal.net' <mbeser@sbcglobal.net>; 'morton@jutland.com' <morton@jutland.com>; 'les@carnelianbay.net' <les@carnelianbay.net>; DeDe Cordell <DCordell@placer.ca.gov>
Subject: RE: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Eastern) - Mitigation Strategy

Good afternoon,

A reminder of the LHMP meeting on 9/24 & 9/25/15. Attached is the meeting agenda. Please contact me or Jeanine Foster at (303) 717-7171 or Jeanine.foster@fostermorrision.com if you have questions.

Young (Rod) Rodriguez
Emergency Services Coordinator
Placer County Office of Emergency Services
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175 Fulweiler Ave
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W – 530-886-4602

HMPC #3&4 - Mitigation Strategy Meeting Agenda

AGENDA

Placer County
Local Hazard Mitigation Plan (LHMP) Update
Mitigation Strategy Meetings: September 22, 23, 24 & 25, 2015

HMPC Meeting #3: September 22nd (Westside) and 24th (Eastside)

1. Introductions
2. Status of the DMA Planning Process
3. Brief overview of Risk Assessment
4. Review of Data Needs
5. Develop Updated Plan Goals and Objectives
6. Identify and Review Mitigation Alternatives

HMPC Meeting #4: September 23rd (Westside and 25th (Eastside)

1. Identify and discuss Mitigation Alternatives Projects
2. Review Mitigation Selection Criteria
3. Prioritize Mitigation Projects
4. Review of Schedule

1/3

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #3 (Auburn)
September 22, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
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Foster Morrison

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Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #3 (Auburn)
September 22, 2015

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ANDY FISHER	AFISHER@PLACER.CA.GOV	530.887.9342	PLACER COUNTY PARKS
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SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #3 (Auburn)
September 22, 2015

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LUANA Dowling	dowlingluanna@gmail.com	530-277-3753	Firewise
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Michael Garabedian President	michaelgarabedian@earthlink.net	916-719-7296	Friends of the North Fork

Foster Morrison

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #4 (Auburn)
September 23, 2015

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Foster Morrison

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #4 (Auburn)
September 23, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
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Tom Jones	MRTOMJONES3@gmail.com	530 885 0366	MEMBER of the PUBLIC
Chip Close	Close@NIDwater.com	273-6185	Nevada Irrigation Dist.
Christina Hanson	chanson@placer.ca.gov	886-4965	Placer Co. Facilities
RICK BUHM	RICKBUHM@REAL.NET	530-906-9178	PCAR
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VICTOR PECORARO	VPECORARO@AUBURN.CA.GOV	530 823 4237 x203	AUBURN PD
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SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #4 (Tahoe)
September 24, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Nikita Morton	morton@jutland.com	530 546-4559	NT. Fire CERT
Dick Morton	MORTON@JUTLAND.com	530.546.4559	NT FIRE CERT
DAVE ZASKI	ZASKI@NTFIRE.NET	530-308-1050	NORTH TAHOE FIRE
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Suzanne Wilkins	wilkinssm@cdmsmith.com ~~wilkinssm1239@sudcomlink.net~~	530-545-2563	CDM Smith
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Kansas McGahan	kmcgahan@placer.ca.gov	x6217	Placer DPW - TE Office
Steve Simons	SIMONS@NTFIRE.NET	530-277-9864	North Tahoe Fire
John McEldowney	jmceldow@placer.ca.gov	530-886-4600	PC OES
Matt Ryan	mattr@northstarcsd.org	530 308 6050	Northstar CSD

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #~~4~~ 3 (Tahoe)
September 24, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Mark Shadowens	mshadowens@northstarcsd.org	562-1212	NorthStar CSD
John M. Collins / GM-ASCWD	john@alpinesprings.org	583-2[illegible]742	Alpine Springs CWD
Jason Gibeaut	jgibeaut@northstarfire31.com	386-7703	NORTHSTAR CSD
Rebecca McGough	rmcgough@ttusd.org	582-2540	Tahoe Truckee USD

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #4 (Tahoe)
September 25, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
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Neil Morton	MORTON@JUTLAND.COM	546.4559	NTF CERT
John M. Collins	john@alpinesprings.org	583-2341	Alpine Springs CWD
Jason Gibeaut	jgibeaut@northstarfire31.com	386-7703	NORTHSTAR CSD
DAVE ZASKI	ZASKI@N.T.FIRE.NET	530-308-1050	N.T. FIRE
Suzi Gibbons	sgibbons@ntpud.org	530-553-5433	NTPUD
Matt Ryan	mattr@northstarcsd.org	530 306 6050	NCSD
Tony Laliotis	tlaliotis@tcpud.org	530 580 6053	TCPUD
Brandon Burks	bburks@svpsd.org	530 583 4692	Squaw Valley PSD
Jesse McGraw	jmcgraw@svpsd.org	530 583 4692	Squaw Valley PSD
Suzanne Wilkins	wilkinssm@cdmsmith.com	530 545-2563	CDM Smith
Brian Judge	~~bjudge~~ brian.judge@waterboards.ca.gov	530-542-5426	CA Waterboard
Peter Kraatz	pkraatz@placer.ca.gov	530-581-6230	PLACER COUNTY

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Mitigation Strategy Meeting #4 (Tahoe)
September 25, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
HOWARD J. PERRY	LLHJPERRY@GMAIL.COM	530-58[illegible]-0122 530-545-8347 cell	NORTH TAHOE FIRE CERT FAIRMONT RESORT IMPROVEMENT DISTRICT

BOTH

Tom Jones	885 0366	mrtomjones3@gmail
Harvey Oslick	916-326-5297	hoslick@woodrodgers.com
Rick Buhm	530-906-9178	RICKBUHM@RE4U.NET
CAROLYN MACOLA	937-474-0851	ABLY5@MSN.COM
Michael Garabedian	916-719-7296	michaelgarabedian@earthlink.net
DAVE NOEL	(916) 747-6849	daven@blackburnconsulting.com
Brian Judge		brian.judge@waterboards.
Suzanne Wilkins	530 545-2563	wilkinsm@calmsmtreca.gov ~~morton@jutland.com~~
Nilita Morton	5305464559	Morton@jutland.com
Dick Morton	530 5464559	morton@jutland.com

HMPC Meeting #5 – Final HMPC and Steering Committee Meetings

HMPC and Steering Committee Final Meeting Email Invitations

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Tuesday, January 05, 2016 9:25 AM
To: (Elsa.Hucks@fire.ca.gov) <Elsa.Hucks@fire.ca.gov>; (vlyon@fs.fed.us) <vlyon@fs.fed.us>; (Zaski@ntfire.net) <Zaski@ntfire.net>; (mhiggins@penrynfire.org) <mhiggins@penrynfire.org>; 'amy.feagans@colfax-ca.gov' <amy.feagans@colfax-ca.gov>; Andy Fisher <AFisher@placer.ca.gov>; Bob Costa <BCosta@placer.ca.gov>; Brett Storey <BStorey@placer.ca.gov>; Brian Keating <BKeating@placer.ca.gov>; 'Brit Snipes - Town of Loomis' <bsnipes@loomis.ca.gov>; Carl Walker (CWalker@roseville.ca.us) <CWalker@roseville.ca.us>; Chip Close (close@nidwater.com) <close@nidwater.com>; Chris Brown <CBrown@placer.ca.gov>; Christina Hanson <CHanson@placer.ca.gov>; Christopher Schmidt <CRSchmid@placer.ca.gov>; Colin Irwin (cirwin@sierracollege.edu) <cirwin@sierracollege.edu>; Crystal Jacobsen <CJacobse@placer.ca.gov>; Darryl Mitani <DMitani@placer.ca.gov>; David Mohlenbrok (David.Mohlenbrok@rocklin.ca.us) <David.Mohlenbrok@rocklin.ca.us>; Davis, Mike <mdavis@ci.lincoln.ca.us>; Doug Hawk <DHawk@placer.ca.gov>; Edgar Medina <emedina@auburn.ca.gov>; Elisa Noble (elisa@placercountyrcd.org) <elisa@placercountyrcd.org>; 'Eric Walder' <ewalder@SouthPlacerFire.org>; Gary Kirk (gkirk@foresthillfiredept.org) <gkirk@foresthillfiredept.org>; George Alves (galves.pcs@earthlink.net) <galves.pcs@earthlink.net>; George Booth (boothge@saccounty.net) <boothge@saccounty.net>; glofrano@placerhillsfire.org (glofrano@placerhillsfire.org) <glofrano@placerhillsfire.org>; iangow@usamedia.tv; 'JAnderberg@placercoe.k12.ca.us' <JAnderberg@placercoe.k12.ca.us>; Jason Rizzi (JRizzi@roseville.ca.us) <JRizzi@roseville.ca.us>; Jeffrey B Thomas <JBThomas@placer.ca.gov>; Jennifer Byous <JByous@placer.ca.gov>; Joe Arsenith <JArsenit@placer.ca.gov>; John Ramirez <JRamirez@placer.ca.gov>; John Ruffcorn (jruffcorn@auburn.ca.gov) <jruffcorn@auburn.ca.gov>; Joshua Huntsinger <JHuntsin@placer.ca.gov>; Kelly Berger <KBerger@placer.ca.gov>; Kevin Borden <KBorden@placer.ca.gov>; Kevin Taber <KTaber@placer.ca.gov>; 'Knox, Jesse -FS' <jknox02@fs.fed.us>; Kurt Snyder (kurt.snyder@ci.rocklin.ca.us) <kurt.snyder@ci.rocklin.ca.us>; 'Lindgren, Scott' <Scott.Lindgren@fire.ca.gov>; Luana Dowling (dowlingluana@gmail.com) <dowlingluana@gmail.com>; 'mark.miller@colfax-ca.gov' <mark.miller@colfax-ca.gov>; Mary Keller <MKeller@placer.ca.gov>; 'Michael Garabedian' <michaelgarabedian@earthlink.net>; Michael Romero <MRomero@placer.ca.gov>; Michelle Mead - NOAA Federal (michelle.mead@noaa.gov) <michelle.mead@noaa.gov>; Mike DiMaggio <MDiMaggi@placer.ca.gov>; 'Mike Ritter' <mritter@SouthPlacerFire.org>; Mooshian, Mark <mmooshian@usbr.gov>; Neil Cochran-Foresthill PUD (neilc38@outlook.com) <neilc38@outlook.com>; Nikki Streegan <NStreega@placer.ca.gov>; PCWA Risk Management (Peter Cheney) (pcheney@pcwa.net) <pcheney@pcwa.net>; 'rangelocci@loomis.ca.gov' <rangelocci@loomis.ca.gov>; Rich Thickens <r95701@gmail.com>; Rick Forstall (Rick.Forstall@rocklin.ca.us) <Rick.Forstall@rocklin.ca.us>; Rick Holmes (Richard.Holmes@rocklin.ca.us) <Richard.Holmes@rocklin.ca.us>; Rob Unholz <RUnholz@placer.ca.gov>; Robert Miller <RMiller@placer.ca.gov>; Roger Ince (incer@SacOES.Org) <incer@SacOES.Org>; 'Scott.Liske@parks.ca.gov' <Scott.Liske@parks.ca.gov>; Timothy Wegner <TWegner@placer.ca.gov>; Tom Carlisle (tcarlisle@auburn.ca.gov) <tcarlisle@auburn.ca.gov>; Vic Ferrera (victor.ferrera@co.nevada.ca.us) <victor.ferrera@co.nevada.ca.us>; Victoria LaMar-Haas (victoria.lamar-haas@calema.ca.gov) <victoria.lamar-haas@calema.ca.gov>; Wes Heathcock (wes.heathcock@colfax-ca.gov) <wes.heathcock@colfax-ca.gov>; (billseline@truckeefire.org) <billseline@truckeefire.org>; Bansen, Peter <pbansen@svpsd.org>; 'Cadence Matijevich' <CMatijev@placer.ca.gov>; Cindy Gustafson (cindyg@tcpud.org) <cindyg@tcpud.org>; Dennis Walsh <DWalsh@placer.ca.gov>; 'dlewis@tcpud.org' <dlewis@tcpud.org>; Fred Guitron <FGuitron@placer.ca.gov>; Jennifer Merchant <JMerchan@placer.ca.gov>; 'Jesse McGraw' <jmcgraw@svpsd.org>; 'jgibeaut@northstarfire31.com' <jgibeaut@northstarfire31.com>; 'John Collins' <john@alpinesprings.org>; John McEldowney

McEldowney <JMcEldow@placer.ca.gov>; DeDe Cordell <DCordell@placer.ca.gov>; Jeanine Foster <jeanine.foster@fostermorrison.com>; Jon Patrick <JPatrick@placer.ca.gov>; Emily Gaber <EGaber@placer.ca.gov>
Subject: LHMP - 2nd/Public draft and final meetings

Placer County Hazard Mitigation Planning/Steering Committee members:

Your final input is needed on the Local Hazard Mitigation Plan (LHMP) Update (2nd draft). A draft of the LHMP Update has just been released for public and stakeholder review and comment. The draft is now available online at: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan

Also, the public review draft of the LHMP update is now available (in printed copy) at the reference desks at the following Placer County libraries: Auburn, Rocklin, Granite Bay, and Tahoe City. The address of the libraries and library hours are located at http://www.placer.ca.gov/departments/library/locationsandhours.

Below is information for the final public and planning/steering committee meetings.

Separate (duplicate) meetings for the eastern and western sides of the County are scheduled as follows:

Public Meeting - January 20, 2016, 6 p.m. – 7 p.m.
Fire Station 180, Placer County Fire, 11645 Atwood Rd., Auburn, CA 94603-9522

Hazard Mitigation Planning Committee/Working Group & Steering Committee – January 21, 2016, 9 a.m. - noon
Auburn Justice Center, Community Room, 2929 Richardson Dr., Auburn, CA 95603

Public Meeting - January 21, 2016, 6 p.m. – 7 p.m.
Station 51, North Tahoe Fire, 222 Fairway Dr., Tahoe City, CA 96145

Hazard Mitigation Planning Committee/Working Group & Steering Committee – January 22, 2016, 9 a.m. - noon
Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

The 9 a.m. meetings are designed for the planning committee and steering committee members; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience. Please come to one of these meetings to provide your final input to the LHMP update. While you are welcome to come and support the public meetings, please plan on attending one of the final Planning/Steering Committee meetings to provide your final input on the LHMP public review draft and to address any public comments. After public review and comment, the LHMP Update will be submitted to Cal

OES/FEMA for review and approval. The approved plan will ultimately be adopted by the governing boards for each participating jurisdiction.

Please let me know if you have questions. Note, that your attendance is critical for obtaining final input and ensuring FEMA participation requirements are met. In addition to your attendance at one of the final planning/steering committee meetings, you can also provide written comments on the public review draft by:

- Email comments to yrodrigu@placer.ca.gov or Jeanine.foster@fostermorrison.com
- Drop off written comments or by mail at Placer County OES, ATTN: Young (Rod) Rodriguez, 175 Fulweiler Ave, Auburn CA 95603
- Bring comments to one of the public meetings

Thank you very much again. I appreciate everyone's participation and efforts on the LHMP Update Project

Young (Rod) Rodriguez
Emergency Services Coordinator
Placer County Office of Emergency Services
(530) 886-4600 ext-4602
Email – yrodrigu@placer.ca.gov

HMPC #5 Press Release for Advertising Final HMPC, Steering Committee (and Public) Meetings

Contact: Chris Gray-Garcia
Phone: 530-886-4629
Email: cmgray@placer.ca.gov

For Immediate Release: Jan. 7, 2016

News Release: Disasters don't have to be disastrous

AUBURN, Calif. -- We can't control the weather. But how we prepare for and respond to natural disa
save lives, property and resources. With public meetings scheduled Jan. 20-22 to review Placer Cou
latest hazard mitigation plan updates, now is our communities' chance to help make sure our plans
good as they can be.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesse
individuals recover from disaster. Some disasters are predictable and, in many cases, much of the d
can be reduced or even eliminated through hazard mitigation planning. Pursuant to the Disaster Miti
of 2000, local jurisdictions are required to have a Federal Emergency Management Agency-approve
Hazard Mitigation Plan to better position resources in advance of a disaster and to maintain eligibilit
certain disaster assistance and hazard mitigation funding programs.

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to
hazards such as floods, wildfires, drought and other severe weather events; implement actions to re
future losses; and maintain eligibility for federal disaster mitigation funds.

Another benefit is to enhance the flood plain management programs of the county and cities, which
reduce the costs of flood insurance to residents of Placer County through participation in the Nationa
Insurance Program's Community Rating System. Partnering with the county in this planning effort ar
incorporated communities of Auburn, Colfax, Lincoln, Loomis and Rocklin and many special districts
throughout the county.

This process began in April of 2015 with an initial public meeting and the establishment of a planning
committee that included representatives of various local agencies and the public. The updated plan
ready for public review before being made final.

Public meetings for community members to learn about and comment on the plan are scheduled as

Public Meeting – Jan. 20, 2016; 6 p.m. – 7 p.m.
Fire Station 180, Placer County Fire, 11645 Atwood Road, Auburn, CA 94603-9522

Hazard Mitigation Planning Committee/Working Group – Jan. 21; 2016, 9 a.m. - noon
Auburn Justice Center, Community Room, 2929 Richardson Drive, Auburn, CA 95603

Public Meeting – Jan. 21, 2016; 6 p.m. – 7 p.m.
Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

Hazard Mitigation Planning Committee/Working Group – Jan. 22, 2016; 9 a.m. - noon
Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

The 9 a.m. meetings are designed for the planning committee; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience.

The public review draft of the LHMP update is now available in printed copy at the reference desks of the following Placer County libraries: Auburn, Rocklin, Granite Bay and Tahoe City; and online at http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan.

There are several options for providing input to the LHMP update public review draft:
• Email comments to yrodrigu@placer.ca.gov or jeanine.foster@fostermorrison.com
• Drop off written comments or send them by mail to: Placer County Office of Emergency Services, ATTN: Young (Rod) Rodriguez, 175 Fulweiler Avenue, Auburn, CA 95603
• Bring comments to one of the public meetings
• Participate in an online survey on hazards and hazard mitigation: https://www.surveymonkey.com/r/PlacerHazardMitigationPlan.

Any other questions or comments may be addressed to Young (Rod) Rodriguez at 530-886-4602 or yrodrigu@placer.ca.gov.

HMPC Meeting #5 Agenda

AGENDA
Placer County
Local Hazard Mitigation Plan (LHMP) Update
Final HMPC Meetings: January 20 & 21, 2016

1. Introductions
2. Status of the LHMP Update Process
3. Addressing Public Comments
4. Summary of Changes in Placer County Planning Area Vulnerabilities/Mitigation Priorities
5. Final HMPC/Steering Committee Input: Data/Projects
6. Next Steps

12

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Final Meeting #5 (Auburn)
January 21, 2016

Name/Title	Email Address	Phone	City/Organization/ Affiliation
DAVE NOEL / Sr. P.M.	daven@blackburnconsulting.com	(916) 747-6849	Blackburn Consulting
David Mohlenbrok / Environmental Services Mgr.	david.mohlenbrok@rocklin.ca.us	(916) 625 5162	City of Rocklin
DARRYL MITANI / Ag Inspector	dmitani@placer.ca.gov	530-889-7372	PLACER COUNTY AGRICUL
Chip Close / Operation Manager	close@nidwater.com	530-273-6185	NID
Mary Keller	mkeller@placer.ca.gov	9307457803	placer co Flood plain
Robert Costa	bcosta@placer.ca.gov	5307457524	Placer County DPW-F.
RICK BUHM	RICKBUHM@REAU.NET	530.906.9178	PLACER COUNTY REALTORS
LUANA Dowling	dowlingluana@gmail.com	530-277-3753	Placer Firewise
MIKE JARVIS	MIKE.JARVIS@CINCOINCA.GOV	916 434 2412	City of Lincoln
Chris Schmidt	crschmidt@placer.ca.gov		PLACER PLANNING
Brit Snipes	bsnipes@loomis.ca.gov		LOOMIS
Brian Keating	bkeating@placer.ca.gov	530-745-7592	PC Flood Control District

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Final Meeting #5 (Auburn)
January 21, 2016

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Peter Cheney	PCheney@PCWA.net	(530) 823 4985	PCWA
Candace Roussel	Croussel@placer.ca.gov	530 745-7557	PC Stormwater Floodplain Quality
MICHAEL RITTER	mritter@southplacerfire.org	916 791-7059	SOUTH PLACER FIRE DIST.
Harvey Oslick	hoslick@woodrodgers.com	916-326-5297	Wood Rodgers
KARL FOWLER	Kfowler@southplacerfire.org	916-797-4868	South Placer Fire Dist
Karen Calvert	Kcalvert389@gmail.com	530 906 2336	Alta FIRE
YOUNG (Rod) Rodriguez	YRODRIGU@PLACER.CA.GOV	(530) 886-4602	Placer Co OES
MIKE Holmes	[illegible]		
Meg Arnold	meg.arnold@valleyvision.org	916 325 1630	Valley Vision
Michael Garabedian	michaelgarabedian@earthlink.net	916-779-7296	Friends of the North Fork (American River)

Foster Morrison

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
HMPC Final Meeting #5 (Tahoe)
January 22, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
DAVE BIZEW	dzbrew30@gmail.com	650 380 0505	SQUAW VALLEY
Matt Ryan OPS MGR	mattr@northstarcsd.org	530 308 6050	Northstar C.S.D.
Mark Shadowens	mshadowens@northstarfire31.com	530 562-1212	NorthStar CSD
KURT ALTHOF/GRANTS PIO	KALTHOF@TCPUD.ORG	530-580-6057	TCPUD
STEVE KASTAN	SKASTAN@PLACER.CA.GOV	581-0345	PLACER CO.
Suzanne Wilkins	wilkinssm@cdmsmith.com	545-2563	CDM Smith
JASON GIBEAUT	jgibeaut@northstarfire31.com	530-386-7703	NORTHSTAR CSD
JESSE MCGREW	jmcgrew@svpsd.org	530 583 4692	SQUAW VALLEY PSD
John M. Collins	john@alpinesprings.com	530-587-2347	Alpine Springs PWD
Steve Simons	SIMONS@NTFIRE.NET	530-584-2323	North Tahoe Fire
JENNIFER MONTGOMERY	COUNTY OF PLACER		
Suzi Gibbons	sgibbons@ntpud.org	530-553-5433	North Tahoe PUD
Peter Krautz	PKrautz@placer.ca.gov	530-581-6230	PLACER COUNTY
YOUNG RODRIGUEZ	YRODRIGU@PLACER.CA.GOV	(530) 886-4602	Placer County OES

A.2 Placer County Step 2: Involve the Public

Multiple efforts were made to engage the public during the creation of this plan, including direct outreach efforts such as phone calls, emails, direct mailings, and face-to-face meetings, in addition to the broader outreach efforts such as e-newsletters, website postings, newspaper advertisements and articles, and leveraging other community events to communicate and invite participation in the LHMP Update project. A key element of public participation is including members of the public and other public-type stakeholders (at 50% participation) on the Hazard Mitigation Planning Committee as part of the Steering Committee to the HMPC.

a) List of Steering Committee Members

Community/Representative	Department/Organization	Citizen	Stakeholder
Placer County			
Young Rodriguez/John McEldowney	Emergency Services		
Chris Schmidt	Community Development/ Planning Services		
Bob Costas/Mary Keller	Public Works and Facilities/ Flood Control		
George Alves			
Tom Jones		X	
Rick Bluhm		X	
Carolyn Macola		X	
Michael Garabedian		X	
Dave Noel		X	
Harvey Oslivick	Wood Rodgers	X	
Suzanne Wilkins	CDM Smith	X	
Brian Judge	Lahanton Waterboard		X
Peter Kraatz		X	
Dick Morton	North Tahoe Fire CERT	X	X
Nilita Morton	North Tahoe Fire CERT		X
City of Auburn			
John Ruffcorn	Public Safety Director		
City of Colfax			
Wes Heathcock	Community Services Director		
City of Loomis			
Britton Snipes	Director of Public Works		
Town of Lincoln			
Mike Davis	Fire Department		
City of Rocklin			

Community/Representative	Department/Organization	Citizen	Stakeholder
Placer County			
David Mohlenbrok	Environmental Services Manager		

b) and c) Public Meetings

Meeting Topic	Meeting Date	Meeting Locations
1) Intro to DMA and mitigation planning 2) LHMP plan overview and public comments	4/28 & 29, 2015	Placer County Fire Station, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City
Presentation of Draft LHMP and solicitation of public and stakeholder comments	1/21 & 22, 2016	Placer County Fire Station, Auburn & North Tahoe Fire Protection District Station 51, Tahoe City

Press Release for Early Public Meeting: April 28 & 29, 2015

For immediate release
April 17, 2015
Contact: Young (Rod) Rodriguez, Placer County Emergency Services, 530-886-4602

PUBLIC INVITED TO PARTICIPATE IN UPDATE OF HAZARD MITIGATION PLAN

The Placer County Office of Emergency Services will hold two meetings for the public this month to provide opportunities for public participation in an update of the county's Local Hazard Mitigation Plan (LHMP).

The first public meeting will be held from 6 to 7 p.m. on Tuesday, April 28 at Placer County Fire Station 180, 11645 Atwood Road in Auburn.

The second meeting is set to take place from 6 to 7 p.m. Wednesday, April 29 at North Tahoe Fire Protection District Station 51, 222 Fairway Drive in Tahoe City.

Two afternoon meetings will be held during the same two-day period for the planning committee. The public can attend those meetings if they are more convenient, but is encouraged to attend the evening meetings.

The schedule for the committee meetings is:

- **Auburn**: 2 to 5 p.m. on Tuesday, April 28 in the Planning Commission Hearing Room at the Community Development Resource Agency building, 3091 County Center Drive in Auburn; and
- **Tahoe City**: 2 to 5 p.m. on Wednesday, April 29 at North Tahoe Fire Protection District
  Station 51, 222 Fairway Drive, in Tahoe City.

All four meetings will be held to kick off the LHMP update process. The meetings will cover the purpose of the plan update, the process, ways to participate and benefits of participating.

The plan assesses risks from natural and man-made disasters and outlines ways to reduce or eliminate risks to people and property. The update is needed to maintain the county's eligibility for federal mitigation funding, but can also help reduce the cost of flood insurance for residents through participation in the National Flood Insurance Program's Community Rating System.

OES is updating the plan in partnership with the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and special districts throughout the county and with assistance from consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management.

For more information on the update and how to get involved, contact Young (Rod) Rodriguez at 530-886-4602 or yrodrigu@placer.ca.gov.

######

Paid Advertisement for Early Public Meeting in the Tahoe Sierra Sun

PLACER COUNTY INVITES PARTICIPATION IN HAZARD MITIGATION PLAN UPDATE

Placer County is leading a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards such as floods, wildfires and severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the County and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). Partnering with the County in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the County.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

The Placer County Office of Emergency Services (OES) will be hosting two meetings to kick off the process to update their current 2010 LHMP. Officials from Placer County; incorporated communities; state and local agencies; members of the public and other interested stakeholders are invited to participate in this planning effort. A hazard mitigation planning committee (HMPC) will be established as part of the plan development process.

Separate (duplicate) meetings are scheduled for 2 p.m. (planning committee meeting) and 6 p.m. (public meeting) as follows:

HMPC/Working Group Meeting (West)
4/28/15, 2pm-5pm, Community Development Resource Agency (CDRA)
Planning Commission Hearing Room
3091 County Center Drive, Auburn, CA 95603

Public Meeting
4/28/15, 6pm-7pm, Placer County Fire, Station 180, Admin Building
11645 Atwood Road, Auburn, CA 95603

HMPC/Working Group Meeting (East)
4/29, 2pm-5pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

Public Meeting
4/29, 6pm-7pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

The 2 pm meeting is targeted for the planning committee. The 6 pm meeting is for stakeholders across the County and all interested residents and other members of the general public. However, everyone is encouraged to come to either meeting at their convenience. The purpose of the kickoff meetings is to inform the planning committee, participating jurisdictions, and other interested stakeholders about the purpose and process of the plan, to describe how to participate in the plan update process and the benefits of doing so.

Placer County OES is taking the initiative to develop this plan update utilizing the expertise of consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management. Please come to the kickoff meeting to learn more about hazard mitigation and the LHMP Update process.

For more information on this project and how you can be involved, contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Pub: April 22, 2015 **Ad#11129010**

SIERRA SUN

P.O. Box 1888 Carson City, NV 89702
(775) 881-1201 FAX: (775) 887-2408

Customer Account: # 7355253

Legal Account
Placer County Executive Office
175 Fulweiler Avenue
Auburn, CA 95603
Attn: Dorothy Walsh

Jody Mudgett says:
That (s)he is a legal clerk of the **SIERRA SUN**, a newspaper published Wednesday and Friday at Truckee, in the State of California.

Copy Line
LHMP Public Meetings

PO#:

Ad #: 11129010D
of which a copy is hereto attached, was published in said newspaper for the full required period of **1** time(s) commencing on **4/22/2015**, and ending on **4/22/2015**, all days inclusive.

Signed: Jody Mudgett
Date: 04/22/2015 State of Nevada, Carson City

Price: $ 194.16

Subscribed and sworn to before me this ____ day of _____

_____
Notary Public

Proof and Statement of Publication

Ad #: 11129010D

PLACER COUNTY INVITES PARTICIPATION IN HAZARD MITIGATION PLAN UPDATE

Placer County is leading a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards such as floods, wildfires and severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the County and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). Partnering with the County in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the County.

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11645 Atwood Road, Auburn, CA 95603

HMPC/Working Group Meeting (East)
4/29, 2pm-5pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

Public Meeting
4/29, 6pm-7pm, North Tahoe FPD
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222 Fairway Drive, Tahoe City, CA 96145

The 2 pm meeting is targeted for the planning committee. The 6 pm meeting is for stakeholders across the County and all interested residents and other members of the general public. However, everyone is encouraged to come to either meeting at their convenience. The purpose of the kickoff meetings is to inform the planning committee, participating jurisdictions, and other interested stakeholders about the purpose and process of the plan, to describe how to participate in the plan update process and the benefits of doing so.

Placer County OES is taking the initiative to develop this plan update utilizing the expertise of consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management. Please come to the kickoff meeting to learn more about hazard mitigation and the LHMP Update process.

For more information on this project and how you can be involved, contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Pub: April 22, 2015 **Ad#11129010**

Advertisement (notice) for Early Public Meeting in Sacramento Bee

COUNTY OF PLACER

PLACER OPERATIONAL AREA
OFFICE OF EMERGENCY SERVICES

2968 Richardson Drive, Auburn, CA 95603 ƒ(530) 886-5300 ƒ FAX (530) 886-5343
www.placer.ca.gov

April 17, 2015
For immediate release
Contact: Young (Rod) Rodriguez, 530-886-4602 or
Dorothy Walsh, 530-886-4615

PLACER COUNTY INVITES PARTICIPATION IN HAZARD MITIGATION PLAN UPDATE

Placer County is leading a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards such as floods, wildfires and severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the county and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). Partnering with the County in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the County.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

The Placer County Office of Emergency Services (OES) will be hosting two meetings to kick off the process to update their current 2010 LHMP. Officials from Placer County; incorporated communities; state and local agencies; members of the public and other interested stakeholders are invited to participate in this planning effort. A hazard mitigation planning committee (HMPC) will be established as part of the plan development process.

Separate (duplicate) meetings are scheduled for 2 p.m. (planning committee meeting) and 6 p.m. (public meeting) as follows:

HMPC/Working Group Meeting (West)
4/28/15, 2pm-5pm, Community Development Resource Agency (CDRA)
Planning Commission Hearing Room
3091 County Center Drive, Auburn, CA 95603

Public Meeting
4/28/15, 6pm-7pm, Placer County Fire, Station 180, Admin Bldg,
11645 Atwood Road, Auburn, CA 95603

HMPC/Working Group Meeting (East)
4/29, 2pm-5pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

Public Meeting
4/29, 6pm-7pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

The 2 pm meeting is targeted for the planning committee; the 6 pm meeting is for the public. However, the public is encouraged to come to either meeting at their convenience. The purpose of the kickoff meetings is to inform the planning committee, participating jurisdictions, and other interested stakeholders about the purpose and process of the plan and to describe how to participate and the benefits of doing so.

Placer County OES is taking the initiative to develop this plan update utilizing the expertise of consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management. Please come to the kickoff meeting to learn more about hazard mitigation and the LHMP Update process.

For more information on this project and how you can be involved, contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

#######

From: Dorothy Walsh [mailto:DIWalsh@placer.ca.gov]
Sent: Wednesday, April 15, 2015 12:50 PM
To: Young Rodriguez <YRodrigu@placer.ca.gov>; John McEldowney <JMcEldow@placer.ca.gov>; Jeanine Foster <jeanine.foster@fostermorrison.com>
Cc: Dorothy Walsh <DIWalsh@placer.ca.gov>
Subject: FW: LHMP; AD # 1682255 ; COST $170.90 (ACCT 339590)

For your information.

Have a Blessed Day

Dorothy
diwalsh@placer.ca.gov
Main Office Address
175 Fulweiler Avenue
Auburn, CA 95603
Office: (530)886-4600
Direct: (530)886-4615

Emergency Operations Center (Manned during active incidents)
2968 Richardson Drive
Auburn, CA 95603
Office: (530)886-5300
Direct: (530) 886-5305

From: Reid, Susie [mailto:sreid@sacbee.com]
Sent: Wednesday, April 15, 2015 11:09 AM
To: Dorothy Walsh
Subject: LHMP; AD # 1682255 ; COST $170.90 (ACCT 339590)

Hi Dorothy,
I have this notice scheduled to run Friday April 17th.

Confirmed by:_____

PLACER COUNTY
LEGAL ADVERTISING INSERTION ORDER

Name of Newspaper Sacramento Bee **(BPO 021335)** Date April 14, 2015

E-Mail/Fax: Att: Reid, Susie <sreid@sacbee.com>/ legaladvertising@sacbee.com Fax: 916-321-1110

Newspaper Phone Number 916.321.1541

Issuing Department Placer County Office of Emergency Services

Address 175 Fulweiler Ave.

City/State/Zip Auburn, CA 95603

For Further Information Contact: Dorothy Walsh Phone: 530.886.4615

Title of Notice Placer County Notice of Public Meetings

Number of Pages 1 Number of Insertions 1 Start: **Friday, April 17, 2015 for one day.**

SET LEGAL NOTICES SINGLE COLUMN UNLESS OTHERWISE SPECIFIED

Special Instructions: Small as possible but legible. See attached language.

***Please note: If unable to run this notice on Friday, April 17, 2015, please run the notice on Sunday, April 19th. Any problems, please notify me immediately. Time Sensitive Request.

All invoices shall reference insertion dates, include title/description of advertising (or show advertisement number if same is printed in the publication), the number of column inches billed and the unit price per column inch (lump sum figures are not acceptable). Pricing shall be as offered in the current Placer County Invitation for Bids for legal advertising. Billing and payment shall be based on the established rate according to the standards as set forth in Chapter 5, Section 5.40 of the County of Placer Administrative Rules.

Submit invoices in triplicate together with an affidavit of publication to the issuing department as indicated above.

Dorothy Walsh

_____
Dorothy Walsh Executive Secretary
Authorized Signature

Early Public Meetings Agenda

AGENDA
PLACER COUNTY
LOCAL HAZARD MITIGATION PLAN (LHMP) UPDATE
PUBLIC MEETING #1
APRIL 28 & 29, 2015

1. Introductions
2. Hazard Mitigation & the Disaster Mitigation Act Planning Requirements
3. National Flood Insurance Program's (NFIP) Community Rating System, 2013 CRS Schedule Overview
4. Questions and Answers

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
Early Public Meeting #1 (Auburn)
April 28, 2015

Please print legibly

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Dale Kehoe	dfKehoe@wavecable.com	530-885-7037	Home owner
Fran Kehoe	" " " "	" " "	" "
George Alves	galves.pcs@earthlink.net	916-408-2775	Placer County
CAROLYN MACOLA	MCMORROZ007@YAHOO.COM	937-474-0851	PLACER COUNTY RESIDENT (LOOMIS)
Bob Coste	bcoste@placer.ca.gov	530-745-7524	Placer Co DPW
Mary Keller	mkeller@placer.ca.gov	530 7457503	"
John McEldowney	jmcoldow@placer.ca.gov	530-889-4601	PCOES

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
Early Public Meeting #1 (Tahoe)
April 29, 2015

Please print legibly

Name/Title	Email Address	Phone	City/Organization/ Affiliation
DR. DAVID A. BREW	dybrew30@gmail.com	650 380 0505	USGS - EMERITUS SQUAW VALLEY
LES TERRY	les@carnelianday.net	415-609-7733	CARNELIAN WOODS HOA
Meera Beser	mbeser@sbcglobal.net	775-230-1066	CERT UFA
Nikita Morton	morton@jutland.com	530 546-4559	CERT SnowFest /
STEVE KASTAN	SKASTAN@PLACER.CA.GOV	530 581-0345	PLACER COUNTY

Press Release for Final Public Meetings: January 21 & 22, 2015

Contact: Chris Gray-Garcia
Phone: 530-886-4629
Email: cmgray@placer.ca.gov

For Immediate Release: Jan. 7, 2016

News Release: Disasters don't have to be disastrous

AUBURN, Calif. -- We can't control the weather. But how we prepare for and respond to natural disa save lives, property and resources. With public meetings scheduled Jan. 20-22 to review Placer Co latest hazard mitigation plan updates, now is our communities' chance to help make sure our plans good as they can be.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesse individuals recover from disaster. Some disasters are predictable and, in many cases, much of the c can be reduced or even eliminated through hazard mitigation planning. Pursuant to the Disaster Miti of 2000, local jurisdictions are required to have a Federal Emergency Management Agency-approve Hazard Mitigation Plan to better position resources in advance of a disaster and to maintain eligibilit certain disaster assistance and hazard mitigation funding programs.

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to hazards such as floods, wildfires, drought and other severe weather events; implement actions to re future losses; and maintain eligibility for federal disaster mitigation funds.

Another benefit is to enhance the flood plain management programs of the county and cities, which reduce the costs of flood insurance to residents of Placer County through participation in the Nationa Insurance Program's Community Rating System. Partnering with the county in this planning effort a incorporated communities of Auburn, Colfax, Lincoln, Loomis and Rocklin and many special districts throughout the county.

This process began in April of 2015 with an initial public meeting and the establishment of a planning committee that included representatives of various local agencies and the public. The updated plan ready for public review before being made final.

Public meetings for community members to learn about and comment on the plan are scheduled as

Public Meeting – Jan. 20, 2016; 6 p.m. – 7 p.m.
Fire Station 180, Placer County Fire, 11645 Atwood Road, Auburn, CA 94603-9522

Hazard Mitigation Planning Committee/Working Group – Jan. 21; 2016, 9 a.m. - noon
Auburn Justice Center, Community Room, 2929 Richardson Drive, Auburn, CA 95603

Public Meeting – Jan. 21, 2016; 6 p.m. – 7 p.m.
Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

Hazard Mitigation Planning Committee/Working Group – Jan. 22, 2016; 9 a.m. - noon
Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

The 9 a.m. meetings are designed for the planning committee; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience.

The public review draft of the LHMP update is now available in printed copy at the reference desks of the following Placer County libraries: Auburn, Rocklin, Granite Bay and Tahoe City; and online at http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan.

There are several options for providing input to the LHMP update public review draft:
• Email comments to yrodrigu@placer.ca.gov or jeanine.foster@fostermorrison.com
• Drop off written comments or send them by mail to: Placer County Office of Emergency Services, ATTN: Young (Rod) Rodriguez, 175 Fulweiler Avenue, Auburn, CA 95603
• Bring comments to one of the public meetings
• Participate in an online survey on hazards and hazard mitigation: https://www.surveymonkey.com/r/PlacerHazardMitigationPlan.

Any other questions or comments may be addressed to Young (Rod) Rodriguez at 530-886-4602 or yrodrigu@placer.ca.gov.

###

Advertisement (notice) for Final Public Meeting in the Sacramento Bee: January 21 & 22, 2015

Notices

sacbee.com/classads

Toll free (800)876-8700
sacbee.com/classads

Legal Notices 301

TO PUBLISH A LEGAL NOTICE IN THE SACRAMENTO BEE, Call 916-321-1371, Fax 916-321-1110 or email legaladvertising@sacbee.com

Stay connected to the news every day.

To order call 1-800-284-3233 or go to sacbee.com/subscribe

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NOTICE OF PUBLIC HEARING

PLACER COUNTY PLANNING COMMISSION

WHERE: PLANNING COMMISSION HEARING ROOM
3091 COUNTY CENTER DRIVE, AUBURN, CALIFORNIA 95603

WHEN: JANUARY 14, 2016 10:10 a.m.

SUBJECT: ZONING TEXT AMENDMENTS RELATED TO TEMPORARY OUTDOOR EVENTS, WINERIES AND APPLICATION CONTENT REQUIREMENTS (PCPJ 20130151) NEGATIVE DECLARATION
ALL SUPERVISORIAL DISTRICTS

Notice is hereby given that the Placer County Planning Commission will conduct a public hearing, on the date and time noted above, in order to consider providing recommendations to the Board of Supervisors on revisions to the Placer County Code, Chapter 17 (Zoning Ordinance), Article 17.56 to revise Section 17.56.300(B)(1)(b) related to Temporary Outdoor Events, Section 17.56.330 related to Wineries, and Article 17.58, Section 17.58.030(F) related to Application Content Requirements, as further described below:

Zoning Ordinance Section 17.56.300 - Section 17.56.330 governs temporary uses and events. Section 17.56.330(B)(1)(b) addresses outdoor events and includes an exclusion to the Minor Use Permit requirement for "one-time events". This subsection currently permits one-time events that do not exceed "three consecutive days nor two times in one location in a calendar year". The proposed revision would revise this provision to state "not to exceed six (6) days of events in one location in a calendar year." The purpose for this revision is to provide flexibility in how a property owner utilizes the total number of outdoor events days (6) that are permitted on site. Modification to this Zoning Ordinance section would allow an individual to hold six one-day events, or three two-day events, or any other increment not exceeding six days on the same site. This proposed revision does not expand the six total days permitted for Temporary Outdoor Events.

Zoning Ordinance Section 17.56.330 - Section 17.56.330 contains the majority of the County's winery regulations and is commonly referred to as the County's "Winery Ordinance". Staff proposes to rescind 17.56.330 in its entirety and replace it with a revised and updated Section 17.56.330. The revised and updated Section 17.56.330 includes changes to parking standards, access standards, events, hours of operation, noise regulations, lighting, food regulations, wine tasting facilities, potable water regulations, waste disposal regulations, and a new category for "Boutique" wineries.

Additionally, the Planning Commission will consider providing a recommendation to the Board of Supervisors on the Negative Declaration prepared for this project. The Planning Services Division contact is George Rosasco, who can be reached at (530) 745-3065.

Staff reports will be posted on the Planning Services Division web site referenced below by 5:00 PM, the Thursday prior to the scheduled hearing date.

http://www.placer.ca.gov/Departments/CommunityDevelopment/Planning/PCHearings.aspx

Administrative remedies must be exhausted prior to an action being initiated in a court of law. If the proposed project is challenged in court, one may be limited to those issues raised at the public hearing described in this notice or in written correspondence delivered prior to the public hearing.

All letters, written materials, studies or reports, in excess of one (1) page should be delivered to the Planning Services Division, 3091 County Center Drive, Auburn, CA 95603, at least 24 hours or (1) business day prior to the beginning of the meeting as noticed above.

County of Placer
Community Development Resource Agency
Michael Johnson, AICP
Agency Director

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Online Survey
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www.surveymonkey.com/

For additional inform
Contact Young (Rod) Rod

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Article for Final Public Meeting in the Sierra Sun: January 21 & 22, 2015

Sierra Sun, Jan 20, 2016
P.A

Public meetings this week on Placer Co. disaster response plans

Special to the Sun

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

Pursuant to the Disaster Mitigation Act of 2000, local jurisdictions are required to have a Federal Emergency Management Agency-approved Local Hazard Mitigation Plan to better position resources in advance of a disaster and to maintain eligibility for certain disaster assistance and hazard mitigation funding programs.

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to natural hazards such as floods, wildfires, drought and other severe weather events; implement actions to reduce future losses; and maintain eligibility for federal disaster mitigation funds.

Another benefit is to enhance the flood plain management programs of the county and cities, which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's Community Rating System.

Partnering with the county in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis and Rocklin and many special districts throughout the county.

This process began in April of 2015 with an initial public meeting and the establishment of a planning committee that included representatives of various local agencies and the public. The updated plan is now ready for public review before being made final.

Public meetings for community members in Auburn and Tahoe City to learn about and comment on the plan are scheduled this week; locally, there are two meetings:

Public Meeting: 6-7 p.m. Thursday, Jan. 21, Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City.

Hazard Mitigation Planning Committee/Working Group: 9 a.m. to noon, Friday, Jan. 22, same location.

The 9 a.m. meetings are designed for the planning committee; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience.

The public review draft of the LHMP update is available in printed copy at the reference desks of the following Placer County libraries: Auburn, Rocklin, Granite Bay and Tahoe City; and online at bit.ly/1ntOtZT.

This article was submitted by Placer County. Visit placer.ca.gov to learn more.

Paid Advertisement for Final Public Meeting in the Sierra Sun: January 21 & 22, 2015

COUNTY OF Placer

January 2015

PLACER COUNTY HAZARD MITIGATION PLAN UPDATE - FINAL PUBLIC MEETINGS

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning. The Federal Emergency Management Agency (FEMA) has targeted natural disaster loss reduction as one of its primary goals. Pursuant to the Disaster Mitigation Act of 2000, local jurisdictions are required to have a FEMA-approved Local Hazard Mitigation Plan (LHMP) to better position resources in advance of a disaster and to maintain eligibility for certain disaster assistance and hazard mitigation funding programs.

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to natural hazards such as floods, wildfires drought, and other severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the county and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's Community Rating System. Partnering with the county in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the county.

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Public Review Draft

The public review draft of the LHMP update is now available (in printed copy) at the reference desks at the following Placer County libraries: Auburn, Rocklin, Granite Bay, and Tahoe City. The address of the libraries and library hours are located at http://www.placer.ca.gov/departments/library/locationsandhours. The public review draft is also available online (pdf file) at: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan.

Open Public Meetings

Final public meetings to review and accept comments on the public review draft LHMP update are scheduled as follows:

Separate (duplicate) meetings are scheduled as follows:

Public Meeting - January 20, 2016, 6 p.m. - 7 p.m.
Fire Station 180, Placer County Fire, 11645 Atwood Rd., Auburn, CA 94603-9522

Hazard Mitigation Planning Committee/Working Group - January 21, 2016, 9 a.m. - noon
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Comments on the Public Review Draft

There are several options for providing input to the LHMP Update public review draft:

- Email comments to yrodrigu@placer.ca.gov or Jeanine.foster@fostermorrison.com
- Drop off written comments or by mail at Placer County OES, ATTN: Young (Rod) Rodriguez, 175 Fulweiler Ave, Auburn CA 95603
- Bring comments to one of the public meetings

Online Survey

In addition, the public is invited to participate in the online survey on hazards and hazard mitigation. This information will be reviewed as part of the planning process. The online address to participate in the survey is: https://www.surveymonkey.com/r/PlacerHazardMitigationPlan.

For additional information

Contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Pub: January 6, 13, 2016 **Ad#11797971**

SIERRA SUN

P.O. Box 1888 Carson City, NV 89702
(775) 881-1201 FAX: (775) 887-2408

Customer Account: # 7355253

Legal Account
Placer County Executive Office
175 Fulweiler Avenue
Auburn, CA 95603
Attn: Emily Gaber

Kristin Ritter says:
That (s)he is a legal clerk of the **SIERRA SUN**, a newspaper published Wednesday and Friday at Truckee, in the State of California.

Copy Line
Jan20 Meeting Announcement

PO#:

Ad #: 11797971D
of which a copy is hereto attached, was published in said newspaper for the full required period of **1** time(s) commencing on **1/6/2016**, and ending on **1/6/2016**, all days inclusive.

Signed:_____

Date: 01/06/2016 State of Nevada, Carson City

Price: $ 353.39

Subscribed and sworn to before me this ____ day of _____

_____
Notary Public

Proof and Statement of Publication

Ad #: 11797971D

COUNTY OF Placer

January 2015

PLACER COUNTY HAZARD MITIGATION PLAN UPDATE - FINAL PUBLIC MEETINGS

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Station 51, North Tahoe Fire, 222 Fairway Dr., Tahoe City, CA 96145

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For additional information
Contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Pub: January 6, 13, 2016 **Ad#11797971**

AGENDA
Placer County
Local Hazard Mitigation Plan (LHMP) Update
Final Public Meetings: January 20 & 21, 2016
(Auburn & Tahoe City)

1. Introductions

2. Overview/Status of the LHMP Update Process

3. Overview of the Placer County Risk Assessment/Mitigation Strategy

4. Public Comments/Input

5. Next Steps

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
Final Public Meeting (Auburn)
January 20, 2016

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Jeanne Foster	jeanne.foster@fostermorrison.com	303 717 7171	Foster Morrison
George Alves	galves.pcs@earthlink.net	916-408-2725	Public / Lincoln
YOUNG RODRIGUEZ	YRODRIGU@PLACER.CA.GOV	(530) 886-4602	Placer County OES
Daniel Berlant	dberlant@auburn.ca.gov	305-6551	Auburn / Auburn Fire Safe Council
Michael Garabedian	michaelgarabedian@earthlink.net	916 797 7296	Mailing the Meeting Info (Hmaz Plan)
Mary Keller	mkeller@placer.ca.gov	5302415503	Placer co Floodplain

SIGN-IN SHEET
Placer County
LOCAL HAZARD MITIGATION PLAN UPDATE PROJECT
Final Public Meeting (Tahoe)
January 21, 2015

Name/Title	Email Address	Phone	City/Organization/ Affiliation
Margaret Moran	mmoran@sierrasun.com		Sierra Sun (newspaper)
LUD SPOLYAR	LUD@SPOLYAR.COM	581-4212	TAX PAYER!

(d) Other Public Outreach Efforts

Table A-2 Public Outreach Efforts

Effort	Description
Public Outreach Flyer	Developed for use at all Public Outreach Efforts
Manned Fire Safe Alliance Booth at Auburn Home Show on 5/1/2015	Provided materials of the LHMP Update process table along with other tables with fire mitigation pamphlets and flyers inside a CALFIRE building at the PC Gold Country Fairground. Discussed roles of the community in hazard mitigation planning and the communication of disaster information. Sought input on plan development and how to get involved in the plan update process.
Paid Advertisement in Newspaper	An paid ad (sierra sun) was published to make citizens in the County aware of the hazard mitigation update process and invite participation and attendance at upcoming HMPC and Public Meetings
Placer County Weekly e-newsletter	Information on the Plan update process and upcoming HMPC and public meeting locations were included in the Placer County e-newsletter informing interested parties on how to be involved in the LHMP Update Process
LHMP Public Outreach Flyer included with Flood Hazard Letter to property owners with properties in the floodplain	The County mailed out (by 11/23/15) approximately 300-310 repetitive loss (RL) letters to property owners with RL properties, with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC and be involved in the plan development process.
LHMP Public Outreach Flyer included with Flood Hazard Letter to Real Estate Agents	The County mailed 255 (combined) flood zone determination service and flood insurance information letters to real estate agents with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC and be involved in the plan development process.
LHMP Public Outreach Flyer included with Flood Hazard Letter to Insurance Companies	The County mailed 255 (combined) flood zone determination service and flood insurance information letters to insurance companies with the LHMP Public Outreach flyer enclosed which included the hazard survey information. The letter included information how to participate on the HMPC and be involved in the plan development process.
Storm Drain Marking Event in Tahoe City on October 10, 2015	The Placer County Stormwater Quality Division working in partnership with the League to Save Lake Tahoe to put on a storm drain marker event in which volunteers swept the storm drains free of debris, picked up trash, installed English and Spanish anti-pollution message markers into storm drain grates and receive a short presentation on the impact of stormwater runoff on Lake Tahoe water clarity. Information on the LHMP Update process (LHMP Public Outreach Flyer with Survey Link) and how the public could get involved was distributed as part of this event.
Truckee River Day & River Fair in the Town of Truckee on October 18, 2015	This event, through the Truckee River Water Shed Council and the Sierra Watershed Education Partnership, included restoration projects. The Placer County Stormwater Quality Division hosted a table with informational materials at the Education Fair from 1 pm to 4 pm at the Granite Flat Campground on Highway 89. Information on the LHMP Update process (LHMP Public Outreach Flyer with Survey Link) and how the public could get involved was distributed as part of this event.
Rocklin Fall Festival on October 24, 2015	The Placer County Stormwater Quality Division hosted a table with informational materials in partnership with the City of Rocklin. This was a free family event geared towards school-age children and their families. It included a stormwater demonstration model, prize wheel, and prizes provided by the County and City. The event at Johnson Springview Park in Rocklin included information on the LHMP Update process (LHMP Public Outreach Flyer) and how the public could get involved.

Effort	Description
Survey	A public survey was posted on the County's website inviting the public to comment on how prepared both the County and individuals are for a possible natural disaster, including flood events
Public Outreach at Placer County Public Library, Auburn location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input.
Public Outreach at Placer County Public Library, Granite Bay location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Public Outreach at Placer County Public Library, Rocklin location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Public Outreach at Placer County Public Library, Tahoe City location	The County prepared a table in the reference section with the draft plan at the Placer County Public Library, Auburn location. Invitations were placed on Facebook, the County website, and as part of the advertisement for public meetings to let the public know that the documents were there for review and input..
Placer County LHMP Update Website	Information on the Plan update process and location of documents, and final HMPC and public meeting locations were posted on the County website. Links to the County website were placed on websites from the other incorporated communities.
Placer County Weekly e-newsletter	Information on the Plan update process and location of documents, and final HMPC and public meeting locations were included in the Placer County e-newsletter informing interested parties on how to provide input to the draft plan prior to submittal to Cal OES/FEMA
Paid Ad and Article in Newspaper: Sierra Sun	A paid ad was taken out and an article published before the final public meetings, to make citizens in the County aware of the hazard mitigation update process and invite comment on the draft plan/attendance at public meetings prior to submittal to Cal OES/FEMA
Article in Newspaper: Sierra Sun	Sierra Sun Staff attended the final public meeting in Tahoe. A follow-up article was published reporting on the final public meetings, to make citizens in the County aware of the hazard mitigation update process and invite comment on the draft plan prior to submittal to Cal OES/FEMA

LHMP Public Outreach Flyer (included in all emails, mailings and other public outreach events)

Help Reduce Disaster Losses in Your Community by Participating in the Placer County Local Hazard Mitigation Plan Update

Placer County is developing a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Partners in this planning effort include the cities of Auburn, Colfax, Lincoln, Rocklin, the Town of Loomis, and several special districts.

What is Hazard Mitigation?

Hazard mitigation means any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.

Why is Natural Hazard Mitigation Important?

Most people who live or work in Placer County have been affected by natural hazards in one way or another. Placer County and its residents are vulnerable to a variety of hazards including floods, wildfire, drought, and other severe weather events.

The rising costs associated with disaster response and recovery have focused the attention of federal, state, and local governments on addressing natural hazards before they occur. Obviously, torrential rains and floods cannot always be prevented from occurring. Planning for natural hazards and implementing mitigation measures, however, can reduce the impact of such events when they do occur. Emergency response and recovery costs; property damage and monetary losses; personal injury and loss of life; and the overall economic and social impact on the community can all be reduced, and in some instances eliminated through natural hazard mitigation.

Hazard Mitigation Plan and Plan Update Process

After securing Federal Emergency Management Agency (FEMA) mitigation grant funding, Placer County is using the funds to support an update of their LHMP. This LHMP Update is being developed by a Hazard Mitigation Planning Committee comprised of representatives from various County and City departments; neighboring jurisdictions, key federal, state, and local agency stakeholders and the public.

The plan is addressing an updated list of hazards, including, flood, drought, wildfire, earthquake, severe weather, and agricultural hazards. The plan will assess the likely impacts of these hazards to the people and assets of the Placer County planning area and will also establish updated goals and prioritize projects to reduce the impacts of future disasters on people and property as well as to critical facilities and infrastructure.

Another benefit of mitigation planning is that it can also help lessen the cost of flood insurance to the residents of Placer County through FEMA's National Flood Insurance Program's (NFIP) Community Rating System.

National Flood Insurance Program's Community Rating System

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions in meeting the goals of the CRS Program. The reduction in flood insurance premium rates is provided according to a community's CRS classification. Placer County is currently a CRS Class 5, which provides a 25 percent discount on flood insurance for those located within the special flood hazard area (SFHA) and a 10 percent discount for those located in non-SFHA areas.

Opportunities for Input

Members of the community have a very important role in this process. A draft of the LHMP Update will be available early fall 2015 for review and comment by the public and all interested stakeholders on the County website and other identified locations. Planning team and public stakeholder meetings will also occur throughout the plan development process. .

For more information on this project and how you can get involved, contact:

Rod Rodriguez	**Jeanine Foster**
Placer County Office of Emergency Services	Foster Morrison Consulting Ltd.
Phone: (530) 886-5300	Phone: (303) 717-7171
YRodrigu@placer.ca.gov	jeanine.foster@fostermorrison.com

Manned Fire Safe Alliance Booth at Auburn Home Show on 5/1/2015

Placer County Weekly e-newsletter: on the LHMP Update and How to be Involved

PLACER COUNTY E-NEWS

Stay Connected With Your Government

Placer

www.placer.ca.gov

County Begins Update of Local Hazard Mitigation Plan

A federally required plan to prepare Placer County for disasters and natural hazards is getting a five-year update. The county's Office of Emergency Services (OES) is leading the effort to update the Local Hazard Mitigation Plan and will host two community meetings to kick off the process.

The public is invited to offer its comments on the update, which will also involve local communities, state and local agencies and other interested stakeholders. The purpose of the plan is to assess risks from natural hazards such as floods, wildfires and severe weather events and take actions to reduce losses from those events. This effort not only maintains the county's eligibility for federal funding, but can also help reduce the cost of flood insurance. OES is partnering with the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the county.

The first meeting will be Tue., April 28, 2015, at Placer County Fire Station 180, 11645 Atwood Rd., Auburn, from 6 to 7 p.m. The second meeting is Wed., April 29, 2015, at the North Tahoe Fire Protection District's Station 51, 222 Fairway Dr., Tahoe City, from 6 to 7 p.m.

LHMP Public Outreach Direct Mailings:

Public Outreach Flyer (included in all mailings)

See Public Outreach Flyer shown directly after the table of other public outreach efforts.

Placer Alert Flyer (Included in all mailings)

The Mass Notification System contains data from many different sources. During an emergency all sources can be used to push information to as many people as possible. Some of these sources include:

- ⇒ *White Pages*
- ⇒ *Yellow Pages*
- ⇒ *Listed and Unlisted Landline Phone Numbers Serviced by AT&T and Verizon*
- ⇒ *Citizen Opt-in Information*

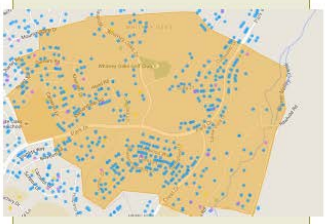
Notifications sent from the system can come to you through a number of different devices if you signup through the Citizen Opt-in Portal. Be sure to add all devices you'd like to receive notifications on:

- ⇒ *E-mail*
- ⇒ *Landline Phone*
- ⇒ *Cellular Phone (Voice and Text)*
- ⇒ *TTY Device*

Public Safety professionals can draw a shape around any area on the map to send notifications to any person listing an address in that shape in their personal profile. You can sign-up to watch addresses for:

* Home * Child's School
* Relative's House * Work

Depending on which devices you add into the system you could receive voice alerts, e-mails, and text messages. Emergency Services professionals can even attach pictures to e-mail and text sends.



Have more questions?

Phone: 530-889-4030

Email: PlacerOES@placer.ca.gov

ALERT SACRAMENTO - YOLO - PLACER

WANT TO SIGN-UP?

Many agencies have links on their websites or you can always visit any one of the following links:

www.Placer-Alert.org

www.Sacramento-Alert.org

www.Yolo-Alert.org

999-999-9999

When you see a call-back number on your caller-id with all nine's....it could be the Mass Notification System trying to provide you with important information!

ALERT SACRAMENTO - YOLO - PLACER

WHAT IS REGIONAL MASS NOTIFICATION?

Regional Mass Notification is a partnership between three counties:

- *Sacramento*
- *Yolo*
- *Placer*

Information is housed for all three counties in one system so that notifications can be sent across jurisdictional boundaries when necessary.

Co-locating data allows all 9-1-1 centers in all three counties to assist each other during times of emergency with notification sends, a practice known as interoperability.

An Everbridge Product Sponsored By:

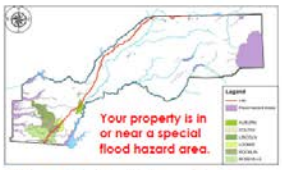
County of Placer State of California · City of Lincoln California · City of Roseville California · City of Auburn California · City of Rocklin 1893 · County of Placer Office of Emergency Services · County of Yolo Founded 1850 · County of Sacramento California

everbridge

Placer-Alert.org

ALERT SACRAMENTO - YOLO - PLACER

Flood Safety Brochure (Included in all mailings)



History of Flooding in Placer County

Flooding in Placer County is generally the result of high intensity storms which inundate watersheds within in the county, causing flooding of the natural water courses and adjacent properties. These storms are sporadic in nature. Flooding may occur in one area, while another watershed a few miles away will not be affected. Flooding can occur with little warning. Your property may be high enough that it was not flooded recently, however, it can still be flooded in the future because the next flood could be more severe. If you are in the floodplain, chances are that some day your property will be damaged. Even if you home has never had a flood damage it, you should be aware of flood hazards no matter where you live. This flyer gives some ideas of what you can do to protect yourself and your property.

Recognize the natural and beneficial functions of floodplains to help reduce flooding.

Floodplains are a natural component of the Placer County environment. Understanding and Protecting the natural functions of floodplains helps reduce flood damage and protect resources. When flooding spreads out across the floodplain, its energy is dissipated, which results in lower flood flows downstream, reducing erosion of the stream bank and channel, deposition of sediments higher in the watershed and improved groundwater recharge. Floodplains are scenic, valued wildlife habitat, and suitable for farming. Poorly planned development in floodplains can lead to stream bank erosion, loss of valuable property, increased risk of flooding to downstream properties and degradation of water quality.

WHAT TO DO BEFORE A FLOOD

Determine if your property is located in an area subject to flooding.

These areas have a known potential for flooding:

American River	Truckee River
Coon Creek	Bear River
Sucker Ravine	Markham Ravine
Auburn Ravine	Miners Ravine
South Yuba River	Linda Creek
Curry Creek	Pleasant Grove Creek
Doty Ravine	Dry Creek
Squaw Creek	Secret Ravine
Bear Creek	Lake Tahoe

This is not a complete list of areas that are within flood zones, but rather a list of areas with documented flooding problems. A property located within a flood zone does not necessarily have flooding problems. If your location is not listed, your property may still be within a flood zone, as designated by Federal Emergency Management Agency (FEMA) maps. Upon request, the Floodplain Management Division at (530) 745-7503, will make free flood zone determinations for properties within the unincorporated county. FEMA maps are also available through the Placer County website. If located in an "A" Zone, your property is within the Special Flood Hazard Area (SFHA), which is an area that has been determined to have the potential for flooding caused by a 100-year storm. The Floodplain Management Division also maintains elevation certificates, and are available for review in either digital or hard copy, for many properties within the county.

Purchase flood insurance for your property.

Flooding is not covered by a standard homeowner's insurance policy. A separate flood insurance policy is required to cover damages incurred by flooding. Coverage is available for the building itself as well as for the contents of the building. Placer County participates in the National Flood Insurance Program (NFIP) that makes available federally backed flood insurance for all structures, whether or not they are located within the floodplain. Note that there is a 30-day waiting period before coverage goes into effect. More than 25 percent of NFIP claims are filed by properties located outside the 100-year flood plain, also known as the Special Flood Hazard Area (SFHA). Contact your insurance agency for more information. Flood insurance information is also available through the Placer County website.

Maintain drainage channels and clear pipes of obstruction and debris.

Placer County performs cleaning and maintenance activities on the drainage channels and pipes in county easements & rights-of-way in accordance with an established schedule and other standard operating procedures. Residents are encouraged to assist in maintaining the drainage in their areas by removing or reporting obstructions (such as leaves, debris, trash, etc.). Keeping drainage channels free of obstructions reduces flooding in the event of heavy rains. By way of county ordinance, it is illegal to dump trash, leaves, landscape debris, paint, grease, or any other material into any portion of the county's drainage system. Such dumping can have devastating impacts on water quality in addition to causing flooding. To report obstructions or illegal dumping within the county road system please contact Placer County Public Works and Facilities at (530) 745-7565.

Protect your property from the hazards of flooding and wind.

Various methods may be used to minimize flooding. If the floor level of your property is lower than the "Base Flood Elevation" (elevation of the 100-year flood, based on the FEMA maps), consider elevating your structure, if possible. Brochures discussing flood proofing and other mitigation measures are available through the Placer County website (placer.ca.gov/floodplain). If a flood is imminent, property may be protected by sandbagging areas subject to the entry of water into living spaces. The Fire Departments of Placer County may be available to assist with sandbagging efforts. Valuables and furniture may also be moved to higher areas of the dwelling to minimize damages. Placer County Personnel will make site visits to provide one-on-one advice to a property owner regarding flooding and drainage issues on private property. For more information please contact Floodplain Management at (530) 745-7503.

Meet improvement requirements.

Placer County's Flood Damage Prevention Regulations: Article 15.52 requires that if the cost of reconstruction, additions or other improvements to a building equals or exceeds 40% of the building's market value, then the building must meet the same construction requirements as a new building. Substantially damaged buildings must also be brought up to the same standards. For example, a residence damaged so that the cost of repairs equals or exceeds 40% of the building's value before it was damaged must be elevated above the base flood elevation.

Meet permitting requirements.

All development within the county requires a permit. Always check and fulfill permitting requirements with the Community Development Resource Agency at (530) 745-3000 before you build on, alter, fill, or re-grade on any portion of your property and/or within any easement or right-of-way. Also, contact either of the numbers above to report any suspected permitting violations.

Keep an emergency supply.

Non-perishable food, water, batteries, flashlights, a manual can opener, and a battery operated radio should be kept available.

Be alert.

Register for hazard alerts at placer-alert.org.

Flood mitigation assistance is available from the county. If you have a repetitive flooding problem, and would like to discuss options or schedule a site visit, contact Floodplain Management.

WHAT TO DO DURING A FLOOD

Do not walk through flowing water.

Drowning is the number one cause of flood deaths. Currents can be deceptive. Six inches of moving water can knock you off your feet. If you walk in standing water, use a pole or stick to ensure that the ground is still there.

Do not drive through a flooded area.

"Turn Around, Don't Drown." More people drown in their cars than anywhere else. Don't drive around road barriers: the road or bridge may be washed out.

Avoid power lines and electrical wires.

The number two flood killer after drowning is electrocution. Electrical current can travel through water. Report downed power lines to the power company or the Placer County Sheriff's Office at (530) 889-7800.

Have your electricity turned off by the power company.

Some appliances, such as television sets, keep electrical charges even after they have been unplugged. Don't use appliances or motors that become wet unless they have been taken apart, cleaned and dried.

Look out for animals, especially snakes.

Use a pole or stick to poke and turn things over to scare away small animals.

Look before you step.

After the flood, the ground and floors are covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be very slippery.

Be alert for gas leaks.

Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames until you know the gas has been turned off and the area has been well-ventilated.

WHAT TO DO AFTER A FLOOD

- Listen to the radio for emergency instructions.
- Avoid driving if possible.
- Follow established procedures for property damage repairs:

Select a contractor who is licensed properly in California. Placer County requires contractors to be licensed and to have a Business License issued by Placer County. Licensed contractors will be able to produce proof of licensing. Only licensed electricians may perform electrical work, only licensed plumbers may perform plumbing work, only licensed gas contractors may perform heating, ventilation and air conditioning work, and only licensed building contractors may perform building related work. Verify that contractors are licensed before signing or agreeing to any repair contracts. It is also recommended that you verify certification of liability and workman's compensation insurance. Complaints against licensed contractors may be referred to the Contractors State License Board.

Require your contractors to obtain the proper permits for work being performed. Permits are required for any permanent improvement (including painting, roofing, siding, additions, alterations, etc.) to a structure and for site work such as grading, filling, etc. Permits are required even if homeowners are doing the work themselves.

Questions about building permits or contractor licensing may be addressed to the Placer County Building Department at (530) 745-3010.

For more information about flood safety on the NFIP:

placer.ca.gov/floodplain

floodsmart.gov

This information is provided by Placer County and is applicable to properties within the unincorporated areas of the County. If you reside in a jurisdiction other than Placer County, contact your regulatory authority for information. If you believe you received this notice in error, or if you no longer own this property, please contact Placer County Floodplain Management Division at (530) 745-7507 or via U.S. mail.

COUNTY OF Placer
Floodplain Management
3091 County Center Drive, Suite 220
Auburn, CA 95603

COUNTY OF Placer

Floodplain Management presents:

FLOOD SAFETY

Preparing for a flood in your neighborhood

LHMP Public Outreach Flyer included with Flood Hazard and Flood Insurance Letters to Property Owners residing in floodplain, including Repetitive Loss Properties

November 23, 2015

ANDERSON CHRISTINA S
P O BOX 2605
OLYMPIC VALLEY CA 96146-2605

SUBJECT: REPETITIVE LOSS FLOODING; APN:

Dear Resident,

You have received this letter because your property is in an area that has been flooded several times. Placer County records show that a repetitive loss flooding (i.e. more than one insurance claim has been filed) has occurred on a parcel of land that is in close proximity to your property referenced above.

The County is concerned about repetitive flooding and has an active program to help you protect yourself and your property from future flooding. Attached is a flyer the County has prepared addressing necessary flood protection information. Homeowner's insurance policies do not cover damage from floods. However, since Placer County participates in the National Flood Insurance Program, you can purchase a separate flood insurance policy. The insurance is backed by the Federal Government and is available to everyone, even properties that have been flooded before. Because Placer County participates in the Community Rating System, you will receive a reduction in the insurance premium.

Please take the time to read the attached flyer. Additional flood insurance information is available at www.floodsmart.gov. If you have any questions or require more information, please contact me, the Floodplain Manager, at (530) 745-7503 or visit our web site at www.placer.ca.gov/floodplain.

Regards,

Mary Keller, P.E., CFM
Floodplain Program Manager
Placer County Public Works

LHMP Public Outreach Flyer included with Flood Hazard and Flood Insurance Letters to Real Estate Agents

November 2, 2015

RE-MAX RESORT PROPERTIES
7001 Northstar Dr, Ste 7113
Truckee, CA 96161

SUBJECT: **PLACER COUNTY FLOOD ZONE DETERMINATION SERVICE AND FLOOD INSURANCE INFORMATION**

Dear Sir/Madam:

As a public service, Placer County Public Works Department will provide flood zone determinations on individual parcels of land within the unincorporated portions of Placer County. If you are not sure if a property is located in a Special Flood Hazard Area (SFHA), also known as a 100-year flood plain, you may request a written determination. The determination will be based on the Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Agency (FEMA). A 100 year floodplain represents the area where there is a one percent chance of flooding occurring in any given year.

Placer County currently provides this service free of charge. If you wish to receive this assistance, we ask that you complete a "Flood Zone Information Request Form". The request form and helpful information on flood hazards and protection can be found on the Placer County web-site at www.placer.ca.gov/floodplain.

Placer County participates in the National Flood Insurance Program's (NFIP) Community Rating System (CRS), implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. By implementing these floodplain management activities, the residents of Placer County can qualify for a flood insurance premium rate reduction of up to 45%. The County of Placer is currently a CRS Class 5 community, which provides a 25% discount on flood insurance to properties located in the Special Flood Hazard Area.

As a Real Estate Agent, Lender, or Insurance Agent, you can help by promoting flood insurance and by disclosing if the property is now, or will be, in a high-risk area (Special Flood Hazard Area or SFHA). Flood Insurance is required for properties located in the SFHA if a federally backed mortgage is secured for the structure. Providing flood hazard information and promoting flood insurance for protection of structures, whether in a designated SFHA or not, is recommended and encouraged. Flyers, stuffers, and other materials on flood insurance are available, free of charge, through the NFIP. These materials may also be ordered by contacting the FEMA Distribution Center, 4440

Buckeystown Pike, Frederick, MD 21704, Phone: 1-800-480-2520 Fax: (240) 699-0525. Or through the web at www.fema.gov.

Also, be advised that a limited amount of flood protection assistance is available through the Public Works Department. Elevation certificates for certain newer or substantially improved structures built in Special Flood Hazard Areas may be available; this will be considered at the time you submit a request for a flood zone determination.

For more information regarding the service in the unincorporated area of Placer County, contact Mary Keller, Floodplain Manager, or visit our web-site. For information regarding property within the incorporated cities, please contact them directly (links are provided on our web site).

COUNTY OF PLACER

Mary Keller, P.E., CFM
Floodplain Manager

LHMP Public Outreach Flyer included with Flood Hazard and Flood Insurance Letter to Insurance Companies

November 2, 2015

KIMMEY INSURANCE AGENCY
P O BOX 7679
TAHOE CITY, CA 96145-7679

SUBJECT: **PLACER COUNTY FLOOD ZONE DETERMINATION SERVICE AND FLOOD INSURANCE INFORMATION**

Dear Sir/Madam:

As a public service, Placer County Public Works Department will provide flood zone determinations on individual parcels of land within the unincorporated portions of Placer County. If you are not sure if a property is located in a Special Flood Hazard Area (SFHA), also known as a 100-year flood plain, you may request a written determination. The determination will be based on the Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Agency (FEMA). A 100 year floodplain represents the area where there is a one percent chance of flooding occurring in any given year.

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As a Real Estate Agent, Lender, or Insurance Agent, you can help by promoting flood insurance and by disclosing if the property is now, or will be, in a high-risk area (Special Flood Hazard Area or SFHA). Flood Insurance is required for properties located in the SFHA if a federally backed mortgage is secured for the structure. Providing flood hazard information and promoting flood insurance for protection of structures, whether in a designated SFHA or not, is recommended and encouraged. Flyers, stuffers, and other materials on flood insurance are available, free of charge, through the NFIP. These materials may also be ordered by contacting the FEMA Distribution Center, 4440

Buckeystown Pike, Frederick, MD 21704, Phone: 1-800-480-2520 Fax: (240) 699-0525. Or through the web at www.fema.gov.

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For more information regarding the service in the unincorporated area of Placer County, contact Mary Keller, Floodplain Manager, or visit our web-site. For information regarding property within the incorporated cities, please contact them directly (links are provided on our web site).

COUNTY OF PLACER

Mary Keller, P.E., CFM
Floodplain Manager

Placer County E-Newsletter for three Placer County Events: Storm Drain Marking, Truckee River Day, and Rocklin Fall Festival

PLACER COUNTY E-NEWS

Stay Connected With Your Government

Placer

www.placer.ca.gov

The Placer County Stormwater Quality Division of the Department of Public Works and Facilities is tasked with the responsibility of reducing pollutants in stormwater runoff, eliminating non-stormwater discharges, lessening the long term impact of stormwater discharges from development, businesses, and municipal activities, and educating the public about stormwater impacts. The division will be participating in the following events to further educate the public on the importance of stormwater quality, and encourage participation by everyone who may be interested.

Storm Drain Marking Event in Tahoe City on October 10, 2015

The Placer County Stormwater Quality Division will be working in partnership with the League to Save Lake Tahoe to put on a storm drain marker event in which volunteers will sweep the storm drain free of debris, pick up trash, install English and Spanish anti-pollution message markers into storm drain gratesand receive a short presentation on the impact of stormwater runoff on Lake Tahoe water clarity. Volunteers will meet at the Jack Pine Street Public Parking in Tahoe City lot at 9 am and the event will conclude at noon.

Truckee River Day & River Fair in the Town of Truckee on October 18, 2015

This event, through the Truckee River Water Shed Council and the Sierra Watershed Education Partnership, includes restoration projects that start at either 9 am (full day project) or 11 am (half day project). The Placer County Stormwater Quality Division will be hosting a table with informational materials at the Education Fair from 1 pm to 4 pm at the Granite Flat Campground on Highway 89 South, approximately 1 mile south of Truckee. For more information and registration to participate in the restoration projects go to www.truckeeriverwc.org.

Rocklin Fall Festival on October 24, 2015

The Placer County Stormwater Quality Division will be hosting a table with informational materials in partnership with the City of Rocklin. This is a free family event geared towards school-age children and their families. It features activities, vendors, entertainment, trick or treating, and demonstrations. There will be a stormwater demonstration model, prize wheel, and prizes provided by the County and City. The event will run from 10 am to 2 pm at Johnson Springview Park in Rocklin.

All events will include information about Placer County's Local Hazard Mitigation Plan update which addresses natural disasters in our communities.

Storm Drain Marking Event in Tahoe City on October 10, 2015

Truckee River Day & River Fair in the Town of Truckee on October 18, 2015

Rocklin Fall Festival on October 24, 2015

LHMP Update: Survey

We want your input!

Please take our survey to assist with the update to our local hazard mitigation plan.

Online Survey

In addition, the public is invited to participate in the online survey on hazards and hazard mitigation. This information will be reviewed as part of the planning process. The online address to participate in the survey is: https://www.surveymonkey.com /r/PlacerHazardMitigationPlan.

TAKE SURVEY NOW »

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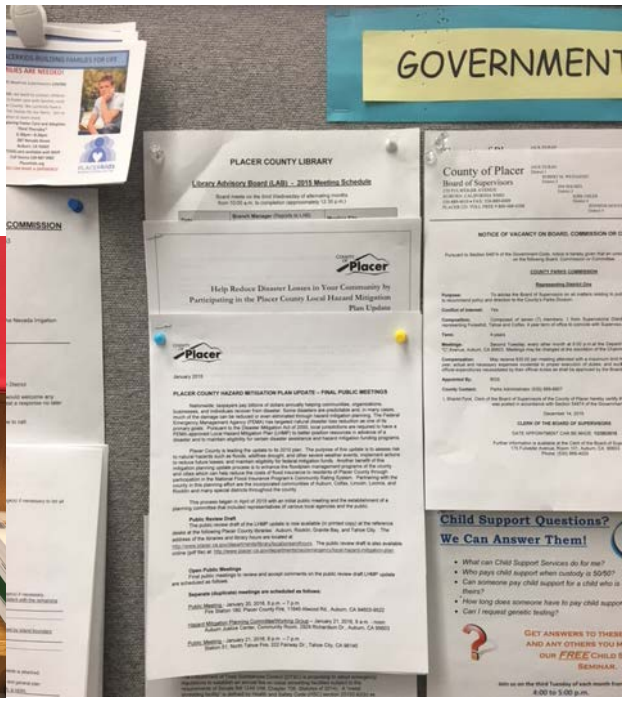
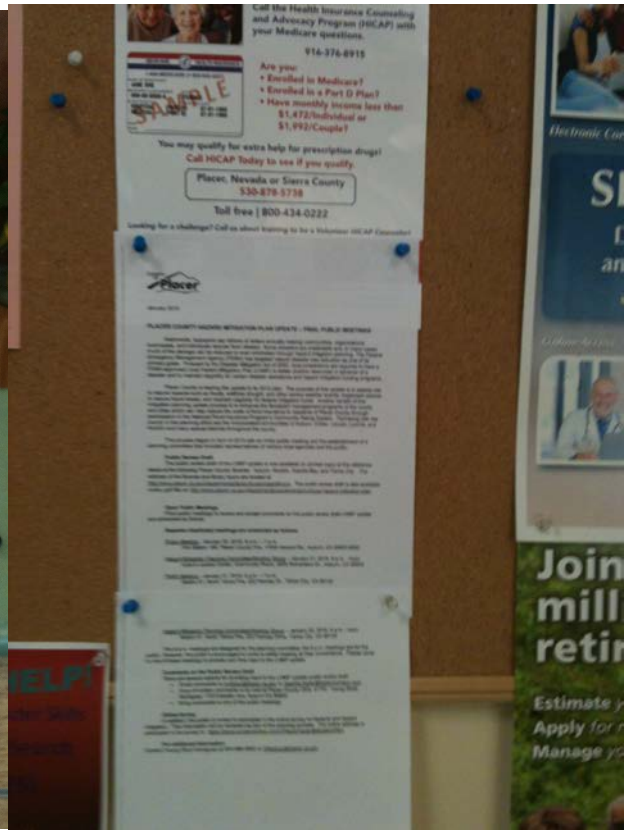
LHMP Update (Draft Plan) Public Outreach at Placer County Public Library, Auburn location

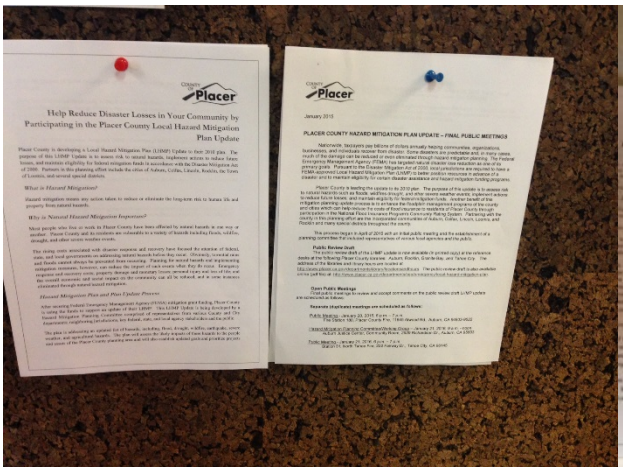


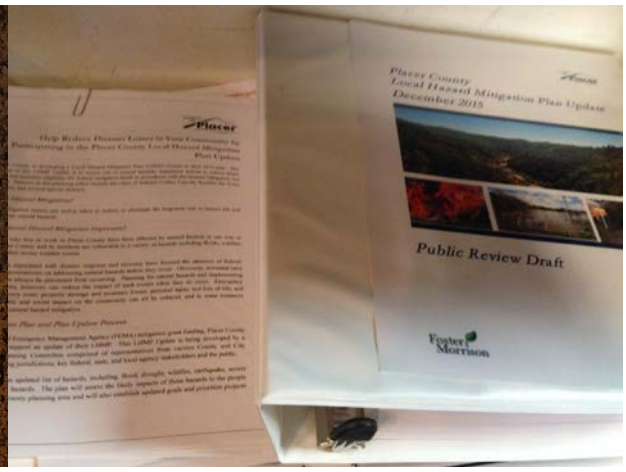
Public Outreach (Draft Plan) at Placer County Public Library, Granite Bay location

Public Outreach (Draft Plan) at Placer County Public Library, Rocklin location



Public Outreach (Draft Plan) at Placer County Public Library, Tahoe City location





Placer County Website

Home › Departments › County Executive Office › Office of Emergency Services › **Local Hazard Mitigation Plan**

Local Hazard Mitigation Plan

Reduce or remove long-term risk and protect the people and property of the County from the effects of events like fire, flood, earthquake, terrorism, etc. through planned regular actions. Use of this plan could make Placer County and participating jurisdictions' eligible for certain federal disaster assistance.

To review the current FEMA approved plan, please scroll down to the bottom of this page.

2015 Master Plan Update – In Progress

2015 Local Hazard Mitigation Plan Complete Draft

+ 2nd Draft Annex of Participating Agencies

PLACER COUNTY LOCAL HAZARD MITIGATION PLAN UPDATE – FINAL PUBLIC MEETINGS

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning. The Federal Emergency Management Agency (FEMA) has targeted natural disaster loss reduction as one of its primary goals. Pursuant to the Disaster Mitigation Act of 2000, local jurisdictions are required to have a FEMA-approved Local Hazard Mitigation Plan (LHMP) to better position resources in advance of a disaster and to maintain eligibility for certain disaster assistance and hazard mitigation funding programs.

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Preparedness Tips
Sand and Sandbag Locations
Hazardous Vegetation Abatement
Supporting Agencies
Winter Tahoe Travel Tips

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to natural hazards such as floods, wildfires drought, and other severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the county and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's Community Rating System. Partnering with the county in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the county.

This process began in April of 2015 with an initial public meeting and the establishment of a planning committee that included representatives of various local agencies and the public.

Public Review Draft

The public review draft of the LHMP update is now available (in printed copy) at the reference desks at the following Placer County libraries: Auburn, Rocklin, Granite Bay, and Tahoe City. The address of the libraries and library hours are located at http://www.placer.ca.gov/departments/library/locationsandhours. The public review draft is also available online (pdf file) at: http://www.placer.ca.gov/departments/ceo/emergency/local-hazard-mitigation-plan.

Open Public Meetings

Final public meetings to review and accept comments on the public review draft LHMP update are scheduled as follows:

Separate (duplicate) meetings are scheduled as follows:

Public Meeting - January 20, 2016, 6 p.m. – 7 p.m.

Fire Station 180, Placer County Fire, 11645 Atwood Rd., Auburn, CA 94603-9522

Hazard Mitigation Planning Committee/Working Group – January 21, 2016, 9 a.m. - noon

Auburn Justice Center, Community Room, 2929 Richardson Dr., Auburn, CA 95603

Public Meeting - January 21, 2016, 6 p.m. – 7 p.m.

Station 51, North Tahoe Fire, 222 Fairway Dr., Tahoe City, CA 96145

Hazard Mitigation Planning Committee/Working Group – January 22, 2016, 9 a.m. - noon

Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City, CA 96145

The 9 a.m. meetings are designed for the planning committee; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience. Please come to one of these meetings to provide your final input to the LHMP update.

Comments on the Public Review Draft

There are several options for providing input to the LHMP Update public review draft:

- Email comments to yrodrigu@placer.ca.gov or Jeanine.foster@fostermorrison.com
- Drop off written comments or by mail at Placer County OES, ATTN: Young (Rod) Rodriguez, 175 Fulweiler Ave, Auburn CA 95603
- Bring comments to one of the public meetings

What is Hazard Mitigation?

The Federal Emergency Management Agency (FEMA) defines hazard mitigation as, "any sustained action taken to reduce or eliminate long-term risk to life and property from natural hazards." Another way to understand hazard mitigation is as the prevention component of the emergency management process.

- Preparedness activities are the emergency plans, training, drills, and exercises that individuals, communities and first responders participate in on almost a daily basis. These are things done to get ready for an emergency or disaster before it happens.
- Response is the short-term, emergency actions taken to address the immediate impacts of a hazard.
- Recovery is the longer-term process of restoring the community back to normal or pre-disaster conditions.
- Mitigation activities are actions that will prevent or eliminate losses, even if an incident does occur. Mitigation can reduce or eliminate the need for an emergency response and greatly reduce the recovery period.

This may sound complicated, but we all do many of these things on a daily basis.

Why is Natural Hazard Mitigation Important?

Most people who live or work in Placer County have been affected by natural hazards in one way or another. Placer County and its residents are vulnerable to a variety of hazards including floods, dam failure, wildfire, drought, and other severe weather events.

The rising costs associated with disaster response and recovery have focused the attention of federal, state, and local governments on addressing natural hazards before they occur.

Obviously, events like torrential rains and floods cannot be prevented from occurring. However, planning for natural hazards and implementing mitigation measures can reduce the impact of such events when they do occur. Emergency response and recovery costs; property damage and monetary losses; personal injury and loss of life; and the overall economic and social impact on the community can all be reduced, and in some instances eliminated, through natural hazard mitigation.

Hazard Mitigation Plan and Plan Update Process

Mitigation planning is a process for state and local governments to identify community-level policies and actions that will mitigate and thus reduce the impacts of natural hazards. According to a federal law, the Disaster Mitigation Act of 2000, local governments are required to complete a "local hazard mitigation plan (LHMP)" every five years in order to remain eligible for future federal disaster mitigation funding. Placer County's last LHMP was completed in 2010.

After securing FEMA mitigation grant funding in 2014, Placer County is using the funds to support an update of their LHMP. Partners in this planning effort include the cities of Auburn, Colfax, Lincoln, and Rocklin, the Town of Loomis, and several special districts. This LHMP Update is being developed by a Hazard Mitigation Planning Committee comprised of representatives from various County and City departments; neighboring jurisdictions, key federal state and local agency stakeholders, and the public. The plan is addressing an updated list of hazards, including flood, dam failure, wildfire, earthquake, drought and water shortage, severe weather, and agricultural hazards such as pests and invasive species. The plan will assess the likely impacts of these hazards to the people and property of the County and will also establish updated goals and prioritize mitigation projects to reduce the impacts of future disasters on people and property as well as to critical facilities and infrastructure.

Wherever possible, the plan identifies steps that help avoid, reduce, alleviate, or mitigate disaster damages. Another benefit of mitigation planning is that it can also help reduce the cost of flood insurance in Placer County through FEMA's National Flood Insurance Program's Community Rating System.

National Flood Insurance Program's Community Rating System

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the goals of the CRS Program. The objective of the CRS is to reward communities for what they are doing, as well as to provide an incentive for implementing additional flood protection activities. The reduction in flood insurance premium rates is provided according to a community's CRS classification. Placer County is currently a CRS Class 5, which provides a 25 percent discount on flood insurance for those located within the special flood hazard area (SFHA) and a 10 percent discount for those located in non-SFHA areas. This discount currently saves county residents over $76,000 annually.

Opportunities for Input

Members of the community have a very important role in this process. A draft of the 2015 LHMP Update is available for review and comment by the public and all intresed stakeholders. The draft is posted at the beginning of this website under the title, 2015 Master Plan Update-In Progress.

Planning team and public meetings will also be held as part of the plan development process. Please check back for information on specific meeting times and locations.

For more information on this project and how to provide input, contact Rod Rodriguez at (530) 886-4600 or YRodrigu@placer.ca.gov.

We want your input!

Please take our survey to assist with the update to our local hazard mitigation plan.

Online Survey

In addition, the public is invited to participate in the online survey on hazards and hazard mitigation. This information will be reviewed as part of the planning process. The online address to participate in the survey is: https://www.surveymonkey.com /r/PlacerHazardMitigationPlan.

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Tahoe City, CA, 96145
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Placer County Weekly e-newsletter on Final HMPC/Steering Committee and Public Meetings and How to Comment on the Draft Plan

Today's News Clips - Jan. 27, 2016

Starting Feb. 1, Placer County's animal shelter in North Auburn will be open continuously Monday through Saturday from 9 a.m. – 5 p.m. The 2015 Placer County Local Hazard Mitigation Plan Update is being finalized for approval later this year by the Federal Emergency Management Agency. Transportation officials announce plans to reduce funding for projects throughout the state.

Rocklin & Roseville Today • USA • Jan 27 06:57 am

County Animal Shelter in Auburn Expands Hours

Furry friends can't stop wagging their tails. Beginning Feb. 1, Placer County's animal shelter in North Auburn will change its operating hours, increasing access for the public.

The Sacramento Bee • USA • Jan 26 06:05 pm

It's back to the negotiating table for transportation funding, threat of cuts

When the California Transportation Commission said last week that it planned to sharply reduce funding for transportation projects due to declining gas tax revenue, the resulting publicity served to reinforce Gov. Jerry Brown's appeal for new taxes and fees to pay for road and highway work.

Paid Advertisement and Article in Newspaper for Final HMPC/Steering Committee Meetings and Public Meetings and How to Comment on the Draft Plan: Sierra Sun

PLACER COUNTY INVITES PARTICIPATION IN HAZARD MITIGATION PLAN UPDATE

Placer County is leading a Local Hazard Mitigation Plan (LHMP) Update to their 2010 plan. The purpose of this LHMP Update is to assess risk to natural hazards such as floods, wildfires and severe weather events; implement actions to reduce future losses; and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. Another benefit of this mitigation planning update process is to enhance the floodplain management programs of the County and cities which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). Partnering with the County in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis, and Rocklin and many special districts throughout the County.

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses, and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

The Placer County Office of Emergency Services (OES) will be hosting two meetings to kick off the process to update their current 2010 LHMP. Officials from Placer County; incorporated communities; state and local agencies; members of the public and other interested stakeholders are invited to participate in this planning effort. A hazard mitigation planning committee (HMPC) will be established as part of the plan development process.

Separate (duplicate) meetings are scheduled for 2 p.m. (planning committee meeting) and 6 p.m. (public meeting) as follows:

HMPC/Working Group Meeting (West)
4/28/15, 2pm-5pm, Community Development Resource Agency (CDRA)
Planning Commission Hearing Room
3091 County Center Drive, Auburn, CA 95603

Public Meeting
4/28/15, 6pm-7pm, Placer County Fire, Station 180, Admin Building
11645 Atwood Road, Auburn, CA 95603

HMPC/Working Group Meeting (East)
4/29, 2pm-5pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

Public Meeting
4/29, 6pm-7pm, North Tahoe FPD
Station 51, Training Room
222 Fairway Drive, Tahoe City, CA 96145

The 2 pm meeting is targeted for the planning committee. The 6 pm meeting is for stakeholders across the County and all interested residents and other members of the general public. However, everyone is encouraged to come to either meeting at their convenience. The purpose of the kickoff meetings is to inform the planning committee, participating jurisdictions, and other interested stakeholders about the purpose and process of the plan, to describe how to participate in the plan update process and the benefits of doing so.

Placer County OES is taking the initiative to develop this plan update utilizing the expertise of consultants with Foster Morrison Consulting, LLC, a firm that specializes in hazard mitigation and emergency management. Please come to the kickoff meeting to learn more about hazard mitigation and the LHMP Update process.

For more information on this project and how you can be involved, contact Young (Rod) Rodriguez at 530-886-4602 or YRodrigu@placer.ca.gov.

Pub: April 22, 2015 **Ad#11129010**

Sierra Sun, Jan 20, 2016
P.A

Public meetings this week on Placer Co. disaster response plans

Special to the Sun

Nationwide, taxpayers pay billions of dollars annually helping communities, organizations, businesses and individuals recover from disaster. Some disasters are predictable and, in many cases, much of the damage can be reduced or even eliminated through hazard mitigation planning.

Pursuant to the Disaster Mitigation Act of 2000, local jurisdictions are required to have a Federal Emergency Management Agency-approved Local Hazard Mitigation Plan to better position resources in advance of a disaster and to maintain eligibility for certain disaster assistance and hazard mitigation funding programs.

Placer County is leading the update to its 2010 plan. The purpose of this update is to assess risk to natural hazards such as floods, wildfires, drought and other severe weather events; implement actions to reduce future losses; and maintain eligibility for federal disaster mitigation funds.

Another benefit is to enhance the flood plain management programs of the county and cities, which can help reduce the costs of flood insurance to residents of Placer County through participation in the National Flood Insurance Program's Community Rating System.

Partnering with the county in this planning effort are the incorporated communities of Auburn, Colfax, Lincoln, Loomis and Rocklin and many special districts throughout the county.

This process began in April of 2015 with an initial public meeting and the establishment of a planning committee that included representatives of various local agencies and the public. The updated plan is now ready for public review before being made final.

Public meetings for community members in Auburn and Tahoe City to learn about and comment on the plan are scheduled this week; locally, there are two meetings:

Public Meeting: 6-7 p.m. Thursday, Jan. 21, Station 51, North Tahoe Fire, 222 Fairway Drive, Tahoe City.

Hazard Mitigation Planning Committee/Working Group: 9 a.m. to noon, Friday, Jan. 22, same location.

The 9 a.m. meetings are designed for the planning committee; the 6 p.m. meetings are for the public. However, the public is encouraged to come to either meeting at their convenience.

The public review draft of the LHMP update is available in printed copy at the reference desks of the following Placer County libraries: Auburn, Rocklin, Granite Bay and Tahoe City; and online at bit.ly/1ntOtZT.

This article was submitted by Placer County. Visit placer.ca.gov to learn more.

LHMP Update Article in Newspaper as a Follow up to the Final Public Meetings: Sierra Sun

January 26, 2016

Placer disaster plan would better position Tahoe for FEMA funds

A crew of firefighters cuts a line behind a home engulfed by flames on Washoe Way during the August 2007 Washoe Fire, which destroyed six structures on Tahoe's West Shore.

More online

Visit bit.ly/1Pi3acU to view the draft 2015 plan update and to learn more.

TAHOE CITY, Calif. — Severe natural occurrences such as heavy snow, drought, wildfire and earthquakes are among the potential disasters that could impact Lake Tahoe and the greater Placer County area.

This is according to the 2015 Placer County Local Hazard Mitigation Plan Update, which is being finalized for approval later this year by the Federal Emergency Management Agency.

The plan identifies specific hazards and lists potential mitigation measures in an effort to reduce or eliminate future losses of life and property if a disaster should strike across Placer County, which includes portions of the North and West shores of Lake Tahoe, among other unincorporated areas locally.

"Historically, the emergency management programs focused on preparedness, response and recovery, and mitigation really hadn't been emphasized," said Jeanine Foster, co-owner of Foster Morrison Consulting, the firm hired to prepare the county's 2015 update. " ... (But) the cost of responding and recovering from disasters is just skyrocketing."

Annually, taxpayers nationwide pay billions of dollars to help communities, organizations, businesses and individuals recover from disaster, according to Placer County.

In an effort to reduce that expense, the Disaster Mitigation Act of 2000 requires local jurisdictions to have a FEMA-approved Local Hazard Mitigation Plan in order to remain qualified for certain federal funding assistance.

"The intent behind mitigation is to break the disaster cycle," Foster said at a meeting in Tahoe City last Thursday designed to gain public feedback on the plan. "Historically, you build by water, a storm or a flood comes in and takes you out, and people put the house back the same way. Over time, it's cost the federal government, state government and individuals more and more money putting these things back the same way, so mitigation is what you can do to build better,

to become more disaster resistant. (This way) you're not throwing money after the same thing over and over."

Some mitigation actions mentioned in the 2015 county plan include drought public education and outreach, elevating structures in floodplains, seismic upgrades and creating fuel breaks in the event of wildfires.

"No one is on the hook to implement anything," Foster explained after Thursday's meeting. "It really depends on priorities and funding, but if (a) project isn't in this plan, FEMA will not fund it. ... (Therefore) if you don't include a project, you're kind of at risk."

Beyond helping to ensure eligibility for mitigation funds, the creation and approval of a Local Hazard Mitigation Plan allows jurisdictions to remain eligible for pre- and post- disaster funds from FEMA.

With last week's Tahoe City meeting and duplicate Auburn meeting serving as the final public meetings in the update's approval process, the county's draft plan will be submitted to the California Governor's Office of Emergency Services next month for review and input before being sent to FEMA for provisional approval, Foster said.

The governing board for each jurisdiction that participated in the plan — in this case, 22, including the Truckee and North Tahoe fire protection districts, Tahoe City and North Tahoe public utility districts, and the Tahoe Truckee Unified School District, among others — needs to adopt the plan before it's officially approved.

The cost to prepare the plan update is $200,000, an expense covered entirely by a FEMA grant, said Young "Rod" Rodriguez, emergency services coordinator for Placer County.

This plan marks the third Placer County Local Hazard Mitigation Plan, with the original one created in 2005, followed by an update in 2010.

"(I hope) it can reduce the risk, reduce the vulnerability of the communities, but really help the decision makers in future land use planning and provide a guide with consideration of the hazard constraints," Foster said. "Certainly public safety is one of the most important (aspects), but beyond that, it helps provide that guidance for those future land use decisions to make you more resilient as a community."

For further information on this project, contact Rodriguez at 530-886-4600 or YRodrigu@placer.ca.gov.

A.3 Placer County Step 3: Coordinate

This planning step credits incorporating other plans and other agencies' efforts into the floodplain management plan. Other agencies and organizations must be contacted to determine if they have studies, plans and information pertinent to the floodplain management plan, to determine if their programs or initiatives may affect the community's program, and to see if they could support the community's efforts. Coordination efforts with these other agencies are documented in Table A-3 below.

Table A-3 Agencies Coordinated With Through the Plan Update Process and Methods of Coordination

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
Office of Environmental Health Hazard Assessment (OEHHA)/Barbara Washburn	Placer County Stormwater Citizens Advisory Committee	X			Invited LHMP participation and review of plan documents
North State Building Industry Association/John Costa	Placer County Stormwater Citizens Advisory Committee	X			Invited LHMP participation and review of plan documents
Auburn Resource Conservation District/Elisa Noble	Auburn Resource Conservation District Placer County Fire Safe Alliance Meeting	X		X	Invited LHMP participation and review of plan documents. Coordinated with Sierra Nevada Conservancy for Watershed Assessment data
Auburn Resource Conservation District/Mark White	Auburn Resource Conservation District	X			Invited LHMP participation and review of plan documents
Sierra Nevada Conservancy/Mandy Vance	Auburn Resource Conservation District	X			Invited LHMP participation and review of plan documents
Sierra Nevada Conservancy/Autumn Hutchings	Auburn Resource Conservation District	X			Invited LHMP participation and review of plan documents
Placer County Architects, Geologists, Engineers & Surveyors/Drew Kennedy	Placer County Architects, Geologists, Engineers & Surveyors	X			Invited LHMP participation and review of plan documents

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
Central Valley Water Board/Elizabeth Lee	Central Valley Water Board	X			Invited LHMP participation and review of plan documents
Dry Creek Conservancy and American Basin Council of Watersheds/Gregg Bates	Dry Creek Conservancy and American Basin Council of Watersheds	X			Invited LHMP participation and review of plan documents
Tahoe Resource Conservation District/ Andrea Parra	Tahoe Resource Conservation District	X			Invited LHMP participation and review of plan documents
Tahoe Resource Conservation District/ Kim Boyd	Tahoe Resource Conservation District	X			Invited LHMP participation and review of plan documents
Contractor's Association of Truckee Tahoe/Pat Davison	Contractor's Association of Truckee Tahoe	X			Invited LHMP participation and review of plan documents
Local Government Affairs Committee /Committee Members	Local Government Affairs Committee Meeting			X	Invited LHMP participation and review of plan documents
Lahontan Water Board/Lauri Kemper	Lahontan Water Board	X			Invited LHMP participation and review of plan documents
Lahontan Water Board/Doug Smith	Lahontan Water Board	X			Invited LHMP participation and review of plan documents
Town of Truckee – PC/Truckee Stormwater Citizens Advisory Committee/Jessica Thompson	Town of Truckee – PC/Truckee Stormwater Citizens Advisory Committee	X			Invited LHMP participation and review of plan documents
California Highway Patrol	California Highway Patrol	X	X		Invited LHMP participation and review of plan documents. Requested data for haz mat routes

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
California Dept. of Water Resources/ Rual Barba	California Dept. of Water Resources	X			Informed him of the LHMP Update process and requested NFIP data for all communities
California Office of Emergency Services/ Wendy Boemecke	California Office of Emergency Services	X		X	Informed her of the LHMP Update process and requested updated Dam data. Inquired if there were any specifics Cal OES would like to see addressed in this update
California Office of Emergency Services/ Ricardo Castillo	California Office of Emergency Services	X		X	Inquired if there were any specifics Cal OES would like to see addressed in this update
National Weather Service-WFO Sacramento/Michelle Mead	National Weather Service-WFO Sacramento	X			Invited LHMP participation and review of plan documents. Requested data for post burn mapping and other NOAA data
City of Roseville/Carl Walker	City of Roseville	X	X	X	Invited LHMP participation and review of plan documents
Valley Vision/ Mike Holmes	Valley Vision Business Resiliency Initiative	X		X	Invited LHMP participation and review of plan documents
Valley Vision/ Meg Arnold	Valley Vision Business Resiliency Initiative	X		X	Invited LHMP participation and review of plan documents
PG&E/ Janet Walther	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
PG&E/ Mark Nunnelley	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
PG&E/ Tyler Covich	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
PG&E/ Chris Brewster	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
California Highway Patrol/David Jenkins	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
Kinder Morgan/ Doug Hubbard	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
American Red Cross/ Heath Walkelee	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
City of Roseville Fire Department/ Jason Rizzl	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
City of Roseville Fire Department/ Greg James	Placer County Preseason Flood Coordination Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/George Morris	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents.
Foresthill/Iowa Hill Fire Safe Council/Gary Kirk	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Union Pacific RR/Marybeth Farley	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Sierra Nevada Conservancy/Chris Dallas	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
PG&E/Rand Smith	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/Scott Lindgren	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/Mike Rufenacht	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/John Hotchkiss	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/Steve Garcia	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Cal Fire/Elsa Hucks	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
US Forest Service/Victor Lyon	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
US Forest Service/Jesse Knox	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Greater Lincoln Fire Safe Council/Warren Bostick	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Bureau of Reclamation/John Hutchings	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Bureau of Land Management/Jerry Martinez	Placer County Fire Safe Alliance Meeting			X	Invited LHMP participation and review of plan documents
Placer County Fire Safe Council/Michelle Hamil	Placer County Fire Safe Alliance Meeting			X	Placer County Fire Safe Alliance Meeting

Agency Name/ Contact	Mechanism	Contacted via Mail/email	Contacted via Phone	Contacted Face-to Face	Topics Discussed
Placer County Fire Safe Council/Karen Calvert	Placer County Fire Safe Alliance Meeting			X	Placer County Fire Safe Alliance Meeting

INSERT PDF OF DOCUMENTS

A.4 Meeting Handouts

Early Public Meeting Handouts

Placer County 2015 Hazards

- Agricultural Hazards
- Avalanche
- Dam Failure
- Drought and Water Shortage
- Earthquake
- Flood: 100/500 year
- Flood: Localized Stormwater Flooding
- Levee Failure
- Landslides and Debris Flows
- Seiche
- Severe Weather: Extreme Heat
- Severe Weather: Freeze and Snow
- Severe Weather: Fog
- Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind)
- Severe Weather: Tornadoes
- Volcano
- Wildfire

Placer County Historic Hazard Worksheet (Worksheet #2)

Name of Department/Jurisdiction _____

Please fill out one sheet for each significant hazard event with as much detail as possible. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Opinion on likelihood of occurring again	
Source of information	
Comments	

	Please return worksheets by mail, email, or fax to: Jeanine Foster, Foster Morrison 5628 West Long Place Littleton, CO 80123 fax: (720) 893-0863 email: jeanine.foster@fostermorrison.com
Prepared by:	
Phone:	
Email:	
Date:	

HMPC #1 - Kickoff Meeting Handouts

Placer County Hazard Identification and Profiles – 2015

Placer County 2010 Hazards

- Agricultural
- Avalanche
- Dam Failure
- Drought
- Earthquake
- Flood
- Human Health Hazards
  - ✓ Epidemic/Pandemic
  - ✓ West Nile Virus
- Landslide
- Severe Weather
  - ✓ Extreme Temperatures
  - ✓ Fog
  - ✓ Heavy Rain/Thunderstorm/Hail/Lightning/Wind
  - ✓ Snow
  - ✓ Tornado
- Seiche (Lake Tsunami)
- Soil Hazards
  - ✓ Erosion
  - ✓ Expansive Soils
- Volcano
- Wildfire

Placer County Historic Hazard Occurrences

Table A-4 NCDC Severe Weather Events for Placer County 1950-12/31/2014

Event Type	Number of Events	Deaths	Deaths (indirect	Injuries	Injuries (indirect)	Property Damage	Crop Damage
Astronomical Low Tide	1	0	0	0	0	$0	$0
Avalanche	8	6	0	5	0	$0	$0
Blizzard	2	0	0	0	0	$30,000	$0
Cold/Wind Chill	11	0	0	0	0	$0	$0
Debris Flows	4	0	0	0	0	$2,000	$0
Dense Fog	11	6	2	38	0	$2,320,000	$0
Dense Smoke	2	0	0	0	0	$0	$0
Drought	1	0	0	0	0	$0	$0
Excessive Heat	1	0	0	0	0	$0	$0
Extreme Cold/Wind Chill	1	0	0	0	0	$0	$0
Flash Flood	3	0	0	0	0	$208,000	$0
Flood	13	2	0	1	0	$6,370,000	$7,800,000
Frost/Freeze	5	0	0	0	0	$200,000	$5,000,000
Hail	6	0	0	0	0	$1,000	$0
Heat	26	0	1	18	1	$0	$0
Heavy Rain	10	2	0	0	0	$10,000	$0
Heavy Snow	215	1	1	6	1	$550,000	$0
High Surf	1	0	0	0	0	$0	$0
High Wind	61	1	0	2	0	$12,681,000	$48,000
Strong Wind	18	0	2	0	1	$3,176,600	$0
Thunderstorm Wind	3	0	0	0	0	$0	$0
Tornado	5	0	0	0	0	$252,530	$0
Wildfire	14	0	0	27	12	$500,000,000	$0
Winter Storm	126	3	1	5	1	$515,000	$0
Winter Weather	38	3	0	0	0	$10,000	$0
Total	**586**	**24**	**7**	**102**	**16**	**$526,326,130**	**$12,848,000**

Source: NCDC

Table A-5 Disaster Declaration History 1950-2014

Hazard Type	Disaster Name	Disaster #	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Damage*
Flood	Floods	CDO 50-01	11/21/50	–	9	–	$32,183,000
Flood	Floods	DR-47	12/22/55	12/23/55	74	–	$200,000,000
Flood	Unseasonal and Heavy Rainfall	–	5/20/57 (cherry-producing)	–	2	0	$6,000,000
Flood	Storm & Flood Damage	CDO 58-03	2/26/58	–	–	–	–
Flood	Storm & Flood Damage	–	4/02/58	4/4/58	13	–	$24,000,000
Wildfire	1961 Widespread Fires	–	9/08/61	–	–	–	$5,696,813
Flood	1962 Flood and Rains	138	10/25/62	10/24/62	–	–	$4,000,000+
Flood	1963 Floods	–	2/14/64	–	–	–	–
Flood	1963 Flood and Rains	145	2/07/63	2/25/63	–	–	–
Flood	1964 Late Winter Storms	OEP 183-DR-CA	12/28/64	12/29/64	–	–	$213,149,000
Wildfire	1965 Fires	–	9/18/65	–	–	–	113,766 acres and 41 buildings destroyed
Flood	1969 Storms	OEP 253-DR-CA	1/28/69	1/26/69	47	161	$300,000,000
Freeze	1972 Freeze	–	4/17/72	–	–	–	$111,517,260
Flood	1973 Storms and Floods	–	2/08/73	–	–	–	$1,864,000
Fire	Southern Pacific Railroad Fires and Explosions	–	4/30/73	–	–	37	$2,925,000
Flood	1980 April Storms	80-01–80-25	4/1/1980	–	–	–	–
Winter Storms		DR-677	12/8/82-3/21/83	2/9/83	–	–	$523,617,032
Flood	1986 Storms	DR-758	2/20/86	2/18/86	13	67	$407,538,904

Hazard Type	Disaster Name	Disaster #	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Damage*
Wildfire	1997 Wildland Fires	N/A	9/03/87	N/A	3	76	$18,000,000
Flood	1995 Severe Winter Storms	DR-1044	1/10/95	1/13/95	11	–	$221,948,347
Flood	1995 Late Winter Storms	DR-1046	N/A	1/10/95	17	–	$132,040,111
Floods	January 1997 Floods	DR-1155	1/03/97	1/04/07	8	–	$194,352,509
Economic	Energy Emergency	GP-2001	1/1/01	N/A	–	–	–
Wildfire	Sierra Fire	FM-2463	–	9/19/02	–	–	$720,595
Wildfire	Stevens Fire	FM-2541	–	8/8/04	–	–	$3,469,004
Economic	Hurricane Katrina Evacuations: Economic	EM-3248	–	9/13/05	–	–	$763,576
Flood	2005/06 Winter Storms	DR-1628	1/03/06	2/03/06	–	–	$203,050,747
Flood	2006 June Storms	DR-1646	4/10/06	6/05/06	–	–	$45,219,721
Flood	2008 January Storms	GP 2008-01	1/5/2008	N/A	–	–	$2,570,876
Wildfire	Gladding Fire	FM 2786	–	9/1/2008	–	–	$3,22,824
Wildfire	Galleria Incident	GP-2010-12	10/22/2010	–	–	–	$478,119
Drought	California Drought	GP 2014-13	1/17/2014	–	–	–	–

Placer County 2015 LHMP Hazards

Table A-6 Hazards Comparison List

2010 Placer County Plan*	2013 State of California Plan Applicable Hazards	Proposed 2015 Hazards (Natural)
Agricultural	Agriculture Pests and Diseases	Agricultural Hazards
Avalanche	Avalanche	Avalanche
Dam Failure	Coastal Flooding, Erosion and Sea Level Rise	Dam Failure
Drought	Dam Failure	Drought and Water Shortage
Earthquake	Droughts and Water Shortage	Earthquake
Flood	Earthquake	Flood: 100/500 year
Human Health Hazards	Epidemic/Pandemic/Vector Borne Disease Hazards	Flood: Localized Stormwater Flooding
Epidemic/Pandemic	Extreme Heat	Levee Failure
West Nile Virus	Flood	Landslides and Debris Flows
Landslide	Freeze	Seiche
Severe Weather	Hazardous Materials Release/Oil Spills	Severe Weather: Extreme Heat
Extreme Temperatures	Landslide	Severe Weather: Freeze and Snow
Fog	Levee Failure	Severe Weather: Fog
Heavy Rain/Thunderstorm/ Hail/Lightning/Wind	Severe Weather and Storms	Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind)
Snow	Volcano	Severe Weather: Tornadoes
Tornado	Wildfire	Volcano
Seiche (Lake Tsunami)		Wildfire
Soil Hazards		
Erosion		
Expansive Soils		
Volcano		
Wildfire		

Table A-7 Placer County Hazard Identification Table (Blank)

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards				
Avalanche				
Dam Failure				
Drought and Water Shortage				
Earthquake				
Flood: 100/500 year				
Flood: Localized Stormwater Flooding				
Levee Failure				
Landslides and Debris Flows				
Seiche				
Severe Weather: Extreme Heat				
Severe Weather: Freeze and Snow				
Severe Weather: Fog				
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind)				
Severe Weather: Tornadoes				
Volcano				
Wildfire				

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Placer County Historic Hazard Worksheet (Worksheet #2)

Name of Department/Jurisdiction _____

Please fill out one sheet for each significant hazard event with as much detail as possible. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Opinion on likelihood of occurring again	
Source of information	
Comments	

	Please return worksheets by mail, email, or fax to: Jeanine Foster, Foster Morrison 5628 West Long Place Littleton, CO 80123 fax: (720) 893-0863 email: jeanine.foster@fostermorrison.com
Prepared by:	
Phone:	
Email:	
Date:	

Mitigation Strategy

Placer County 2010 Goals

- Goal 1: Prevent Future Hazard Related Losses of Life and Property
- Goal 2: Increase Public Awareness/Action of Vulnerability to Hazards
- Goal 3: Improve Community Emergency Services/Management Capability
- Goal 4: Implement and Complete Identified High Priority Projects Listed in the Plan
- Goal 5: Pursue Multi-Objective Opportunities "MOM" Whenever Possible
- Goal 6: Maintain FEMA Eligibility/Position Jurisdictions for Grant Funding

Placer County 2010 Actions

Table A-8 Placer County 2010 Actions Table

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
County Mitigation Actions				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Replacement of the Alpine Meadows Road Bridge over the Truckee River		X		
Inspection of Bridges Less than 20 Ft in Length				
Replacement of the Walerga Road Bridge over Dry Creek		X		
Replacement of Yankee Jims Road Bridge over the North Fork of the American River		X		
Generators for Sewer Pump Stations		X		
SCADA Systems				
Elevate Repetitive Loss Structures in 100-year Floodplain			X	Y
Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program				
Continue and Maintain Noxious Weed Eradication Program				
Placer County Noxious Vegetation Management in Land Conservatory				
Placer County Low Intensity Development Program				
Establish Additional Fire Safe Councils on the Western Slope				
Placer County Chipper Program Operational Funds				
Firewise Communities/USA Educational Outreach				
Establish the "Rural Lincoln Fire Safe Council"				
Hazardous Vegetation Abatement Program				
Shaded Fuel Break Establishment and Maintenance in Hidden Falls Regional Park				
Biomass Removal Projects				
Provide Fire Protection Water Source in Sheridan				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Develop a Community Wildfire Prevention Plan (CWPP) for West Placer County				
Maintenance on Shaded Fuel Breaks and Demonstration Fuel Breaks.				
Annual Defensible Space Inspections Program in the Unincorporated County				
Enhance Enforcement of County Building Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the Unincorporated County				
Ensure That All Homes In The Placer County Foothills Have PRC 4290 Compliant Address Signs				
Develop and fund an enforceable weed abatement program				
Annual Multi-Agency Wildland Fire Drill.				
Cooperative Fire Service Response Agreement for the Western Side of All Placer County Fire Agencies.				
City of Auburn				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents				
GIS Mapping of Flood Zones within the City.				
Lincoln Basin (Downtown) Drainage Infrastructure				
Creek and Stream Cleaning and Maintenance Program				
Implementation of Storm Water Treatment Plan				
Electric Street Diversion Project				
Old Town Auburn Storm Drain System				
American River Canyon Shaded Fuel Break				
Community Education on Wildfire (was Action #3 – Public Education of the Results of a Wildfire in a Community and What Can Be Done by Citizens in Developing Safeguards)				
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.				
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)				
City of Colfax				
Identify Un-Reinforced Masonry Buildings in the City				
Obtain Funding for a Residential Fuel Reduction Program (was Obtain Funding For A Residential Fire Protection Program in 2005 Plan)				
Evaluate the Need and Feasibility of Improving Fire Prevention for The Historic Business District				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
City of Lincoln				
Flood Warning System				
State Route 65: Auburn Ravine Bridge – Reconstruct Bridge				
State Route 193: Auburn Ravine Bridge – Additional 110' Span				
Lakeview Farms Regional Volumetric Mitigation Improvements – Phase 1				
Gladding Parkway, State Route 65, McCourtney Road Stream Restoration and Culvert Improvements.				
"O" Street Drainage Improvements.				
7th Street Drainage Improvements.				
Auburn Ravine at State Route 193 Bridge.				
Auburn Ravine at State Route 65 Bridge.				
Ingram Slough – Orchard Creek return channel				
Markham Ravine – Updated FEMA Analysis and Mapping.				
Markham Ravine Drainage Improvements – Union Pacific Railroad and State Route 65 crossings.				
Auburn Ravine Stream Restoration Projects (analysis and repairs).				
Markham Ravine Streambed Restoration Projects (analysis only).				
Coon Creek Streambed Restoration Projects (analysis only).				
Fire Prevention and Fuels Management Plan				
City of Rocklin				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents				
Open Space Fire Prevention & Vegetation Management Prescribed Grazing				
Town of Loomis				
Address signage for property addresses				
Delmar Avenue Headwall Reconstruction Project				
Creek Maintenance Secret Ravine & Antelope Creek				
Reconstruction of Brace Bridge at Secret Ravine				
Alpine Springs County Water District				
Mineral Springs Soil Bank Stabilization Project				
Alpine Meadows Consolidated Defensible Space Project				
Foresthill Fire Protection District				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County				
Assess And Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing And Maintenance Ordinance. Put Programs In Place With Homeowners Associations In CC&R's And Maintenance Contracts				
Todd Valley Shaded Fuel Break				
Foresthill Biomass Project				
Completion of Fuels Management Projects within Identified Areas of the Western Slope of Placer County				
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County				
Nevada Irrigation District				
Portable Generator Project				
Canal Culvert Replacement Program				
Reservoir Cleaning				
North Tahoe Fire Protection District				
FCC P-25 Interoperability Radio Systems				
District GIS Technology, Equipment, Database and Mapping Improvements				
Emergency Radio Transmitters and Information Systems				
Evacuation Shelter Improvements				
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements				
North Tahoe Fire Protection District Headquarters Station Relocation and North Tahoe Command Center Development				
Sieche Wave Warning Systems, Signs and Public Education				
Community Wildfire Protection Plan (CWPP) projects (was Completion of Fuels Management Projects on Various Parcels in the North Tahoe Fire Protection District, as Outlined in the North Tahoe Community Fire Protection Plan in 2005 plan)				
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education				
Hazardous Wood Roof Replacement Program				
Regional Water System Fire Protection Upgrades and Interoperability				
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Hydrant Risers, Replacements and Markers				
PCFCWCD/Placer County				
Squaw Creek Restoration & Drainage Enhancement Project		X		Y – (Move to County)
Elevate Remaining 95 Homes in the Dry Creek Watershed			X	Y – (Move to County)
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds.		X		Y
Update Hydrology and Hydraulic Models within the Critical Dry Creek and Cross Canal Watersheds.	X	X		Y (Dry Creek update complete, keep Cross Canal)
Implementation of Identified Bridge and Culvert Replacement Projects.		X		Y – (Move to County)
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities		X		Y
Placer County Water Agency				
Maintain and Enhance Canal Systems by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas				
Replace Wooden Flume Structures with Steel Structures				
De-Silt Reservoirs				
Placer Hills Fire Protection				
Annual Defensible Space Inspections Program for the Placer Hills Fire Protection District (PHFPD)				
Assess and Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements for Minor Lot Splits				
Squaw Valley Public Service District				
East Booster Emergency Power				
Easement Abatement/Maintenance of Emergency Access				
Develop a Community-Wide Emergency Notification System				
Water & Sewer System GPS Project				
SVPSD/Mutual Water Company Inter-tie Hazards				
Water Tank Earthquake Retrofit Project				
Tahoe City Public Utility District				
Seismic Stability Study and Retrofit				
Forest Fuel Reduction - Highlands				
Forest Fuel Reduction, Water, Sewer Pump & Lift Stations				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Tahoe Truckee Unified School District				
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.				
HVAC Control Upgrades				
Forest Thinning Around Lake Area Schools				
Structural Upgrades of Roofs at School Sites to Support Higher Snow Loads.				

For All 2010 Action for All Participating Jurisdictions:

Name of Action:

Progress to Date:

HMPC #2 - Risk Assessment Meeting Handouts

Placer County
2015 Local Hazard Mitigation Plan Update
Participating Jurisdiction: Vulnerability & Capability Worksheets

Name of Jurisdiction: _____

Hazard Risk, and Vulnerability Questions

Localized/Stormwater Flooding

1. Please describe the localized/stormwater flood issue specific to your jurisdiction in paragraph form. In addition, please complete a table similar to the below example detailing types and location of localized/stormwater flooding problems. If available, also attach a map of problem areas.

Table A-9 Localized Flooding Areas

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees

Road Name	Flooding	Pavement Deterioration	Washouts	High Water/ Creek Crossing	Landslides/ Mudslides	Debris	Downed Trees

Earthquake Vulnerability

1. Number of unreinforced masonry buildings. If available, please provide an inventory of URM buildings specific to your jurisdiction. Include any tables and/or maps. Is this a layer available in GIS?

Special Populations

1. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

Development Trends

1. Describe development trends and expected growth areas and how they relate to hazard areas and vulnerability concerns/issues. Please provide maps and maps and tables detailing areas targeted for future development within your jurisdiction.

2. By property type (residential, commercial, industrial, etc.) detail the numbers of structures and/or development areas built since the 2010 plan and provide details on whether any of the new development fails within any of the hazard areas (100-yr floodplain, wildfire areas, etc).

Hazard Mitigation Projects

1. By hazard, list any other past or ongoing mitigation projects or programs implemented by the community, designed to reduce disaster losses. Please provide a brief description and details on past mitigation projects.

2. For any responses requiring additional detail, please provide additional information below:

WORKSHEET #3: VULNERABILITY ASSESSMENT: TOTAL ASSETS

Below is a table to input district owned facilities. Please include the name, facility type, address, and replacement value. If the facility is in a specific hazard zone (flood, wildfire, earthquake, landslide, etc), please indicate that in the last column. (**This is ONLY for Districts and other participating jurisdictions; assets specific to the County and Incorporated Communities are obtained from County Assessor and GIS Data**).

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info

WORKSHEET #4: MITIGATION CAPABILITY ASSESSMENT

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.

Planning and Regulatory

The following planning and land management tools are typically used by local jurisdictions to implement hazard mitigation activities. Please indicate which of the following your jurisdiction has in place. If your jurisdiction does not have this capability or authority, please indicate in the comments column if a higher level of government has the authority.

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan		
Capital Improvements Plan		
Economic Development Plan		
Local Emergency Operations Plan		
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan/Program		
Engineering Studies for Streams		
Community Wildfire Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code		Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating:		Rating:
Site plan review requirements		
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance		
Subdivision ordinance		
Floodplain ordinance		

Natural hazard specific ordinance (stormwater, steep slope, wildfire)
Flood insurance rate maps
Elevation Certificates
Acquisition of land for open space and public recreation uses
Erosion or sediment control program
Other
How can these capabilities be expanded and improved to reduce risk?

Incorporation of Hazard Mitigation Plan into Other Plans

Since the creation of the 2010 Placer County Local Hazard Mitigation Plan, other plans have been created. This includes General Plans, CWPPs, EOPs, other fire plans, or any other planning process. Was the 2010 LHMP incorporated into or implemented through any of these other plans?

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your jurisdiction. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, please indicate so in the comments column.

Administration	**Y/N**	**Describe capability Is coordination effective?**
Planning Commission		
Mitigation Planning Committee		
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements		
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official		
Floodplain Administrator		
Emergency Manager		
Community Planner		
Civil Engineer		
GIS Coordinator		
Other		
Technical	**Y/N**	**Describe capability Has capability been used to assess/mitigate risk in the past?**
Warning systems/services (Reverse 911, outdoor warning signals)		
Hazard data and information		
Grant writing		
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Fiscal

Identify whether your jurisdiction has access to or is eligible to use the following financial resources for hazard mitigation

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding		
Authority to levy taxes for specific purposes		
Fees for water, sewer, gas, or electric services		
Impact fees for new development		
Storm water utility fee		
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities		
Community Development Block Grant		
Other federal funding programs		
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Education and Outreach

Identify education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.		
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)		
Natural disaster or safety related school programs		
StormReady certification		
Firewise Communities certification		
Public-private partnership initiatives addressing disaster-related issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Prepared by:	Date	Email	Phone

HMPC #3 & #4 - Mitigation Strategy Handouts

These are included in Appendix C.

2016 LHMP Update
Final HMPC Meetings: January 21 & 22, 2016
Auburn and Tahoe City

Summary of Significant Changes to Current Conditions, Planning Area Vulnerability, and Hazard Mitigation Priorities

This section provides a summary by hazard of significant changes in current conditions, planning area vulnerability, and any resulting modifications to the community's mitigation program priorities since the 2010 LHMP:

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Agricultural Hazards			X

- Recent drought conditions stressed crops making them more susceptible to insect infestation
- Reduced water supply resulted in land being left out of production reducing overall crop yields
- Noxious weeds are more drought tolerant – better able to compete for water over local crops
- Drought increased the tree mortality in the County further impacting the timber industry. Timber is the #2 Ag product in the County.
- In addition, there is a lack of infrastructure, such as timber mills, online to process product

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Avalanche	X		X

- The avalanche conditions in the County are dynamic and change from season to season and often from day to day resulting in every changing increases and decreases in vulnerability.
- There has been one recent (single home) development allowed through a zoning change in the Alpine Meadows area in an Avalanche area.
- Different avalanche mitigation techniques, propane-based Gaz-Ex, are being used in areas near highways that have been effective in reducing the risk. Cal Trans have been using this up on Highway 50 on Echo Summit. However, this technique requires permanent infrastructure to remain in place as opposed to techniques using mortars and hand charges. The advantage of this other technique is that it can be used remotely.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Dam Failure	X		X

- Folsom Dam Improvement projects are near completion that will allow releases at a lower flood stage so the Dam can hold more water for enhanced flood control. This decreases the overall vulnerability in the Folsom Dam inundation areas.
- Jurisdictional dams generally have no change in vulnerability as they are highly regulated. However, with more people moving into dam inundation areas, the vulnerability increases due to an increase in potentially affected population, but not due to an increased risk of dam failure.
- Non-jurisdictional dams pose the biggest risk and, over time with little regular maintenance and often located in remote areas with little security, result in an increase in vulnerability to Placer.
- Post fire conditions such as those experienced in the aftermath of the King Fire create excess debris and sediment issues which can affect the functionality of area dams. In fact, various water supply districts such as PCWA and NID have been incurring costs associated with monitoring and debris removal around area dams and waterways. Thus there is a potential increase in vulnerability with heavy storms in wildfire burn scar areas.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Drought and Water Shortage			X

- Since the 2010 planning process, current drought conditions, including water supply issues, have had a significant impact on the Placer County planning area and California. As a result the drought hazard has become a significant priority for mitigation planning.
- As previously mentioned, the drought has contributed to an increase in vulnerability of the County due to increase tree mortality issues and general increase in wildfire conditions.
- With water companies/agencies in Placer undertaking intertie projects, the issue of a lack of water supply to area residents is being effectively mitigated. However, on the eastern side, there are still potential issues with the drought for those companies not equipped with submersible pumps.
- Over the last few years, the drought has had a significant economic impact on recreation in the County. With Lake Tahoe and rivers running substantially lower, less people have been vacationing and undertaking water dependent recreational activities, such as boating, rafting, etc.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Earthquakes		X	

- Although the Eastern side of the County has been experiencing an increase in earthquake occurrences over the last several years, the planning team does not feel that the actual earthquake risk has increased.
- The primary factor that might change the earthquake vulnerability, is additional development and more people moving to the area.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Floods:100-/500-year		X	

- With the issuing of new FEMA flood maps (2010 DFRIMs), flood depths have been established in some areas and the regulatory Special Flood Hazard Area has changed. With these changes, flood

mitigation projects, including flood insurance promotion and continued participation in the NFIP's CRS program, is a priority.

- Although the FEMA mapped floodplains have changed based on new data, the risk and vulnerability of 100/500 year flooding events remain unchanged. Effective land use planning and requirements for development in identified floodplains have minimized additional exposure to this hazard in the County.
- Also, potentially compounded by the recent years of drought, the predictions for an upcoming El Nino winter is a renewed concern for the planning area, with the potential for large storms carrying significant precipitation that can result in increased flooding and associated damages throughout the planning area.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Floods: Localized Flooding		X	

- Increased development in unmapped flood hazard areas could result in a net increase in vulnerability should these areas experience increased stormwater/localized flooding. However, development requirements that require mitigation of stormwater runoff effectively mitigates this hazard.
- Climate change issues such as this El Nino season may result in more localized flooding as the climate warms and the wetter storms create more runoff.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Landslide and Debris Flows			X

- Over the last couple of years, with the severe drought, much of the vegetation along slopes areas is failing to thrive, thus there is a lack of vegetation to hold soil contributing to the landslide/mudslide potential.
- Post fire conditions, such as the King Fire, have left areas more susceptible to landslides and debris flows, especially with the heavy storms associated with the current El Nino winter.
- Even outside of post-fire areas, recent wet storms have increased the incidents of landslides and road closures.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Levee Failure		X	

- There are limited areas outside of Roseville that are affected by levees, thus this hazard has seen little change.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Sercihe (Lake Tsunami)		X	

- The vulnerability of this hazard is primarily affected by changes in development to lakefront properties. There has been little new development in these areas; most changes are the result of redevelopment which has not effectively changed the vulnerability of this hazard.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Extreme Heat		X	

- This low priority hazard in Placer County has seen little change over the last five years.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Freeze and Snow	X		

- Over the last five years of mild winters, there has been a notable decrease in vulnerability of Placer County to freeze and severe winter storms. However, with climate change factors and the current El Nino conditions, this may actually increase in the years ahead.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Fog and Freezing Fog		X	

- This low priority hazard has not changed over the last five years.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Heavy Rains and Storms	X		

- Over the last five years of mild winters, there has been a notable decrease in vulnerability of Placer County to heavy rains and storms. However, climate change and the current El Nino predictions bring renewed concern moving forward for heavy rains, storms and associated issues to the County.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Soil Bank Erosion			X

- Drought conditions have increase the occurrence of stream bank erosion, with soils drying out and becoming more friable, they tend to slough off the banks causing increased areas of erosion.
- As previously noted, erosion issues increase in post-fire burn areas.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Subsidence		X	

- Drought conditions have contributed to increased subsidence statewide. In Placer County, this is likely more of a western side issue; and actual impacts or changes in the County's vulnerability to subsidence is unknown, but are expected to be limited in the County from this low priority hazard.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Wildfire			X

- Compounded by current drought conditions, the wildfire hazard has substantially increased and is no longer just a seasonal issue. The wildfire season, including the potential for a catastrophic wildfire, is now a year around concern.
- The vulnerability of Placer County to increased occurrence of a devastating wildfire has increased as exacerbated by the recent drought, increases in tree mortality, and overall increase in wildfire conditions.
- The increased development in WUI areas within the County also contributes to an increase in vulnerability.
- Significant environmental and economic impacts in recent years such as the cancelling of future Ironman events due to the air pollution associated with wildfire activity is direct evidence of this increasing vulnerability and impact to the County.

2016 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Hazardous Materials Transport			X

- Also of recent concern to the Planning Area with recent changes in legislation is the Hazardous Transportation issue, which focuses on Oil by Rail transport within and through the County. As a result, this priority hazard was added to this Plan Update, as part of the Hazardous Materials Transportation Hazard, which incorporated data and analysis identified in the County's 2015 Oil by Rail Plan.
- However, with the price of oil continuing to drop and thus less oil being transported through the County, this may level out the potential impacts of this new hazard to the planning area.

Multi-hazard Considerations

- With new areas of development identified in both the Western and Eastern side of the County and within the incorporated communities, requirements for new development will consider various hazard constraints and mitigation measures to govern ultimate development and buildout of these areas. Changes in development that have occurred in hazard prone areas and have increased or decreased the vulnerability of the Planning Area, development planned or under the consideration of the participating jurisdictions, and other conditions that may affect the risks and vulnerabilities of the Planning Area such as climate change variables are documented and considered in this Plan Update.

Mitigation Action Worksheet

Jurisdiction:	
Mitigation Action/Project Title:	
Hazards Addressed:	
Issue/Background:	
Other Alternatives:	
Existing Planning Mechanism(s) through which Action Will Be Implemented:	
Responsible Office/Partners:	
Cost Estimate:	
Benefits (Losses Avoided):	
Potential Funding:	
Timeline:	
Project Priority:	

Worksheet completed by:	
Name and Title:	
Phone:	

PLACER COUNTY LHMP UPDATE 2016
FINAL PUBLIC MEETINGS

Participating Jurisdictions

- Placer County*
- City of Auburn*
- City of Colfax*
- Town of Loomis*
- City of Lincoln*
- City of Rocklin*
- Alpine Springs County Water District*
- Alta Fire Protection District
- Foresthill Fire Protection District*
- Loomis Fire Protection District
- Nevada Irrigation District*
- Northstar Community Service District/Fire Department
- North Tahoe Fire Protection District*
- North Tahoe Public Utility District
- Placer County Flood Control & Water Conservation District*
- Placer County Water Agency*
- Placer Hills Fire Protection District*
- South Placer Fire Protection District
- Squaw Valley Community Services District*
- Tahoe City Public Utilities District*
- Tahoe-Truckee Unified School District*
- Truckee Fire Protection District

* Participated in 2010 Plan

Hazards List

- Agricultural Hazards*
- Avalanche
- Dam Failure*
- Drought & Water shortage*
- Earthquakes*
- Floods: 100/500 year*
- Floods: Localized Stormwater Flood*
- Landslide and Debris Flows
- Levee Failure
- Seiche (Lake Tsunami)*
- Severe Weather: Extreme Heat*
- Severe Weather: Freeze and Snow*
- Severe Weather: Fog and Freezing Fog
- Severe Weather: Heavy rains and Storms (Thunderstorms/hail, lightning, wind, tornadoes)*
- Soil Bank Erosion
- Subsidence
- Wildfire*
- Hazardous Materials Transport*

*Priority Hazards – County

Mitigation Strategy: Goals

Goal 1: Minimize risk and vulnerability of Placer County to the impacts of natural hazards and protect lives and reduce damages and losses to property, economy, public health and safety, and the environment.

- Minimize economic and resource impacts and promote long-term viability and sustainability of County resources
- Minimize impacts to both existing and future development from all hazards (through well-planned communities)
- Minimize impacts to natural and cultural resources
- Minimize impacts from climate change
- Minimize impacts to watersheds/Promote watershed health
- Prevent and reduce wildland fire risk and related losses
- Prevent and reduce flood risk and related damages, with a focus on repetitive loss structures and infrastructure

Goal 2: Provide protection for critical facilities, infrastructure, utilities and services from hazard impacts.

- Provide protection for critical infrastructure from the wildland fires, floods, and severe storms/weather (e.g., repeaters, cell towers, waters tanks, utilities)
- Improve infrastructure/system reliability for critical lifeline utilities, including stormwater systems, roadways (evacuation routes, emergency services and supplies); rail lines, and pipelines.
- Minimize risk of loss of life and injury to At-risk Populations

Goal 3: Improve public awareness, education, and preparedness for all hazards.

- Enhance public outreach, education, and preparedness program to include all hazards of concern (e.g. fire restrictions, water conservation measures, hazardous vegetation, air and water quality issues)
- Increase public knowledge of the risk and vulnerability to identified hazards and their recommended responses to disaster events to reduce losses
- Educate general public on evacuation planning and sheltering options for all hazard types and to encompass all groups (e.g., residents, visitors, second homeowners, vulnerable populations, animals)
- Increase community awareness and participation in hazard mitigation activities to include defensible space, hazardous vegetation abatement projects, and forest management projects and practices to reduce flood risk on private property
- Utilize multiple public outreach avenues such as schools, new technologies, and social media
- Coordination with other regional jurisdictions to facilitate (consistent/coordinated) public information function prior to, during and after an event (e.g., facebook, twitter, everbridge, web, tv, radio)

Goal 4: Increase communities' capabilities to mitigate losses and to be prepared for, respond to, and recover from a disaster event.

- Continued enhancements to Emergency Services capabilities integrating new technologies to reduce losses and save lives

- Improve interagency (local, state, federal) emergency coordination, planning, training, exercising, and communication to ensure effective community preparedness, response and recovery
- Improve interagency coordination with respect to implementation of mitigation activities such as fuels reduction and other multi-jurisdictional wildland fire projects
- Enhance the use of shared resources/Develop a strong mutual aid support system
- Maintain current service levels/provide for enhanced service levels
- Increase first responders awareness of vulnerable populations and other priority needs during a hazard event;(use of technology to pre-identify and communicate)
- Utilize lessons learned (debriefing) to improve response capabilities
- Promote efficient recovery from incidents to minimize impacts to lives, environment, and economy

Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding.

- Continued compliance with the NFIP/enhancement of floodplain management program through participation in the NFIP's Community Rating System (CRS) where feasible.

Mitigation Strategy: Mitigation Actions

Table A-10 Placer County Planning Area Mitigation Actions

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Placer County						
Multi-Hazard Actions						
Trail System Way Finding and Directional Signage	Placer County	New action	X	X		Emergency Services
Disaster Debris Management Plan	Placer County	New action	X	X		Prevention Emergency Services,
Drought Actions						
Retrofit of High Water Use Landscape & Irrigation	Placer County	New action	X	X		Property Protection Natural Resource Protection
Drought Public Education and Outreach	Placer County	New action	X	X		Public Information
Erosion Actions						
Bear Creek Bank Restoration	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Lake Tahoe Basin Environmental Improvement Program (EIP)	Placer County	New action	X	X	X	Prevention Natural Resource Protection
Earthquake Actions						
Fire Station Seismic Upgrade	Placer County	New action	X	X		Emergency Services Property Protection
Dewitt Demolition	Placer County	New action	X	X		Prevention Property Protection
Health Care Facility Seismic Resiliency	Placer County	New action	X	X		Emergency Services Property Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Flood Actions						
Community Rating System (CRS) Maintain and Enhance	Placer County	New action	X	X	X	Prevention Public Information
Stream Chanel Clearing – Western Placer County	Placer County	New action	X	X	X	Property Protection Natural Resource Protection
Van Norden Dam Lowering and Meadow Restoration	Placer County	New action	X	X	X	Structural Natural Resource Protection
Miner's Ravine Sewer Pipeline Repair	Placer County	New action	X	X		Prevention Property Protection, Natural Resource Protection Structural
Sewer System Management Plan Updates	Placer County	New action	X	X	X	Prevention
Stormwater Drainage Improvements	Placer County	New action	X	X	X	Prevention Property Protection, Natural Resource Protection Structural
Bridge and Culvert replacement and drainage improvements	Placer County	New action	X	X	X	Property Protection Structural
Elevate Remaining 95 Homes in the Dry Creek Watershed	Placer County	2010 action	X	X	X	Property Protection
Elevate Repetitive Loss Structures in 100-year Floodplain	Placer County	2010 action	X	X	X	Property Protection
Urban Level of Flood Protection Mapping	Placer County	New action	X	X	X	Prevention Public Information
Hazardous Material Actions						
Natural Hazard Minimization Evaluation focusing on top 5 facilities in Placer County producing large quantities of hazardous waste/storage of such hazardous materials	Placer County	New action	X	X		Prevention

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Wildfire Actions						
Large Strategic Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Defensible Space Programs	Placer County	2010 action	X	X		Prevention Property Protection
Project that focus on Open Space/Defensible Space	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
Fuel Breaks in the Wildland Urban Interface (WUI)	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
Public Education	Placer County	New action	X	X		Public Information
Vegetation Management – Ongoing Maintenance of Fuel Breaks	Placer County	2010 action	X	X		Prevention Property Protection Natural Resource Protection
Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection Public Information
North Fork American River Fuel Break	Placer County	New action	X	X		Prevention Property Protection Natural Resource Protection
City of Auburn						
Lincoln Basin (Downtown) Drainage Infrastructure	City of Auburn	2010 Action	X	X	X	Property Protection Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Creek and Stream Cleaning and Maintenance Program	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
Implementation of Storm Water Treatment Plan	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
Electric Street Diversion Project	City of Auburn	2010 Action	X	X	X	Property Protection Structural
Old Town Auburn Storm Drain System	City of Auburn	2010 Action	X	X	X	Prevention Property Protection Natural Resource Protection
American River Canyon Shaded Fuel Break	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Community Education on Wildfire	City of Auburn	2010 Action	X	X		Public Information
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.	City of Auburn	2010 Action	X	X		Prevention Property Protection Public Information
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)	City of Auburn	2010 Action	X	X		Prevention Property Protection Natural Resource Protection Public Information
City of Colfax						

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
City of Lincoln						
State Route 65: Auburn Ravine Bridge – Reconstruct Bridge	City of Lincoln	2010 Action	X	X		Structural
State Route 193: Auburn Ravine Bridge – Additional 110' Span	City of Lincoln	2010 Action	X	X		Structural
Lakeview Farms Regional Volumetric Mitigation Facility	City of Lincoln	2010 Action	X	X		Property Protection Structural
Gladding Parkway, State Route 65, McCourtney Road – Stream Restoration And Culvert Improvement	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
"O" Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
7th Street Drainage Improvements	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural
Auburn Ravine at State Route 193 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Auburn Ravine at State Route 65 Bridge	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Ingram Slough – Orchard Creek Return Channel	City of Lincoln	2010 Action	X	X	X	Property Protection Structural
Markham Ravine – Updated FEMA Analysis And Mapping	City of Lincoln	2010 Action	X	X	X	Prevention Public Information
Markham Ravine Drainage Improvements – Union Pacific Railroad & State Route 65 Crossings	City of Lincoln	2010 Action	X	X	X	Property Protection Natural Resource Protection Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Auburn Ravine Stream Restoration Projects (Analysis and Repairs)	City of Lincoln	2010 Action	X	X	X	Natural Resource Protection
Markham Ravine Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Coon Creek Streambed Restoration Projects (Analysis Only)	City of Lincoln	2010 Action	X	X	X	Prevention Natural Resource Protection
Fire Prevention and Fuels Management Plan	City of Lincoln	2010 Action	X	X		Prevention
City of Rocklin						
Open Space Fire Prevention & Vegetation Management Prescribed Grazing	City of Rocklin	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
GIS Based Mapping of Pertinent Information that can be used by All Agencies in the Development of Plans and During Emergency Incidents	City of Rocklin	2010 Action	X	X	X	Prevention Emergency Services Public Information
Federal Emergency Management Agency (FEMA) Floodplain/Community Rating System (CRS)	City of Rocklin	New action	X	X	X	Prevention Public Information
Town of Loomis						
Local Bridges Evaluation Program	Town of Loomis	New Action	X	X		Prevention Emergency Services
Address signage for property addresses	Town of Loomis	2010 Action	X	X		Emergency Services
Delmar Avenue Headwall Reconstruction Project	Town of Loomis	2010 Action	X	X	X	Property Protection Structural
Creek Maintenance Secret Ravine & Antelope Creek	Town of Loomis	2010 Action	X	X	X	Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Reconstruction of Brace Bridge at Secret Ravine	Town of Loomis	2010 Action	X	X	X	Structural
Raise Flood-Prone Houses Along Loomis Creeks	Town of Loomis	2010 Action	X	X	X	Property Protection
Alta Fire Protection District						
Apparatus Water Fill & Drafting Location Improvements	AFPD	New Action	X	X		Emergency Services Property Protection
Evacuation / Reunification Center Improvements	AFPD	New Action	X	X		Emergency Services Structural
Natural Systems Protection / Education and Awareness Programs and Community Fuel Breaks	AFPD	New Action	X	X		Emergency Services Property Protection Natural Resource Protection Public Information
Natural Systems Protection / Education and Awareness Programs	AFPD	New Action	X	X		Emergency Services Natural Resource Protection Public Information
Emergency Communications and Information System Improvements.	AFPD	New Action	X	X		Emergency Services
Alta Fire Protection District CERT Team	AFPD	New Action	X	X		Emergency Services
Reflective Addressing	AFPD	New Action	X	X		Emergency Services Property Protection
Alpine Springs County Water District						
Mineral Springs Soil Bank Stabilization Project	ASCWD	2010 Action	X	X	X	Property Protection Natural Resource Protection
Alpine Meadows Consolidated Defensible Space Continuation Project	ASCWD	2010 Action	X	X		Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Emergency Electrical Generator Replacement Project	ASCWD	New Action	X	X		Emergency Services
Water Storage Tank Replacement Project	ASCWD	New Action	X	X		Structural
Foresthills Fire Protection District						
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Foresthill Biomass Project	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Assess and Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing and Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's and Maintenance Contracts.	FFPD	2010 Action	X	X		Prevention Public Information
Todd Valley Shaded Fuel Break	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.	FFPD	2010 Action	X	X		Prevention Property Protection Natural Resource Protection
Loomis Fire Protection District						
Identify and inspect ALL bridges in LFPD	Loomis FPD	New Action	X	X		Emergency Services
Vegetation Management for Open Areas	Loomis FPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	Loomis FPD	New Action	X	X		Emergency Services

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Adopt 2016 CFC, CBC, and local standards	Loomis FPD	New Action	X	X		Prevention
Nevada Irrigation District						
Combie Phase 1 Replacement	NID	New Action	X	X		Emergency Services Structural
Centennial Water Storage and Power Supply Project	NID	New Action	X	X		Emergency Services Structural
Water Service Auburn Valley CSD	NID	New Action	X	X		Prevention Emergency Services
NID Headquarters Office Generator	NID	New Action	X	X		Emergency Services
Reservoir Cleaning	NID	2010 Action	X	X		Property Protection Natural Resource Protection
Canal Culvert Replacement Program	NID	2010 Action	X	X		Property Protection Structural
Orr Creek Diversion	NID	New Action	X	X		Property Protection Structural
Northstar Community Services District						
Martis Landing Drainage Swales and Catch Basins	North Star CSD	New Action	X	X	X	Property Protection Natural Resource Protection
Continue Easement Access Road Water Bar Maintenance and Replacement Program	North Star CSD	New Action	X	X		Emergency Services Structural
Fuels Reduction @ Sawmill Reservoir	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Fuels Reduction Program	North Star CSD	New Action	X	X		Prevention Property Protection Natural Resource Protection

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Storm Water Drainage Inlet Maintenance	North Star CSD	New Action	X	X	X	Prevention Property Protection Natural Resource Protection
Siphon Line	North Star CSD	New Action	X	X		Natural Resource Protection Structural
Provide Power from Mobile Generator	North Star CSD	New Action	X	X		Emergency Services
Green Waste Recycling Program	North Star CSD	New Action	X	X		Prevention Public Information
Enhance our current Defensible Space Program by seeking funding to hire a part-time employee to assist the Fire Prevention department in running this program	North Star CSD	New Action	X	X		Property Protection Public Information
District Water Conservation Program	North Star CSD	New Action	X	X		Prevention Property Protection Public Information
North Tahoe Fire Protection District						
FCC P-25 Interoperability Radio Systems	NTFPD	2010 Action	X	X		Emergency Services
District GIS Technology, Equipment, Database and Mapping Improvements	NTFPD	2010 Action	X	X	X	Emergency Service
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements	NTFPD	2010 Action	X	X	X	Emergency Services Structural
Seiche Wave Warning Systems, Signs and Public Education	NTFPD	2010 Action	X	X	X	Emergency Services Public Information
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education	NTFPD	2010 Action	X	X		Property Protection Public Information
Hazardous Wood Roof Replacement Program	NTFPD	2010 Action	X	X		Property Protection Public Information

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Regional Water System Fire Protection Upgrades and Interoperability	NTFPD	2010 Action	X	X		Emergency Services Property Protection
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment	NTFPD	2010 Action	X	X		Prevention Emergency Services Property Protection
Hydrant Risers, Replacements and Markers	NTFPD	2010 Action	X	X		Emergency Services Property Protection
North Tahoe Public Utility District						
Update SCADA Equipment and Telecommunications Infrastructure	NTPUD	New Action	X	X	X	Emergency Services
IT and Telecommunications Improvements for Disaster Preparedness	NTPUD	New Action	X	X	X	Emergency Services
Update Emergency Response Plan	NTPUD	New Action	X	X	X	Prevention Emergency Services
Backup Generator Installation at Critical Facilities	NTPUD	New Action	X	X	X	Emergency Services
Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park	NTPUD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Kingswood West Subdivision Emergency Evacuation Access	NTPUD	New Action	X	X		Emergency Services
North Tahoe Regional Park Road Improvements for Emergency Access	NTPUD	New Action	X	X		Emergency Services
Seismic Study and Retrofit of Critical Infrastructure	NTPUD	New Action	X	X		Emergency Services Structural
Sewer Main Replacements in Shorezone of Lake Tahoe	NTPUD	New Action	X	X		Property Protection Structural
Water Booster Pump Station Rehabilitation/Replacement	NTPUD	New Action	X	X		Emergency Services Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Increased Storage Capacity for Dollar Cove Water System	NTPUD	New Action	X	X		Emergency Services Structural
Water System Interties	NTPUD	New Action	X	X		Emergency Services Structural
Placer County Flood Control District						
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds	PCFCWCD	2100 Action	X	X	X	Structural
Update Hydrology and Hydraulic Models within the Cross Canal Watershed	PCFCWCD	2010 Action	X	X	X	Prevention
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities	PCFCWCD	2010 Action	X	X	X	Emergency Services
FEMA CTP DFIRM Mapping Study	PCFCWCD	New Action	X	X	X	Prevention Public Information
Placer County Water Agency						
Enhance Canals by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas	PCWA	2010 Action	X	X		Emergency Services Structural
Replace Wooden Flume Structures	PCWA	2010 Action	X	X		Emergency Services Structural
De-Silt Reservoirs.	PCWA	2010 Action	X	X		Property Protection Structural
Hillside Slope Stabilization	PCWA	New Action	X	X		Natural Resource Protection Structural
LL Anderson Dam Spill Way Modification	PCWA	New Action	X	X	X	Structural
Water System Interties	PCWA	New Action	X	X		Emergency Services Structural
Vegetation Management and Brushing	PCWA	New Action	X	X		Natural Resource Protection
Placer Hills Fire Protection District						

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Assess And Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements For Minor Lot Splits	Placer Hills Fire Protection District	2010 Action	X	X		Prevention
South Placer Fire Protection District						
Vegetation Management for Open Areas	SPFPD	New Action	X	X		Prevention Property Protection Natural Resource Protection
Address Signs for Rural Residences	SPFPD	New Action	X	X		Emergency Services
Adopt 2016 CFC, CBC, and local standards	SPFPD	New Action	X	X		Prevention
Squaw Valley Public Service District						
Easement Abatement/Maintenance of Emergency Access	SVPSD	2010 Action	X	X		Prevention Property Protection
Develop a Community-Wide Emergency Notification System Capable of Providing Information to Both Residents and Visitors by Utilizing Permanent, Roadside Changeable Message Boards and a Low-Power Radio Transmitter	SVPSD	2010 Action	X	X	X	Emergency Services Public Information
SVPSD/Mutual Water Company Inter-tie	SVPSD	2010 Action	X	X		Emergency Services Structural
Water Tank Earthquake Retrofit Project	SVPSD	2010 Action	X	X		Emergency Services Structural
Emergency Water Supply Interconnection to Martis Valley	SVPSD	New Action	X	X		Emergency Services Structural
Truckee River Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural
Squaw Creek Siphon	SVPSD	New Action	X	X		Natural Resource Protection Structural

Action Title	Lead Jurisdiction	New Action/ 2010 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Tahoe City Public Utility District						
Bunker Water Tank Replacement	TCPUD	New Action	X	X		Emergency Services Structural
West Lake Tahoe Regional Water Treatment Plant	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Main Emergency Water Supply	TCPUD	New Action	X	X		Emergency Services Structural
Tahoe Truckee Unified School District						
North Tahoe High School and Middle School, Tahoe Lake Elementary School Emergency Generators.	TTUSD	New Action	X	X		Emergency Services
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.	TTUSD	2010 Action	X	X	X	Emergency Services Public Information
HVAC Control Upgrades	TTUSD	2010 Action	X	X		Prevention Structural
Truckee Fire Protection District						
Community Wildfire Protection Plan	TFPD	New Action	X	X		Prevention Public Information
Severe Winter Weather and Propane Issues Mainly in Serene Lakes	TFPD	New Action	X	X		Property Protection

LOCAL HAZARD MITIGATION PLAN (LHMP) UPDATE - CONTACT LOG SUMMARY

Contact Name	Date of Contact	Comments
Placer County Stormwater Citizens Advisory Committee	9/10/2015 9/10/2015 9/15/2015	All members were sent an e-mail along with a description of the program describing the process and inviting members to join steering committee Kevin Rick - no Ron Wood - no Scott Gable - interested and also have someone who also may be interested Dave Noel - interested and requested additional information
Auburn Resource Conservation District	9/10/2015 9/21/2015	Staff were sent an e-mail with a description of the program describing the process and inviting them to join steering committee Via e-mail received notice that Elisa would only be attending 9/23
Drew Kennedy, President Placer Architects, Geologists, Engineers & Surveyors (PAGES)	9/10/2015	Requested all members be sent the e-mail with a description of the program describing the process and inviting memebers to join steering committee
Elizabeth Lee Cenetral Valley Water Board	9/10/2015	Sent e-mail to Elizabeth requesting her participation in the program
Harvey Oslick	9/11/2015 9/17/2015	Sent e-mail to Harvey requesting his participation in the program Harvey will be attending
Gregg Bates Dry Creek Conservancy and American Basin Council of Watersheds	9/11/2015 9/15/2015	Sent e-mail to Gregg requesting his participation in the program Gregg unable to attend but will provide draft document review

Contact Name	Date of Contact	Comments
Andrea Parra and Kim Boyd Tahoe Resource Conservation District	9/10/2015	Sent e-mail to Andrea and Kim requesting their participation in the program
Pat Davison, Director Contractors Association of Truckee Tahoe (CATT)	9/10/2015 9/21/2015	Requested all members be sent the e-mail with a description of the program describing the process and inviting memebers to join steering committee Will let members at Local Government Affairs meeting know about these meetings
Lauri Kemper Lahontan Water Board	9/10/2015 9/14/2015 9/21/2015	Sent e-mail to Lauri requesting her or other Board member's participation in the program Lauri - interested in either herself or other Lahanton staff participating in meeting Lahontan dong strategic planning on climate change adaptation Brian Judge will attend meeting
Stefan Schuster CDM Smith	9/11/2015 9/14/2015 9/18/2015	Sent e-mail to Stefan requesting his participation in the program Stephan will not have time to attend however he will contact planner within his company who might be interested. Suzanne Wilkins will attend
Jessica Thompson, Town of Truckee Heads up Truckee-Tahoe Stormwater Citizens Advisory Committee	9/11/2015 9/21/2015 9/22/2015	Asked Jessica to send all members an e-mail along with a description of the program describing the process and inviting members to join steering committee Jessica back from vacation and forwarded e-mail list for distributioin Sent e-mail to member about meeting

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	**Date:**	9/10/15
Contact Name	Placer County Stormwater Citizens Advisory Committee		
Contact Organization			
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed

Sent e-mail to committee members

9/10 Ron Wood not able to participate in meetings

9/10 Kevin Rick teaching and not able to attend

9/10 Scott Gable interested and have someone else

9/15 Dave Noel will be attending Sent meeting notes from April for more information

Follow-up

By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 1:18 PM
To: Barbara Washburn (barbara.washburn@oehha.ca.gov); Bob Costa; Brad Brewer (bbrewer@sageengineers.com); Dave Noel (daven@blackburnconsulting.com); Harvey Oslick (hoslick@rbf.com); Jeffrey Moss (jeffrey@khmossco.com); Joel Joyce; John Costa (johnc@northstatebia.org); John Williams (jwilliams@ecourbandesigns.com); Joshua Huntsinger; Kevin Rick; Mary Keller; Ron Wood; Scott Gable
Subject: Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Dear Placer County Stormwater Citizens Advisory Committee;

Placer County is updating their Local Hazard Mitigation Plan (LHMP). The plan will assess the risk of natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds. Many of the topics relate to storm water quality (drought, water shortage, flood, landslides, debris flows, soil bank erosion, and the effect of severe weather). I have attached a brief summary of the LHMP for your review.

Stormwater Quality is looking for members of the public to participate on the Steering Committee. This is a short term commitment of two mornings (September 22 & 23 9-12 am) and one-two hour meeting in early December to discuss the draft document (in Auburn). Please let me know if you have questions or are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Candace Rousselet

From: Ron Wood <rwood@rfeengineering.com>
Sent: Thursday, September 10, 2015 4:00 PM
To: Candace Rousselet
Subject: RE: Request for Public Steering Committee Members

Hi Candace,

Thank you for asking. I would like being a part of this but unfortunately the timing won't work. I leave on the 25th for 2.5 weeks so I'm going to be very busy on these days getting my ducks in a row before taking off.

Please keep me in mind for future opportunities to serve.

Ron Wood, PE, QSD
RFE Engineering, Inc.
2260 Douglas Boulevard, Suite 160
Rosveille, CA 95661
Tel: 916-772-7800
Fax: 916-772-7804
www.rfeengineering.com

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 1:18 PM
To: Barbara Washburn (barbara.washburn@oehha.ca.gov) <barbara.washburn@oehha.ca.gov>; Bob Costa <BCosta@placer.ca.gov>; Brad Brewer (bbrewer@sageengineers.com) <bbrewer@sageengineers.com>; Dave Noel (daven@blackburnconsulting.com) <daven@blackburnconsulting.com>; Harvey Oslick (hoslick@rbf.com) <hoslick@rbf.com>; Jeffrey Moss (jeffrey@khmossco.com) <jeffrey@khmossco.com>; Joel Joyce <JJoyce@placer.ca.gov>; John Costa (johnc@northstatebia.org) <johnc@northstatebia.org>; John Williams (jwilliams@ecourbandesigns.com) <jwilliams@ecourbandesigns.com>; Joshua Huntsinger <JHuntsin@placer.ca.gov>; Kevin Rick <krick@ackerman.k12.ca.us>; Mary Keller <MKeller@placer.ca.gov>; Ron Wood <rwood@rfeengineering.com>; Scott Gable <scottegable@gmail.com>
Subject: Request for Public Steering Committee Members

Dear Placer County Stormwater Citizens Advisory Committee;

Placer County is updating their Local Hazard Mitigation Plan (LHMP). The plan will assess the risk of natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds. Many of the topics relate to storm water quality (drought, water shortage, flood, landslides, debris flows, soil bank erosion, and the effect of severe weather). I have attached a brief summary of the LHMP for your review.

Stormwater Quality is looking for members of the public to participate on the Steering Committee. This is a short term commitment of two mornings (September 22 & 23 9-12 am) and one-two hour meeting in early December to discuss the draft document (in Auburn). Please let me know if you have questions or are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room

Candace Rousselet

From: Kevin Rick <krick@ackerman.k12.ca.us>
Sent: Thursday, September 10, 2015 1:42 PM
To: Candace Rousselet
Subject: Re: Request for Public Steering Committee Members

Hi Candace! I'd love to, but I'm teaching at that time.

All the Best!

Kevin Rick
Bowman School

On Thu, Sep 10, 2015 at 1:17 PM, Candace Rousselet <CRoussel@placer.ca.gov> wrote:

Dear Placer County Stormwater Citizens Advisory Committee;

Placer County is updating their Local Hazard Mitigation Plan (LHMP). The plan will assess the risk of natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds. Many of the topics relate to storm water quality (drought, water shortage, flood, landslides, debris flows, soil bank erosion, and the effect of severe weather). I have attached a brief summary of the LHMP for your review.

Stormwater Quality is looking for members of the public to participate on the Steering Committee. This is a short term commitment of two mornings (September 22 & 23 9-12 am) and one-two hour meeting in early December to discuss the draft document (in Auburn). Please let me know if you have questions or are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Meeting Information:

September 22 and 23, 2015

9 am- noon

Community Meeting Room

Auburn Justice Center

2929 Richardson Drive,

Auburn, CA 95603

Construction

Candace Rousselet

From: Scott Gable <scottegable@gmail.com>
Sent: Thursday, September 10, 2015 6:34 PM
To: Candace Rousselet
Subject: Re: Request for Public Steering Committee Members

Hi Candace,

I am interested. I may have one more qualified Placer County citizene who is also interested.

Kin Regards

Scott E. Gable, P.G.
(916) 335-3856
scottegable@gmail.com

On Sep 10, 2015 1:17 PM, "Candace Rousselet" <CRoussel@placer.ca.gov> wrote:

Dear Placer County Stormwater Citizens Advisory Committee;

Placer County is updating their Local Hazard Mitigation Plan (LHMP). The plan will assess the risk of natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds. Many of the topics relate to storm water quality (drought, water shortage, flood, landslides, debris flows, soil bank erosion, and the effect of severe weather). I have attached a brief summary of the LHMP for your review.

Stormwater Quality is looking for members of the public to participate on the Steering Committee. This is a short term commitment of two mornings (September 22 & 23 9-12 am) and one-two hour meeting in early December to discuss the draft document (in Auburn). Please let me know if you have questions or are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Meeting Information:

September 22 and 23, 2015

9 am- noon

Community Meeting Room

Auburn Justice Center

2929 Richardson Drive,

Candace Rousselet

From: Candace Rousselet
Sent: Tuesday, September 15, 2015 8:46 AM
To: 'Dave Noel'
Subject: RE: Request for Public Steering Committee Members
Attachments: Placer County 2015 Kickoff Meeting Hazard Notes.docx

Dave;
Thanks for participating. I have attached the meeting notes from an internal meeting several months ago. It will give you an idea of the topics being covered.

Candace Rousselet
Storm Water Quality

From: Dave Noel [mailto:daven@blackburnconsulting.com]
Sent: Tuesday, September 15, 2015 8:02 AM
To: Candace Rousselet
Subject: RE: Request for Public Steering Committee Members

Candace,
I am interested in participating in updating the LHMP. Please let me know if there is anything that I need to do to prepare for the upcoming meetings. Thank You,

David J. Noel III | Sr. Project Manager | Ofc: 530.886.2467
Blackburn Consulting | Cell: 916.747.6849

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 1:18 PM
To: Barbara Washburn (barbara.washburn@oehha.ca.gov); Bob Costa; Brad Brewer (bbrewer@sageengineers.com); Dave Noel; Harvey Oslick (hoslick@rbf.com); Jeffrey Moss (jeffrey@khmossco.com); Joel Joyce; John Costa (johnc@northstatebia.org); John Williams (jwilliams@ecourbandesigns.com); Joshua Huntsinger; Kevin Rick; Mary Keller; Ron Wood; Scott Gable
Subject: Request for Public Steering Committee Members

Dear Placer County Stormwater Citizens Advisory Committee;

Placer County is updating their Local Hazard Mitigation Plan (LHMP). The plan will assess the risk of natural hazards, implement actions to reduce future losses, and maintain eligibility for federal mitigation funds. Many of the topics relate to storm water quality (drought, water shortage, flood, landslides, debris flows, soil bank erosion, and the effect of severe weather). I have attached a brief summary of the LHMP for your review.

Stormwater Quality is looking for members of the public to participate on the Steering Committee. This is a short term commitment of two mornings (September 22 & 23 9-12 am) and one-two hour meeting in early December to discuss the draft document (in Auburn). Please let me know if you have questions or are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Elisa Noble and Mark White		
Contact Organization	Auburn Resource Conservation District		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Sent e-mail
Received notice from Elisa that she would attend 9/23

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 2:49 PM
To: Elisa Noble; mark@placercountyrcd.org
Subject: AuburnRCD-Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Elisa and Mark;
Placer County is looking for community participation in our Local Hazard Mitigation Plan. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

One-two hour meeting in early December (date and location in Auburn to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

From: Elisa Noble <elisa@placercountyrcd.org>
Sent: Monday, September 21, 2015 10:36 PM
To: Candace Rousselet; Mark White; Young Rodriguez; John McEldowney; Luana Dowling; Jeanine Foster
Cc: Vance, Mandy@SNC; Hutchings, Autumn@SNC
Subject: Local Hazard Mitigation Plan

Hi all,

I won't be able to make the meeting tomorrow, but should be there on Wednesday 9/23. I also wanted to let you know that Sierra Nevada Conservancy is undertaking a watershed assessment as part of their Watershed Improvement Program (WIP). They will be collating quite a bit of data that could be useful to the LHMP development. Placer RCD will be assisting with the part of this effort that is in Placer County. I've cc'ed Mandy Vance and Autumn Hutchings from SNC that are leading the WIP.

Thanks,
Elisa

Elisa Noble
Executive Director
Placer County Resource Conservation District
11661 Blocker Drive, Suite 115
Auburn, CA 95603
530-885-3046 ext. 118
916-849-2746 (cell)
elisa@placercountyrcd.org

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 2:49 PM
To: Elisa Noble <elisa@placercountyrcd.org>; Mark White <mark@placercountyrcd.org>
Subject: AuburnRCD-Request for Public Steering Committee Members

Elisa and Mark;
Placer County is looking for community participation in our Local Hazard Mitigation Plan. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Drew Kennedy, President		
Contact Organization	Placer Architects, Geologists, Engineers & Surveyors		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Sent e-mail to Drew as open request for participation

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 1:40 PM
To: Drew Kennedy
Subject: PAGES-Request for Public Steering Commitee Members
Attachments: Public Outreach Flyer.docx

Drew;
Could you forward this message to prior members of PAGES. I realize the group is no longer meeting however there may be some interest in participating in this important planning document.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

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September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Elizabeth Lee		
Contact Organization	Central Valley Water Board		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Sent e-mail to request participation by State Water Board

Follow-up		
By	Name:	Organization

Candace Rousselet

From:	Candace Rousselet
Sent:	Thursday, September 10, 2015 1:51 PM
To:	Elizabeth Lee (elizabeth.lee@waterboards.ca.gov)
Subject:	Water Board - Request for Public Steering Committee Members
Attachments:	Public Outreach Flyer.docx

Elizabeth;
I would be interested in having someone from the State Water Board participate in the development of our Local Hazard Mitigation Plan.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

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September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

One-two hour meeting in early December (date and location in Auburn to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/11/15
Contact Name	Harvey Oslick		
Contact Organization	Wood Rodgers		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Harvey on PC Stormwater Citizens Advisory Committee and engineer. Requested his participation
9/17 Harvey will be attending meetings

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Friday, September 11, 2015 8:55 AM
To: 'hoslick@WoodRodgers.com'
Subject: HOslick-Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Harvey;
I was wondering if you would like to participate in the County's Local Hazard Mitigation Plan update. See below for information:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

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9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

One-two hour meeting in early December (date and location in Auburn to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 17, 2015 11:07 AM
To: 'Harvey Oslick'
Subject: RE: HOslick-Request for Public Steering Committee Members

Harvey;
They will be discussing different topics each day so I don't know if you can make both meetings. At this point I think they are looking at general participation versus technical knowledge. Look forward to having your participation.

Candace Rousselet
Storm Water Quality

From: Harvey Oslick [mailto:hoslick@WoodRodgers.com]
Sent: Thursday, September 17, 2015 10:55 AM
To: Candace Rousselet
Subject: RE: HOslick-Request for Public Steering Committee Members

Hi Candace,

I am interested in participating.

I'll go to the meeting on Tuesday morning to learn about what is being done. I'll continue to participate if there appears to be anything of value that I can contribute.

When I've participated in hazard mitigation planning, I've found that there is only a relatively small portion of it that I have expertise. I'd be happy to read and provide comments on those parts.

Thanks,
Harvey

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Friday, September 11, 2015 8:55 AM
To: Harvey Oslick <hoslick@WoodRodgers.com>
Subject: HOslick-Request for Public Steering Committee Members

Harvey;
I was wondering if you would like to participate in the County's Local Hazard Mitigation Plan update. See below for information:

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Gregg Bates		
Contact Organization	Dry Creek Conservancy and American Basin Council of Watersheds		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Sent e-mail to Gregg requesting his participation in the LHMP renewal process
9/15 Gregg has conficton dates in September. Could review draft when released

Follow-up		
By	Name:	Organization

Candace Rousselet

From:	Candace Rousselet
Sent:	Friday, September 11, 2015 10:13 AM
To:	Gregg Bates (dccgregg@gmail.com)
Subject:	Bates-Request for Public Steering Committee Members
Attachments:	Public Outreach Flyer.docx

Gregg;
I was hoping you could participate in the meetings discussed below. Let me know if you are interested.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

One-two hour meeting in early December (date and location in Auburn to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

From: Candace Rousselet
Sent: Tuesday, September 15, 2015 1:03 PM
To: 'gregg bates'
Subject: RE: Bates-Request for Public Steering Committee Members

Gregg;
No problem. When the draft document comes out in December I will get you a copy for review. Thanks

Candace Rousselet
Storm Water Quality

From: gregg bates [mailto:dccgregg@gmail.com]
Sent: Tuesday, September 15, 2015 12:46 PM
To: Candace Rousselet
Subject: RE: Bates-Request for Public Steering Committee Members

Candace,

Thanks for thinking of me. I have conflicts on the 22nd and 23rd.

I could review material if that would help.

Best to you,

Gregg

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Friday, September 11, 2015 10:13 AM
To: Gregg Bates (dccgregg@gmail.com)
Subject: Bates-Request for Public Steering Committee Members

Gregg;
I was hoping you could participate in the meetings discussed below. Let me know if you are interested.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Andrea Parra and Kim Boyd		
Contact Organization	Tahoe Resource Conservation District		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Sent e-mail to representatives of Tahoe RCD requesting participation in LHMP renewal process

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 3:01 PM
To: Andrea Parra; 'kboyd@tahoercd.org'
Subject: TahoeRCD-Request for Public Steering Committee Members

Andrea and Kim;
Placer County is looking for public input on updating our Local Hazard Mitigation Plan. Please check to see if anyone from your office can participate. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 24 and 25, 2015
10 am- 1 pm
Tahoe City, CA
(If you are interested I can get address)

One-two hour meeting in early December (date and location in ~~Auburn~~ Tahoe to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Pat Davison, Director		
Contact Organization	Contractors Association of Truckee Tahoe		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
Requested Pat to let area contractors know about opportunity to participate in LHMP renewal
9/21
Received e-mail that Pat would discuss in Local Government Affairs meeting

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 3:06 PM
To: Pat Davison (pat@ca-tt.com)
Subject: CATT-Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Pat;
Could you forward this message to members of CATT. There may be interest by your member in this important planning document.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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September 24 and 25, 2015
10 am- 1 pm
Tahoe City, CA
(If you are interested I can get address)

One-two hour meeting in early December (date and location in ~~Auburn~~ Tahoe to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

From: Pat Davison <pat@ca-tt.com>
Sent: Monday, September 21, 2015 11:18 AM
To: Candace Rousselet
Subject: RE: CATT-Request for Public Steering Committee Members

Hi Candace – I am back from vacation and will share this with CATT members today at our Local Government Affairs Committee meeting. Thanks for sending this to CATT! pat

Pat Davison
Executive Director
Contractors Association of Truckee Tahoe
12313 Soaring Way, Suite 1G, Truckee, CA 96161
phone 530-550-9999
fax 530-550-9998
www.ca-tt.com
pat@ca-tt.com

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 3:06 PM
To: Pat Davison (pat@ca-tt.com)
Subject: CATT-Request for Public Steering Committee Members

Pat;
Could you forward this message to members of CATT. There may be interest by your member in this important planning document.

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 24 and 25, 2015
10 am- 1 pm
Tahoe City, CA
(If you are interested I can get address)

Foster Morrison

Phone Conversation Log

Project:	LHMP Public Outreach	Date:	9/10/15
Contact Name	Lauri Kemper		
Contact Organization	Lahontan Water Board		
Contact Phone #			
Subject	Attend meetings and be on Steering Committee		

Items Discussed
e-mailed Lauri requesting participation by Lahontan Water Board on renewal of LHMP
9/14 Received e-mail that Lahontan interested in attending meetings as they are doing strategic planning on climate change adaptation
9/21 Brian Judge will attend meeting

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Thursday, September 10, 2015 3:17 PM
To: P. E. Lauri Kemper (lauri.kemper@waterboards.ca.gov)
Subject: Lahontan-Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Lauri;
I would be interested in having someone from the local State Water Board participate in the development of our Local Hazard Mitigation Plan. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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(If you are interested I can get address)

One-two hour meeting in early December (date and location in Tahoe to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

From: Candace Rousselet
Sent: Monday, September 14, 2015 2:07 PM
To: 'Kemper, Lauri@Waterboards'
Cc: Smith, Doug@Waterboards
Subject: RE: Lahontan-Request for Public Steering Committee Members

Lauri;
We would need attendance on the two days in September and the one in December. The content will be different on each day. In my e-mail I talked about the meeting being in Tahoe City however I have now confirmed the location as: North Tahoe Public Utility District, Event Center, 875 Nation Avenue, Tahoe Vista. If you could forward the name of staff participating and their e-mail address I will keep them information. Thanks

Candace Rousselet
Storm Water Quality

From: Kemper, Lauri@Waterboards [mailto:lauri.kemper@waterboards.ca.gov]
Sent: Monday, September 14, 2015 1:59 PM
To: Candace Rousselet
Cc: Smith, Doug@Waterboards
Subject: RE: Lahontan-Request for Public Steering Committee Members

Hi Candace,

Thank you for the invite. We are interested in your meetings as we are also beginning some strategic planning on climate change adaptation.

I am not sure just yet which staff person will be attending the meetings. You mentioned Sept 24 and 25 for the Tahoe city meetings. Do we need to attend both or just one of these dates? If both, then also the December meeting and that is it in terms of the commitment you are seeking, correct?

Lauri Kemper, P.E.
Assistant Executive Officer
Lahontan Water Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Lauri.kemper@waterboards.ca.gov
(530) 542-5436

The Water Board has gone paperless! Please send general correspondence to lahontan@waterboards.ca.gov

Save our Water – see what more you can do to conserve water at http://saveourwater.com/
For more information on Water Board programs and projects, please see our website at http://www.waterboards.ca.gov/lahontan/

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 3:17 PM

To: Kemper, Lauri@Waterboards
Subject: Lahontan-Request for Public Steering Committee Members

Lauri;
I would be interested in having someone from the local State Water Board participate in the development of our Local Hazard Mitigation Plan. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Candace Rousselet

From: Judge, Brian@waterboards <Brian.Judge@waterboards.ca.gov>
Sent: Monday, September 21, 2015 1:55 PM
To: Candace Rousselet
Subject: Placer County Local Hazard Mitigation Plan

Hi Candace:
I have been assigned to attend the meetings this Thursday and Friday. Could you please let me know the time and location details, and send me any back-up information you may have?
Thanks,

Brian R. Judge
Engineering Geologist
Lahontan Water Board
Phone 530.542.5426
Brian.Judge@waterboards.ca.gov
(530)542-5426

Foster Morrison

Phone Conversation Log

Project: LHMP Public Outreach	Date: 9/11/15
Contact Name	Stefan Schuster
Contact Organization	CDM Smith
Contact Phone #	
Subject	Attend meetings and be on Steering Committee

Items Discussed

CDM Smith is consultant handling water quality monitoring in Truckee. Requested Stefan's participation in the LHMP renewal process

9/14 Stephaan will not have time to attend however he will contact planner within his company who might be interested.

9/18 Suzanne Wilkins is attending

Follow-up

By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Friday, September 11, 2015 8:07 AM
To: Schuster, Stefan
Subject: CDM - Request for Public Steeringf Committee Members
Attachments: Public Outreach Flyer.docx

Stefan;
I don't know if you would be interested in participating in the County's Local Hazard Mitigation Plan or if you know of someone that might participate. The information is below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

To: Schuster, Stefan
Subject: RE: CDM - Request for Public Steeringf Committee Members

Thanks Stefan. If she is interested I will need her name and e-mail address for updates.

Candace Rousselet
Storm Water Quality

From: Schuster, Stefan [mailto:SchusterSL@cdmsmith.com]
Sent: Monday, September 14, 2015 1:53 PM
To: Candace Rousselet
Subject: RE: CDM - Request for Public Steeringf Committee Members

Hi Candace,

I am afraid I don't have time for this one at this time although it does sound very interesting, especially given all the fires around the state right now. I will check around with a few folks in my office to see if they are interested and have some time. We have a great planner that I think would be perfect and I will check with her.

Thanks!

Stefan

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Friday, September 11, 2015 8:07 AM
To: Schuster, Stefan <SchusterSL@cdmsmith.com>
Subject: CDM - Request for Public Steeringf Committee Members

Stefan;
I don't know if you would be interested in participating in the County's Local Hazard Mitigation Plan or if you know of someone that might participate. The information is below:

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Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Candace Rousselet

From: Candace Rousselet
Sent: Friday, September 18, 2015 10:58 AM
To: 'Schuster, Stefan'
Cc: Wilkins, Suzanne
Subject: RE: CDM - Request for Public Steeringf Committee Members

Suzanne;
The meetings on September 24 and 25 will be different each day. They will run from 9am to noon and be at the North Tahoe Public Utility District, Event Center, 875 National Avenue, Tahoe Vista. Thank you are participating and let me know if you have other questions.

Candace Rousselet
Storm Water Quality

From: Schuster, Stefan [mailto:SchusterSL@cdmsmith.com]
Sent: Friday, September 18, 2015 10:38 AM
To: Candace Rousselet
Cc: Wilkins, Suzanne
Subject: RE: CDM - Request for Public Steeringf Committee Members

Hi Candace,

Suzanne Wilkins is interested in participating. Her contact information is shown below.

Suzanne Wilkins - AICP, ENV SP
CDM Smith Inc.
12313 Soaring Way, Ste. 2D
Truckee, California 96161
Office: (530) 582-7235
Mobile: (530) 545-2563
Email: wilkinssm@cdmsmith.com

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Monday, September 14, 2015 2:00 PM
To: Schuster, Stefan <SchusterSL@cdmsmith.com>
Subject: RE: CDM - Request for Public Steeringf Committee Members

Thanks Stefan. If she is interested I will need her name and e-mail address for updates.

Candace Rousselet
Storm Water Quality

From: Schuster, Stefan [mailto:SchusterSL@cdmsmith.com]
Sent: Monday, September 14, 2015 1:53 PM
To: Candace Rousselet
Subject: RE: CDM - Request for Public Steeringf Committee Members

Hi Candace,

Foster Morrison

Phone Conversation Log

Project: LHMP Public Outreach		Date: 9/11/15	
Contact Name	Jessica Thompson		
Contact Organization	Town of Truckee - heads up PC/Truckee Stormwater Citizens Advisory Committe in area		
Contact Phone #			
Subject	Forward request for committee members to attend and be on Steering Committee		

Items Discussed
Joint monitoring and outreach with Town of Truckee
Requested local committee members to participate in LHMP renewal
9/21 Jessica back from vacation and forwarded e-mail list for distribution
9/22 Sent e-mail to members about meeting

Follow-up		
By	Name:	Organization

Candace Rousselet

From: Candace Rousselet
Sent: Friday, September 11, 2015 8:11 AM
To: Jessica Thompson (jthompson@townoftruckee.com)
Subject: Truckee - Request for Public Steering Committee Members
Attachments: Public Outreach Flyer.docx

Jessica;
I believe you have a contact list for the local citizens advisory committee for storm water. Could you forward this request for their consideration?

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

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Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603

Candace Rousselet

From: Jessica Thompson <JThompson@townoftruckee.com>
Sent: Monday, September 21, 2015 2:53 PM
To: Candace Rousselet
Subject: RE: Truckee - Request for Public Steering Committee Members

Hi Candace,
Here is my list. It is pretty outdated, but you can choose who you want to send it to.

(Jimmy.Smith@swgas.com);
Alan Heyvaert <Alan.Heyvaert@dri.edu>;
Andy Fecko <afecko@pcwa.net>;
Andy Otto <aotto@truckeeriverwc.org>;
Ben Roberts <broberts@balancehydro.com>;
Beth Christman <bchristman@truckeeriverwc.org>;
Blake Tresan <btresan@truckeesan.org>;
Bob Costa <bcosta@placer.ca.gov>;
Chris Conway <chris@nvwetlands.com>;
Chris White <cwhite@balancehydro.com>;
Dave Shaw <dshaw@balancehydro.com>;
David Lass <dlass@tu.org>;
Doug Praetzel <sierra@spi-ind.com>;
Ed Heneveld <doced@att.net>;
Ginger Peppard <gingerp@wetlaboratory.com>;
Hardy Bullock <hardyb@truckeetahoeairport.com>;
Hayes Parzybok <hparzybok@ewpartners.com>;
Holly McClure <HMcclure@ecorpconsulting.com>;
info@caltrout.org;
Jake Hudson <jhudson@HandK.net>;
Jeff Brown <jrbrown@uclink4.berkeley.edu>;
Jeff Fischer <jeff@grovesfischerinc.com>;
Jen Mader <jmader@boothcreek.com>;
Jim Smith <jsmith@svpsd.org>;
John Eaton <jmemtmn@yahoo.com>;
John Falk <jrfintel@charter.net>;
John Pruin <jpp@lpdesignworks.com>;
Joyce Brenner Caltrans <joyce_brenner@dot.ca.gov>;
Lisa Wallace <lwallace@truckeeriverwc.org>;
Lori Carpenter <lori@nvwetlands.com>;
Michael Hogan <mhogan@ierstahoe.com>;
Michael Lavallee <MLavallee@townoftruckee.com>;
Mike Staudenmeyer <mikes@northstarcsd.com>;
mlsnowstorm@yahoo.com;
Molly Reeves <mreeves@jbrenv.com>;
Nicole Deas <deasnicole@yahoo.com>;
Pat Davison (pat@ca-tt.com);
Patrick Whitaker <patrick@nvwetlands.com>;
Paul Honeywell <phoneywe@usgs.gov>;

Perry Norris <perry@tdlandtrust.org>;
President@nccfff.org;
Richard Lierman <rlierman@svpsd.org>;
Robert Brown <rbrown@truckeesan.org>;
Ron Parr <rjp@dmbhighlandsgroup.com>;
Scott Bower <srb@dmbhighlandsgroup.com>;
Sharon Falvey <sfalvey@fs.fed.us>;
Sierra Club <info@mlc.sierraclub.org>;
Stefan Schuster <schustersl@cdm.com>;
Tom Mooers <tmooers@sierrawatch.org>;
Tom Rinne <trinne@ttsa.net>;
Tony Laliotis tlaliotis@tcpud.org
abarr@townoftruckee.com
pflora@townoftruckee.com

Jessica Thompson
Senior Engineer
Town of Truckee
530.582.2938
10183 Truckee Airport Road
Truckee, CA 96161
jthompson@townoftruckee.com

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Monday, September 21, 2015 11:15 AM
To: Jessica Thompson
Subject: RE: Truckee - Request for Public Steering Committee Members

I guess it won't hurt. Short notice but maybe someone will attend.

Candace Rousselet
Storm Water Quality

From: Jessica Thompson [mailto:JThompson@townoftruckee.com]
Sent: Monday, September 21, 2015 11:12 AM
To: Candace Rousselet
Subject: RE: Truckee - Request for Public Steering Committee Members

Hi Candace, I left on vacation the day you sent this to me. Do you still want the contact list of the stormwater CAC? It is pretty old at this point (last meeting was 2012).
Thanks,

Jessica Thompson
Senior Engineer
Town of Truckee
530.582.2938
10183 Truckee Airport Road
Truckee, CA 96161
jthompson@townoftruckee.com

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Friday, September 11, 2015 8:11 AM

To: Jessica Thompson
Subject: Truckee - Request for Public Steering Committee Members

Jessica;
I believe you have a contact list for the local citizens advisory committee for storm water. Could you forward this request for their consideration?

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 24 and 25, 2015
10 am- 1 pm
Tahoe City, CA
(If you are interested I can get address)

One-two hour meeting in early December (date and location in Tahoe to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at ***croussel@placer.ca.gov*** or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220
Auburn, CA 95603
(530) 745-7557

Candace Rousselet

From: Candace Rousselet
Sent: Tuesday, September 22, 2015 8:28 AM
To: 'Jimmy.Smith@swgas.com'; 'Alan.Heyvaert@dri.edu'; 'afecko@pcwa.net'; 'aotto@truckeeriverwc.org'; 'broberts@balancehydro.com'; 'bchristman@truckeeriverwc.org'; 'btresan@truckeesan.org'; 'chris@nvwetlands.com'; 'dshaw@balancehydro.com'; 'dlass@tu.org'; 'sierra@spi-ind.com'; 'doced@att.net'; 'gingerp@wetlaboratory.com'; 'hardyb@truckeetahoeairport.com'; 'hparzybok@ewpartners.com'; 'HMcclure@ecorpconsulting.com'; 'jhudson@HandK.net'; 'jrbrown@uclink4.berkeley.edu'; 'jeff@grovesfischerinc.com'; 'jmader@boothcreek.com'; 'jsmith@svpsd.org'; 'jmemtmn@yahoo.com'; 'jrfintel@charter.net'; 'jpp@lpdesignworks.com'; 'joyce_brenner@dot.ca.gov'; 'wallace@truckeeriverwc.org'; 'lori@nvwetlands.com'; 'mhogan@ierstahoe.com'; 'MLavallee@townoftruckee.com'; 'mikes@northstarcsd.com'; 'mlsnowstorm@yahoo.com'; 'mreeves@jbrenv.com'; 'deasnicole@yahoo.com'; 'patrick@nvwetlands.com'; 'phoneywe@usgs.gov'; 'perry@tdlandtrust.org'; 'President@nccfff.org'; 'rlierman@svpsd.org'; 'rbrown@truckeesan.org'; 'rjp@dmbhighlandsgroup.com'; 'srb@dmbhighlandsgroup.com'
Cc: Mary Keller; Jessica Thompson (jthompson@townoftruckee.com)
Subject: TruckeeCitizensAdvisory - Request for Pulbic Steering Committee Members
Attachments: Public Outreach Flyer.docx

Dear Town of Truckee Stormwater Citizens Advisory Committee;

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non-local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information: September 24 and 25,
2015
9 am – noon
North Tahoe Public Utility District
Event Center
875 National Ave
Tahoe Vista

Jeanine Foster

From: Jeanine Foster
Sent: Tuesday, September 29, 2015 8:41 AM
To: 'Judge, Brian@waterboards'
Subject: RE: Lake Tahoe Geographic Response Plan

Hi Brian,

Great – thanks for sending. We have not, but will see what we can use – these generally include good information.

Thanks again for jumping in!

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, LLC
(303) 717-7171
jeanine.foster@fostermorrison.com

From: Judge, Brian@waterboards [mailto:Brian.Judge@waterboards.ca.gov]
Sent: Monday, September 28, 2015 5:50 PM
To: Jeanine Foster <jeanine.foster@fostermorrison.com>
Subject: Lake Tahoe Geographic Response Plan

Hi Jeanine:
I am not sure if you have seen this plan, but there may be some useful information to help with the Placer County Local Hazard Mitigation Plan Update.
http://ndep.nv.gov/bca/response_plan/ltgrp_summary_0308.pdf
Thanks,

Brian R. Judge
Engineering Geologist
Lahontan Water Board
Phone 530.542.5426
Brian.Judge@waterboards.ca.gov
(530)542-5426

Jeanine Foster

From: Jeanine Foster
Sent: Thursday, September 24, 2015 10:07 PM
To: 'Elisa Noble'
Subject: RE: Local Hazard Mitigation Plan

Hi,

I am not sure that I replied – I would love to get your input on the watershed assessment. We are targeted to complete the plan by the end of the year. Do you have any summaries or preliminary overviews of what this plan will be/do? I would love to include a summary in this plan.

Thanks very much.

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, LLC
(303) 717-7171
jeanine.foster@fostermorrison.com

From: Elisa Noble [mailto:elisa@placercountyrcd.org]
Sent: Monday, September 21, 2015 11:36 PM
To: Candace Rousselet <CRoussel@placer.ca.gov>; Mark White <mark@placercountyrcd.org>; Young Rodriguez <YRodrigu@placer.ca.gov>; John McEldowney <JMcEldow@placer.ca.gov>; Luana Dowling <dowlingluana@gmail.com>; Jeanine Foster <jeanine.foster@fostermorrison.com>
Cc: Vance, Mandy@SNC <Mandy.Vance@sierranevada.ca.gov>; Hutchings, Autumn@SNC <Autumn.Hutchings@sierranevada.ca.gov>
Subject: Local Hazard Mitigation Plan

Hi all,

I won't be able to make the meeting tomorrow, but should be there on Wednesday 9/23. I also wanted to let you know that Sierra Nevada Conservancy is undertaking a watershed assessment as part of their Watershed Improvement Program (WIP). They will be collating quite a bit of data that could be useful to the LHMP development. Placer RCD will be assisting with the part of this effort that is in Placer County. I've cc'ed Mandy Vance and Autumn Hutchings from SNC that are leading the WIP.

Thanks,
Elisa

Elisa Noble
Executive Director
Placer County Resource Conservation District

11661 Blocker Drive, Suite 115
Auburn, CA 95603
530-885-3046 ext. 118
916-849-2746 (cell)
elisa@placercountyrcd.org

From: Candace Rousselet [mailto:CRoussel@placer.ca.gov]
Sent: Thursday, September 10, 2015 2:49 PM
To: Elisa Noble <elisa@placercountyrcd.org>; Mark White <mark@placercountyrcd.org>
Subject: AuburnRCD-Request for Public Steering Committee Members

Elisa and Mark;
Placer County is looking for community participation in our Local Hazard Mitigation Plan. See below:

As many of you know, Placer County and participating communities are in the process of updating their 2010 Local Hazard Mitigation Plan (LHMP). See attached flyer for background on this LHMP Update process.

We are contacting you because we would like you to consider participating in this planning process as a member of the steering committee to the Hazard Mitigation Planning Committee (HMPC). It is a critical component of the LHMP Update to include members of the public and other non- local governmental interests in the planning process to ensure that the plan fully considers and incorporates a variety of ideas and recommendations for natural hazard mitigation in Placer County.

As part of the steering committee you will be charged with providing input on natural hazards and strategies for mitigation and will assist in finalizing decisions relative to the LHMP Update. Examples of matters requiring decision-making and input by the steering committee include, providing input to and confirming acceptance of final plan goals and objectives, identification and prioritization of mitigation actions for the plan, and providing recommendations for incorporating the mitigation strategy of this LHMP into other countywide planning mechanisms and programs.

The level of time commitment is limited over the next several months and it includes attendance at three meetings:

Meeting Information:
September 22 and 23, 2015
9 am- noon
Community Meeting Room
Auburn Justice Center
2929 Richardson Drive,
Auburn, CA 95603

One-two hour meeting in early December (date and location in Auburn to be determined)

Additionally, we would request that you are involved in reading and providing input to the draft plans as feasible and assisting with other areas that may be of interest to you. Please let me know if you are interested in participating in updating the LHMP. I can be reached at croussel@placer.ca.gov or (530) 745-7557.

Candace Rousselet
Placer County – Storm Water Quality
3091 County Center Drive, Ste 220

Foster Morrison

Phone Conversation Log

Project:	Placer Co LHMP Update	**Date:**	9/4/15
Contact Name	George Avila - Haz Mat		
Contact Organization	CA DOT		
Contact Phone #	916 709-2056		
Subject	Haz Mat Routes / LHMP Update		

Items Discussed

Called to discuss the LHMP Update process w/ the Haz Mat Rep for CA DOT w/the addition of Hazardous Materials Transport as a hazard of concern for the plan.

I let him know what we were doing, schedule, + how he could get involved in the Update Process.

Also asked him to confirm truck haz mat routes for Placer County which he did based on a map we provided. He said no routes in Placer County that preclude transport.

Follow-up Let him know when a draft plan is available for Agency review + comment.

By	Name: Jeanine Foster	Organization	Foster Morrison

Jeanine Foster

To: Chris Morrison
Cc: Jeanine Foster
Subject: FW: Placer County: Flood Insurance Data

CRS Step 3

From: Barba, Raul@DWR [mailto:Raul.Barba@water.ca.gov]
Sent: Tuesday, November 24, 2015 10:37 AM
To: Jeanine Foster <jeanine.foster@fostermorrison.com>
Subject: RE: Placer County : Flood Insurance Data

Hi Jeanine,
Attached you will find the print outs for the communities that you had requested. I hope this helps. Please contact me if you have any questions or concerns.

Regards,
Raul

From: Jeanine Foster [mailto:jeanine.foster@fostermorrison.com]
Sent: Tuesday, November 17, 2015 11:55 AM
To: Barba, Raul@DWR
Cc: Eto, James@DWR
Subject: RE: Placer County: Flood Insurance Data

Hello,

I am working with Placer County and incorporated communities, in the update of their Local Hazard Mitigation Plan. I would like to request updated flood insurance information. Specifically I would like to obtain printouts to include:

- Community Overview
- Insurance Overview
- Insurance Occupancy
- Insurance Zone
- Insurance Pre/Post FIRM
- Community Repetitive Loss

We would like the requested data for:
Placer County,
City of Auburn
City of Colfax
City of Lincoln
Town of Loomis
City of Rocklin

Please let me know if you have questions or need additional information.
Thanks very much,

Jeanine

Jeanine Foster

From: Jeanine Foster
Sent: Thursday, April 30, 2015 11:09 AM
To: 'Boemecke, Wendy@CalOES'; 'Ricardo.Castillo@CalOES.ca.gov'
Cc: Chris Morrison
Subject: Placer Kickoff Meeting

Hi Wendy and Rick,

I just wanted to say thank you both for attending the kick-off meeting for the Placer Update. It is extremely helpful to have your input on questions as they come up. We will be sure to keep you in the loop on the plan progress and future meetings. And please let me know if there are other items/information that you would like us to cover in the plan and convey to participating jurisdictions.

Thanks again and I will be back in touch.

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, Ltd.
(303) 717-7171
jeanine.foster@fostermorrison.com

Jeanine Foster

From: Jeanine Foster
Sent: Monday, June 15, 2015 11:28 AM
To: 'Boemecke, Wendy@CalOES'
Cc: Chris Morrison
Subject: Placer County Dams

Hi Wendy,

I know that Cal OES had been fairly recently updating their dam inventories on a County by County basis, to include changes in hazard classifications. We had obtained new information a couple of years ago from Cal OES (Jerilyn) for Butte, Amador and Calaveras Counties. Do you have new Dam databases for Placer, Modoc, and Sacramento Counties? If you have any mapping data, we would take that too. Also, can you also provided updated information for those High Hazard dams not located within the subject counties, but which would have a potential to impact those counties? Previously we took the Cal OES information and supplemented it with additional details/mapping points from the National Inventory of Dams.

Let me know if you are the right person to ask and if this data is somewhere that we can locate and downloaded it ourselves?

Thanks for your help.

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, LLC
(303) 717-7171
jeanine.foster@fostermorrison.com

Jeanine Foster

To: Jeanine Foster
Cc: Chris Morrison
Subject: FW: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Western) - Mitigation Strategy

From: Jeanine Foster
Sent: Tuesday, September 22, 2015 3:02 PM
To: 'Michelle Mead - NOAA Federal' <michelle.mead@noaa.gov>
Cc: Young Rodriguez <YRodrigu@placer.ca.gov>; Dan Keeton - NOAA Federal <dan.keeton@noaa.gov>; Cindy Matthews - NOAA Federal <cindy.matthews@noaa.gov>
Subject: RE: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Western) - Mitigation Strategy

Hi Michelle,

Great – I believe these are what we were looking for. Thanks very much – it will be good information to include in the plan update for Placer County.

Thanks

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, LLC
(303) 717-7171
jeanine.foster@fostermorrison.com

From: Michelle Mead - NOAA Federal [mailto:michelle.mead@noaa.gov]
Sent: Tuesday, September 22, 2015 9:14 AM
To: Jeanine Foster <jeanine.foster@fostermorrison.com>
Cc: Young Rodriguez <YRodrigu@placer.ca.gov>; Dan Keeton - NOAA Federal <dan.keeton@noaa.gov>; Cindy Matthews - NOAA Federal <cindy.matthews@noaa.gov>
Subject: Re: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Western) - Mitigation Strategy

Hi Jeanine~
Yes, we have a few maps from the 2013 American and 2014 King fires that were shared with Placer county. I have attached the maps we use and what was shared with Placer county for both fires. Also, for the King fire, a majority of the burn was in El Dorado, but there was some in Placer county. Let me know if this is not what you are referring too.

Sincerely,
Michelle

On Mon, Sep 21, 2015 at 10:54 AM, Jeanine Foster <jeanine.foster@fostermorrison.com> wrote:

Hi Michelle,

We always appreciate the NWS attending these meetings as there is always something they contribute. As far as the two meetings this week, the focus is on LHMP Update Goals and Mitigation Projects for each priority hazard. You are correct that we also value your attendance for CRS credits as it reflects well (and is worth points) to have knowledgeable people outside of the County contributing to this process. So if someone is able to make one of the days that would be great. Your input into the mitigation project component would be helpful.

If you all are unable, one item was mentioned by your staff at the last meetings that we would like to track down. It was indicated that NOAA/NWS has mapping of some type for post fire burn scars from past fires in the area that are helpful for predicting areas vulnerable to post-fire flooding or mudslides. Do you have burn scar mapping for fires in Placer or in adjacent counties that would have an impact on the Placer County planning area ?

Let me know and hope to see you if you find the time.

Thanks,

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, Ltd.
(303) 717-7171
jeanine.foster@fostermorrison.com

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Monday, September 21, 2015 11:44 AM
To: Michelle Mead - NOAA Federal <michelle.mead@noaa.gov>
Cc: Dan Keeton - NOAA Federal <dan.keeton@noaa.gov>; Jeanine Foster <jeanine.foster@fostermorrison.com>
Subject: Re: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Western) - Mitigation Strategy

Hi Michelle,

Thank you for getting back. Appreciated if you're able to attend on Wed, but I totally understand if not. I cc Jeanine Foster in this email to ask/confirm if anything else or specific is needed from NWS for the meeting. Jeanine is our consultant and will be facilitating the meetings. Normally I'm also co-facilitate with her but will not be at this week meetings as I'm on jury duty
/Rod

-------- Original Message --------
From: Michelle Mead - NOAA Federal <michelle.mead@noaa.gov>
Date: Mon, September 21, 2015 11:26 AM -0500
To: Young Rodriguez <YRodrigu@placer.ca.gov>
CC: Dan Keeton - NOAA Federal <dan.keeton@noaa.gov>
Subject: Re: FW: Local Hazard Mitigation Plan Update Meeting #3 & #4 (Western) - Mitigation Strategy

Hi Young~

As you probably saw on my auto reply, I was out of the office from noon Sept 16 through the weekend. I am just now seeing this email invite about your LHMP this week from you. I am already committed to an out of

office meeting tomorrow. In addition, with two big fires in our area (Valley and Butte), I am not able to send anyone else from my staff to your meetings either.

I may be able to swing attending Wednesday morning. However, what information would you need me to provide? I get the impression from your email, NWS attendance is needed for the FEMA CRS requirements? Please clarify.

Sincerely,

Michelle

Michelle Mead
Warning Coordination Meteorologist (WCM)
National Weather Service
WFO Sacramento
3310 El Camino Ave. Suite 228 95821-6373
Office: (916) 979-3041 x223
Cell: (406) 370-8882

On Wed, Sep 16, 2015 at 4:47 PM, Young Rodriguez <YRodrigu@placer.ca.gov> wrote:

Hi Michelle,

Thank you for enabling Craig Shoemaker from your office attend Placer LHMP meeting in August in Auburn. It was very helpful and beneficial as there were questions/discussions from the attendees relating to extreme weather and climate change.

I would like to check and ask again if you or a rep from your office can attend the meetings next week. Although the meeting is scheduled over 2 days and it will be helpful to have NWS attendance/participation for both days, I do understand you and your staff have busy schedules and time constraints. As such attending one of the dates or even the first 2 hours of a meeting will be very helpful to our efforts in the updating project of the Local Hazard Mitigation Plan. Furthermore, we're updating the county Community Rating System (CRS) rating concurrently with the LHMP updating project, thus having participation and documentation of such from allied agencies and the public will enable us to receive credits. As such, for or us to attain CRS credits, FEMA requires the establishment of a steering committee made up of participants from the LHMP working group and members from the general public. I would like to also ask if you or a rep from your office to participate as a member of the steering committee. What this entails? Attending next week meetings (or a portion of), attending a final meeting in mid-Dec to incorporate the LHMP draft, and review and provide comments (if any) on the final LHMP in prep for submission to CalOES & FEMA. Please let me know. Thank you.

Young (Rod) Rodriguez

Emergency Services Coordinator
Placer County Office of Emergency Services
Main Office
175 Fulweiler Ave
Auburn, CA 95603
W – 530-886-4602

Jeanine Foster

From: Jeanine Foster
Sent: Tuesday, June 23, 2015 1:34 PM
To: 'Young Rodriguez'; Gerald Carden; John McEldowney
Cc: Bob Costa; Chris Morrison
Subject: RE: Hazard Mitigation Planning Committee

Hi Rod,

Thanks, he will be a great addition. Brian Keating has already sent me his direction to track down some dam data.

Jeanine

Jeanine Foster, J.D.
Principal/Senior Project Manager
Foster Morrison Consulting, LLC
(303) 717-7171
jeanine.foster@fostermorrison.com
Foster Morrison

From: Young Rodriguez [mailto:YRodrigu@placer.ca.gov]
Sent: Tuesday, June 23, 2015 11:18 AM
To: Gerald Carden; John McEldowney
Cc: Bob Costa; Jeanine Foster
Subject: RE: Hazard Mitigation Planning Committee

Gerry, John ,

Mr. Carl Walker from the City of Roseville Public Works has been invited and he accepted to participate in the Placer County Hazard Mitigation Planning Committee (HMPC). Mr. Walker is also the lead coordinator for the City of Roseville Local Hazard Mitigation Plan (LHMP). Roseville completes/updates its own LHMP to pursue and maintain its CRS 1 rating, the first, and so far only City, in the nation to attain & maintain this top rating.

As Placer's LHMP is a multi-jurisdictions plan participation is open to all the Cities (Roseville being the exception as it maintains its own LHMP), fire districts, school districts, and special districts within Placer. As such and as the LHMP encompasses all natural hazards, we also invite (and need) participation from other stakeholders from local, state, and federal entities as well as individuals from the general public to form the working group. The HMPC is a formal title for the working group. Agencies that have their own separate Annexes in the LHMP also have members in the HMPC. This provide a well-represented working body to undertake & complete the project.

Jeanine – Please chime in with any comment needed. For reference, attached is the Board reso that we'll be presenting to our Board for their meeting on 7/7.

/Rod

Foster Morrison

Phone Conversation Log

Project:	Placer County LHMP Update	Date:	6/25/15 - approx.
Contact Name	Carl Walker		
Contact Organization	City of Roseville		
Contact Phone #	916 746-1349		
Subject	LHMP Partcipation / Folsom Dam Inund Data		

Items Discussed: Spoke with Carl regarding his participation in our planning process. He is the LHMP lead for the City of Roseville. He gave me good info of dam inund. efforts for Folsom + the BOR privacy concerns with releasing data.

Follow-up: He will attend meetings, provide data + review documents.

By	Name: Jeanine Foster	Organization	Foster Morrison Consulting

From: John McEldowney
Sent: Tuesday, June 23, 2015 8:37 AM
To: Gerald Carden; Young Rodriguez; Bob Costa
Subject: Re: Hazard Mitigation Planning Committee

Gerry,
It could be, but in my view it does not need to be. I see value in flexibility. If you want it more definitively described, we can do so.

Roseville has her own LHMP.

I think OES and Bob Costa.

Rod/Bob,
Please add, amplify, or comment as you deem appropriate.

Regards,
John

-------- Original Message --------
From: Gerald Carden <GCarden@placer.ca.gov>
Date: Mon, June 22, 2015 5:37 PM -0700
To: John McEldowney <JMcEldow@placer.ca.gov>
Subject: Hazard Mitigation Planning Committee

John, does the committee need to be more specifically described in the resolution? Why is the City of Roseville not included in the participants? Who will select the members of the committee?

This message contains information which may be confidential and privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy or disclose to anyone the message or any information contained in the message. If you have received the message in error, please advise the sender by reply e-mail at gcarden@placer.ca.gov, and delete the message. Thank you very much.

[DO NOT PLACE IN PUBLIC FILE]

Gerald O. Carden, County Counsel
Placer County Counsel's Office
175 Fulweiler Avenue
Auburn, CA 95603
Telephone: 530-889-4044
Facsimile: 530-889-4069

Jeanine Foster

From: John McEldowney <JMcEldow@placer.ca.gov>
Sent: Friday, October 23, 2015 11:40 AM
To: Meg Arnold; Mike Holmes (auburnmike95@gmail.com) (auburnmike95@gmail.com)
Cc: Steve Cantelme (cantelmeS@sacoes.org); Jeanine Foster
Subject: RE: BRI and OES

Meg/Mike,
Great meeting with you this morning. I look forward to ways we can partner in the future on your Capital Region Business Resiliency Initiative. Anything we can do to create disaster resilient small businesses is a net gain for all. I have cc'd Steve Cantelme, my counterpart in Sacramento, in case you want to reach out to his office.

We are pretty deep into our five year update process on our Local Hazard Mitigation Plan. (LHMP) Our lead consultant on this very large project is Jeanine Foster. Fortunately, we have one more sequence of LHMP update meetings coming up in I think December. Having you all/the business community at these meetings would be a plus. We will let you know when this meeting is set up/location.etc.
Regards,
John

John McEldowney
Program Manager
Placer County Office of Emergency Services
(530) 886-4600 | (530) 308-3555 cell | www.placer.ca.gov

From: John McEldowney
Sent: Wednesday, October 14, 2015 1:47 PM
To: 'Meg Arnold'
Subject: RE: BRI and OES

Meg,
I am free all day on Tuesday...and out all day tomorrow and Friday. I will shoot you a calendar invite for 9 AM. If no good just reply with a different time and we can lock this down.
Regards,
John

John McEldowney
Program Manager
Placer County Office of Emergency Services
(530) 886-4600 | (530) 308-3555 cell | www.placer.ca.gov

From: Meg Arnold [mailto:Meg.Arnold@valleyvision.org]
Sent: Tuesday, October 13, 2015 10:54 AM
To: Jennifer Montgomery; John McEldowney
Cc: Jocelyn Maddux; Mike Holmes (auburnmike95@gmail.com)
Subject: Re: BRI and OES

Thanks, Jennifer and Mike.

John, I'd be very pleased at the chance to meet with you next Tuesday concerning the regional Business Resiliency Initiative (BRI) project that we have underway here at Valley Vision. I'll be in Auburn most of the day next week, thanks to Mike's tremendous support in getting a number of meetings lined up. I hope the calendars are able to align.

Thanks,

- Meg

Meg Arnold
Project Leader, Business Resiliency Initiative
Project Leader, Regional Finance Fund

530-867-1921 (mobile)
916-325-1630 (office)
meg.arnold@valleyvision.org

Valley Vision
2320 Broadway
Sacramento, CA 95818

www.valleyvision.org

From: Jennifer Montgomery <JenMonten@placer.ca.gov>
Date: Tuesday, October 13, 2015 at 9:23 AM
To: John McEldowney <JMcEldow@placer.ca.gov>
Cc: Jocelyn Maddux <JMaddux@placer.ca.gov>, "Mike Holmes (auburnmike95@gmail.com)" <auburnmike95@gmail.com>, Meg Arnold <meg.arnold@valleyvision.org>
Subject: FW: BRI and OES

John,

Mike Holmes would like to bring Meg Arnold from Valley Vision to speak with you about the Business Resiliency Initiative that she and I are working on. The idea is to help businesses position themselves for emergency (or chronic) business interruptions and help them service floods, fires, earthquakes, drought etc. Any chance that you can meet with Meg and Mike on the 20th in the morning?

Jennifer Montgomery
Placer County Supervisor, District 5
530-889-4010

From: Mike Holmes [mailto:auburnmike95@gmail.com]
Sent: Tuesday, October 13, 2015 5:07 AM
To: Jennifer Montgomery
Cc: Jocelyn Maddux
Subject: BRI and OES

Jennifer,

Since the BOS meeting on the 20th is in Tahoe can we arrange a meeting with PC OES for Meg Arnold that morning? She may be in the DeWitt area for part of the morning or could meet at the Domes.

Mike

Foster, Morrison

Meeting Record

Project: Placer County LHMP & CRS update	Date: 11/17/15
Meeting Purpose: Annual Meeting of allied agencies in preparation for winter season	

Attendees		
Name	**Title**	**Contact Phone**
See signed list		

Items Discussed
See agenda

Follow-up		
The meeting purpose is for all allied agencies from law enforcement, fire, public works, Cities/Town, utilities, special districts to discuss general preparedness plan of respective agencies and disciplines for the winter season. During the meeting discussions, topic of general preparedness segway to discussions on what mitigation actions can be done by respective agencies/disciplines to minimize winter/severe weather impacts. I briefed on the current LHMP & CRS updating projects and status updates, including the listing of mitigation projects of participating agencies. I also briefed the completion of the 1st draft and follow-on 2nd draft for public review and recommend attendees to review and provide comments/inputs on the drafts.		
By	**Name**	**Organization**
	Young (Rod) Rodriguez	Placer County OES

COUNTY OF Placer®

Agenda

Placer County Flood Coordination Meeting
Tuesday, November 17th - 3:00 - 4:00 p.m.
Emergency Operation Center (FAB Bldg)
2968 Richardson Blvd, Auburn CA

3:00 – 3:05 p.m. Welcome and Introductions/John McEldowney

3:05 – 3:15 p.m. National Weather Service Sit Brief/Michelle Mead (NWS)

3:15 – 3:25 p.m. Flood Prep Overview/Brian Keating & John McEldowney

- Key Flood Areas
- Everbridge Alert Messages - Flood Prone Areas
- Contact lists - Current and Updated?
- Response Matrix - Green - Yellow - Red
-

3:25 – 3:45 p.m. Open Forum - Areas/Issues

3:45 – 4:00 p.m. Wrap Up/Sidebars

Placer County Office of Emergency Services
Preseason Flood Coordination Meeting 2015

SIGN-IN

Name	Agency	Initial	Email	Phone
Janet Walther	PG+E		jmw3@pge.com	530-966-4615
PETE HNAT	PC OES (CONTRACTOR)		Pete.HNAT@GMIAL.COM	916-704-5803
MARK NUNNELLEY	PG+E	MEN	MENI@PGE.COM	209-768-6940
Tyler Covich	PG+E	TIC	TIC1@PGE.com	530-320-9105
Doug Hubbard	Kinder Morgan		hubbaedd@kindermorgan.com	916-416-2972
Heidi Hodges	Placer County (CEO)		hhodges@placer.ca.gov	(530) 886-4619
Heath Wakelee	American Red Cross		hwakelee@gmail.com	(916) 870-5253
MARIE OSBORNE	Placer County HHS - Adult System	MO	mosborne@placer.ca.gov	(530) 886-2937
YOUNG (ROD) RODRIGUEZ	Placer Co OES		YRODRIGU@PLACER.CA.GOV	(530) 886-4602
Vicki Patterson	Placer Co CEO	VP	vpatters@placer.ca.gov	(530) 889-4056
DeDe Cordell	Placer County Communications	DC	dcordell@placer.ca.gov	(530) 889-4034

Placer County Office of Emergency Services
Preseason Flood Coordination Meeting 2015

SIGN-IN

Name	Agency	Initial	Email	Phone
Jim Mathias	CAL FIRE/ Placer County Fire		jim.mathias@fire.ca.gov	530 277-2317
GEORGE MORRIS III	CAL FIRE / PCFD	GMM	GEORGE.MORRISIII@FIRE.CA.GOV	530-277-2300
CHRIS BREWSTER	PG&E / HYDRO	CAB	CABP@PGE.COM	530-889-3235
Susie Lauderdale	CEO (Placer Co.)		slauderd@placer.ca.gov	530.889.4038
Kevin Kroggrud	ADM IT	KK	KKroggr@Placer.ca.gov	530 889.4219
Dieter Wittenberg	ADM Telecom		DWittenb@Placer.ca.gov	530 889 7737
DAVID JENKINS	CHP- GOLD RUN		DJENKINS@CHP.CA.GOV	530 389 2205
KEVIN BORDEN	PLACER CO. S.O.		KBORDEN@PLACER.CA.GOV	530-308-1379
Jon PATRICK	PC OES		JPATRICK@PLACER.CA.GOV	530-886-4600

Placer County Office of Emergency Services
Preseason Flood Coordination Meeting 2015

SIGN-IN

Name	Agency	Initial	Email	Phone
VICTOR PECORARO	AUBURN PD	VP	VPECORARO@AUBURN.CA.GOV	530 8234237
JIMMY GAMEZ	PLACER CTY	JG	JGAMEZ@PLACER.CA.GOV	530 889-4278
BRIT SUIPES	TOWN of LOOMIS	BS	bsuipes@loomis.CA.GOV	916-652-1840
STEVE HALBLEIB	CHP	SH	shalbleib@chp.ca.gov	916-663-3344
KEVIN TABER	PC DPWF ROADS	KT	KTABER@PLACER.CA.GOV	530 889 7565
Bob Costa	Placer Co. DPWF	BC	bcosta@placer.ca.gov	530-745-7524
Matt Shawver	PCOE	MS	mshawver@placercoe-k12ca.us	(916) 415-4442
DON ANDERSON	PC DPW Roads	DA	dandersen@placer.ca.gov	(530) 889-7565
DAVE ATKINSON	PC ENV UTILITIES	DA	datkinso@placer.ca.gov	(530) 886-4968
JASON RIZZI	Roseville F.D.	JR	jrizzi@roseville.ca.us	916-774-5802
GREG JAMES	ROSEVILLE FD	GJ	GJAMES@ROSEVILLE.CA.US	916 774 5578

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: placerfirealliance@earthlink.net
530-886-5319

Core Team:
- BLM
- BOR
- CAL FIRE
- PC OES
- USFS

AGENDA
5/21/2015

Location/Time

Placer County Community Development Resource Agency
3091 County Center Dr, Cypress Room
Thursday May 21, 2015 10:00 A.M.
Contact: George Alves 916-408-2775
Cell- 916-343-6397

1. **Call to Order:**
   A) Introductions:
2. **Approval of Minutes:**
3. **Approval of Agenda:**
4. **Public Comment:**
   Any member of the public may address the Alliance on any matter that is NOT listed on the agenda. Comments will normally be limited to 5 minutes
5. **Information / Non Action Items:**
   A) Grant Writer / Firewise Coordinator Update – Luana Dowling
   B) 2015 PG&E Grant Project Update – Elisa Noble
   C) Drought Task Force Update – OES
   D) LHMP Update Status – OES
   E) SRA Fee Projects Update – Cal Fire
      1. 4291 Inspector/Inspections Status
      2. Grant Projects
   F) Biomass Box Status – George Alves
   G) Public Education Opportunities – George Alves
6. **Action Items:**
   A) None
7. **Core Team Organization Updates**
   A) BLM
   B) BOR
   C) CAL FIRE
   D) USFS
   E) Placer County OES
8. **Fire Safe Council Updates (**Focus on current projects and discussions on how the Alliance can help**)**
   A) Foresthill/Iowa Hill Fire Safe Council
   B) Placer Sierra Fire Safe Council
   C) Greater Auburn Area Fire Safe Council
   D) Greater Lincoln Fire Safe Council
   E) Alpine Meadows Fire Safe Council

9. **Agency and Stakeholder Reports:**
   - RCD/NRCS
   - Fire Safe Council of Nevada County
   - NCSAF
   - Red Cross
   - Fire Protection Districts
   - APCD

10. **Roundtable** – Discussion of items of mutual interest, introduction of new issues, and proposed, future Agenda items:

11. **Next Meeting Date and Adjourn: Next meeting is scheduled for Thursday, June 18, 2015**

Placer County Fire Safe Alliance Vision

The vision of the Place County Fire Safe Alliance is to have informed, educated, and fire defensible communities that will enhance life, property, and natural resource protection through a collaborative approach in a fire prone environment.

Placer County Fire Safe Alliance Mission

Our mission is to minimize catastrophic wildfire loses to values at risk such as life, property, and natural resources, in the following ways:

* To inform and educate the public on fire safe communities, fire risk and fire hazard mitigation.
* To aid, assist, and participate in fire mitigation planning efforts.
* To prioritize and secure funding for coordinated fire safe projects and activities.
* To monitor and review fire safe activities to ensure alliance goals are met.

Placer County Fire Safe Alliance Associate Directors (core team)

Our purpose is to provide leadership, expertise, guidance, oversight, and prioritization in order to be competitive for grant funding to ensure the Placer County Fire Safe Alliance vision and mission statement are met.

Placer County Fire Safe Alliance

5-21-15

Name	Title	Organization	Phone	Email Address
Michelle Hamil		PSFSC		mmhamil@gmail.
Ryan Bellanca				Ryan@BellaForeCity.com
Elsa Hucks	VMP	CALFIRE		elsa.hucks@fire.ca.gov
John McEldowney	PM	OES PC	886 4601	same
Elisa Noble	ED	Placer RCD	916 849 2746	elisa@placercountyrcd.org
YOUNG (ROD) RODRIGUEZ	ESC	Placer Co OES	(530) 886-4602	YRODRIGU@PLACER.CA.GOV.
Gary Kirk	BC/DFM	FFPD	530-367-2465	GKIRK@FORESTHILLFIRE.ORG
Michael Garabedian	President	Friends of the N. Fork	916 719 7286	michaelgarabedian@earthlink.net
George Alves	PCFMC	OES/cont		galvo.pcs@earthlink.net

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: placerfirealliance@earthlink.net
530-886-5319

Core Team:
BLM
BOR
CAL FIRE
PC OES
USFS

AGENDA
6/18/2015

Location/Time

Placer County Community Development Resource Agency
3091 County Center Dr, Cypress Room
Thursday June 18, 2015 10:00 A.M.
Contact: George Alves 916-408-2775
Cell- 916-343-6397

1. **Call to Order:**
   A) Introductions:

2. **Approval of Minutes:**

3. **Approval of Agenda:**

4. **Public Comment:**
   Any member of the public may address the Alliance on any matter that is NOT listed on the agenda. Comments will normally be limited to 5 minutes

5. **Information / Non Action Items:**
   A) Firewise Communities Update – Luana Dowling
   B) 2015 PG&E Grant Project Status – Elisa Noble
   C) Drought Task Force Update – OES
   D) LHMP Update Status – OES
   E) SRA Fee Projects Update – Cal Fire
      1. 4291 Inspector/Inspections Status
      2. Grant Projects
   F) Biomass Box Status – George Alves
   G) Fire Safe Council Staffing
      1. Current status
      2. Options

6. **Action Items:**
   A) None

7. **Core Team Organization Updates**
   A) BLM
   B) BOR
   C) CAL FIRE
   D) USFS
   E) Placer County OES

8. **Fire Safe Council Updates (**Focus on current projects and discussions on how the Alliance can help**)**
   A) Foresthill/Iowa Hill Fire Safe Council
   B) Placer Sierra Fire Safe Council
   C) Greater Auburn Area Fire Safe Council
   D) Greater Lincoln Fire Safe Council
   E) Alpine Meadows Fire Safe Council

9. **Agency and Stakeholder Reports:**
   - RCD/NRCS
   - Fire Safe Council of Nevada County
   - NCSAF
   - Red Cross
   - Fire Protection Districts
   - APCD

10. **Roundtable** – Discussion of items of mutual interest, introduction of new issues, and proposed, future Agenda items:

11. **Next Meeting Date and Adjourn: Next meeting is scheduled for Thursday, July 16, 2015**

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* To monitor and review fire safe activities to ensure alliance goals are met.

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Placer County Fire Safe Alliance

6/18/15

Name	Title	Organization	Phone	Email Address
George Alves	FMC	Placer Co.	916 408-2775	galves.pcs@earthlink.net
Luana Dowling	Firewise		530-277-3753	dowlingluana@gmail.com
Michelle Hamil	~~PCFSA~~	PCFSA	530-878-2441	mmhamil@gmail.com
MARK D'AMBROGI		PUBLIC	530-308-6657	markc1300@outlook.com
JOHN HUTCHINGS	FIRE COORD.	BOR	916-989-7179	JHUTCHINGS@USBR.GOV
ANN Hobbs	Air Specialist.	Air Pollution	530-745-2307	ahobbs@placer.ca.gov.
WARREN BOSTICK	GLFSC CHAIR	GLFSC	916-768 6556	WABOSTICK@GMAIL.COM
CHRIS DALLAS	APBA RBP.	SNC	530 823-4473	CHRIS.DALLAS@STBERNARDVADA.CA.GOV
DAVE ZASKI	PTO	N.T. FIRE	530-307-1050	ZASKI@NTFIRE.NET
John McEldowney	PM	PC OES	308-3555	jmceldow@placer.ca.gov
Elisa Noble	ED	Placer RCD	916 949 2740	elisa@placercountyrcd.org
Karen Calvert	PSFSC Member	Alta Fire/PSFSC	530 906 2336	kcalvert389@gmail.com
Mike Rutenacht	B/C	Cal Fire	272-2320	mike.Rutenacht@fire.ca.gov

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: placerfirealliance@earthlink.net
530-886-5319

Core Team:
- BLM
- BOR
- CAL FIRE
- PC OES
- USFS

AGENDA
7/16/2015

Location/Time

Placer County Community Development Resource Agency
3091 County Center Dr, Cypress Room
Thursday July 16, 2015 10:00 A.M.
Contact: George Alves 916-408-2775
Cell- 916-343-6397

1. **Call to Order:**
   A) Introductions:

2. **Approval of Minutes:**

3. **Approval of Agenda:**

4. **Public Comment:**
   Any member of the public may address the Alliance on any matter that is NOT listed on the agenda. Comments will normally be limited to 5 minutes

5. **Information / Non Action Items:**
   A) Firewise Communities Update – Luana Dowling
   B) Grant Update (PG&E, SRA, Middle Fork) – Elisa Noble, Luana Dowling, Mark D'Ambrogi)
   C) WUI Grant Status – Elsa Hucks
      1. Potential Grants – Luana Dowling/George Alves
   D) Secure Rural Schools Title III Status – OES
   E) Drought Task Force Update – OES
   F) LHMP Update Status – OES
   G) Biomass Box Status – George Alves
   H) Fire Safe Council Staffing
      1. Current status
      2. Options

6. **Action Items:**
   A) None

7. **Core Team Organization Updates**
   A) BLM
   B) BOR
   C) CAL FIRE
   D) USFS
   E) Placer County OES

8. **Fire Safe Council Updates (**Focus on current projects and discussions on how the Alliance can help**)**
   A) Foresthill/Iowa Hill Fire Safe Council
   B) Placer Sierra Fire Safe Council
   C) Greater Auburn Area Fire Safe Council
   D) Greater Lincoln Fire Safe Council
   E) Alpine Meadows Fire Safe Council

9. **Agency and Stakeholder Reports:**
   - RCD/NRCS
   - Fire Safe Council of Nevada County
   - NCSAF
   - Red Cross
   - Fire Protection Districts
   - APCD

10. **Roundtable** – Discussion of items of mutual interest, introduction of new issues, and proposed, future Agenda items:

11. **Next Meeting Date and Adjourn: Next meeting is scheduled for Thursday, July 16, 2015**

Placer County Fire Safe Alliance Vision

The vision of the Place County Fire Safe Alliance is to have informed, educated, and fire defensible communities that will enhance life, property, and natural resource protection through a collaborative approach in a fire prone environment.

Placer County Fire Safe Alliance Mission

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* To aid, assist, and participate in fire mitigation planning efforts.
* To prioritize and secure funding for coordinated fire safe projects and activities.
* To monitor and review fire safe activities to ensure alliance goals are met.

Placer County Fire Safe Alliance Associate Directors (core team)

Our purpose is to provide leadership, expertise, guidance, oversight, and prioritization in order to be competitive for grant funding to ensure the Placer County Fire Safe Alliance vision and mission statement are met.

Placer County Fire Safe Alliance

7/16/15

Name	Title	Organization	Phone	Email Address
George Alves	FMC	OES	9164082775	galves.pcs@earthlink.net
Luana Dowling	FWC		530-277-3757	dowling luana@gmail.com
ELSA HUCKS	FORESTER	CALFIRE	530-277-2326	elsa.hucks@fire.ca.gov
MARK D'AMBROGI		PUBLIC	530-308-6657	markc1200@OUTLOOK.com
DAVE ZASKI	PIO	N.J. FIRE	530-303-1050	ZASKI@NJFIRE.NET
John McElhaney	PC OES	PM	530 886-4601	jmcelhaw@placer.ca.gov
CHRIS DALLAS		SNC	530 824-4473	CHRIS.DALLAS@SIERRANEVADA.CA.GOV
WARREN BOSTICK	CHAIR	GLFSC	916768-6556	WABOSTICK@GMAIL.COM
ANN Hobbs		Placer County air pollution	530.745.2327	ahobbs@placer.ca.gov
Mike Rufenacht	B/C	CAL FIRE	277-2320	mike.rufenacht@fire.ca.gov

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: dowlingluana@gmail.com
530-367-6159

Core Team:
- BLM
- BOR
- CAL FIRE
- PC OES
- USFS

AGENDA
12/03/2015

Location/Time

Gold Country Fairgrounds CalFire WUI Building
1273 High St. Auburn, CA
Thursday December 03, 2015 10:00 A.M.
Contact: Luana Dowling 530-367-6159
Cell- 530-277-3753

1. **Call to Order:**
   A) Introductions:

2. **Approval of Minutes:**

3. **Approval of Agenda:**

4. **Public Comment:**
   Any member of the public may address the Alliance on any matter that is NOT listed on the agenda. Comments will normally be limited to 5 minutes

5. **Information / Non Action Items:**
   A) Governor Brown's, State Of Emergency Proclamation, concerning the drought and what effect the native bark beetle infestations are having on our conifers. Seeking comments and input on how to work together to manage the tree mortality in our area- OES
   B) CWPP Project List, Yearly Update Strategy – Luana Dowling
   C) Firewise Communities Update – Luana Dowling
   D) Grant Update (PG&E, SRA, Middle Fork) – Elisa Noble, Luana Dowling, Mark D'Ambrogi)
   E) Mandarin Festival Update – All
   F) Drought Task Force Update – OES
   G) LHMP Update Status – OES
   H) Biomass Box Status – George Alves

6. **Action Items:**
   A) None

7. **Core Team Organization Updates**
   A) BLM
   B) BOR
   C) CAL FIRE
   D) USFS
   E) Placer County OES

8. **Fire Safe Council Updates (**Focus on current projects and discussions on how the Alliance can help**)**
   A) Foresthill/Iowa Hill Fire Safe Council
   B) Placer Sierra Fire Safe Council
   C) Greater Auburn Area Fire Safe Council
   D) Greater Lincoln Fire Safe Council
   E) Alpine Meadows Fire Safe Council

9. Agency and Stakeholder Reports:

- RCD/NRCS
- Fire Safe Council of Nevada County
- NCSAF
- Red Cross
- Fire Protection Districts
- APCD
- Sierra Nevada Conservancy

10. Roundtable – Discussion of items of mutual interest, introduction of new issues, and proposed, future Agenda items:

11. Next Meeting Date and Adjourn: Next meeting (January 2016) is scheduled for Thursday January 28, 2016

Placer County Fire Safe Alliance Vision

The vision of the Place County Fire Safe Alliance is to have informed, educated, and fire defensible communities that will enhance life, property, and natural resource protection through a collaborative approach in a fire prone environment.

Placer County Fire Safe Alliance Mission

Our mission is to minimize catastrophic wildfire loses to values at risk such as life, property, and natural resources, in the following ways:

* To inform and educate the public on fire safe communities, fire risk and fire hazard mitigation.
* To aid, assist, and participate in fire mitigation planning efforts.
* To prioritize and secure funding for coordinated fire safe projects and activities.
* To monitor and review fire safe activities to ensure alliance goals are met.

Placer County Fire Safe Alliance Associate Directors (core team)

Our purpose is to provide leadership, expertise, guidance, oversight, and prioritization in order to be competitive for grant funding to ensure the Placer County Fire Safe Alliance vision and mission statement are met.

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: dowlingluana@gmail.com
530-367-6159 Office
530-277-3753 Cell

Core Team:
BLM
BOR
CAL FIRE
PC OES
USFS

DECEMBER 3, 2015 MINUTES

Location/Time
Gold Country Fairgrounds CalFire WUI Building
Thursday December 03, 2015 10:00 A.M.
Contact: Luana Dowling 530-367-6759
Cell: 530-277-3753

1. Call to Order

A) Introductions: Attendees: Luana Dowling (Placer Firewise), Larry and Sue Hicks (Public), George Morris III (CalFire), Mark D'Ambrogie (Public), Gary Kirk (FH/IH FSC), George Alves (Public), MaryBeth Farley (UPRR), Ann Hobbs (APCD), John McEldowney (OES), Chris Dallas (SNC), Rand Smith (PGE), Elisa Noble (RCD), Scott Lingren (CalFire), Mike Rufenacht (CalFire), John Hotchkiss (CalFire), Steve Garcia (CalFire), Elsa Hucks (CalFire), Victor Lyon (USFS), Young (Rod) Rodriguez (OES), Warren Bostick (GLFSC), Becky Macy (Dowling Firewise)

2. Approval of Prior Meeting Minutes: - Will be emailed out for approval

3. Approval of Agenda: - Action Item Added: Approval of meeting schedule
– Agenda Approved

4. Public Comment:

Any member of the public may address the Alliance on any matter that is NOT listed on the agenda. Comments will normally be limited to 5 minutes

- No Comments

5. Information / Non Action Items:

A) Governor Brown's, State of Emergency Proclamation, concerning the drought and what effect the native bark beetle infestations are having on our conifers - OES

1. CalFire (George M.) prioritizing High Hazard Zones in SRA which is in part determined by use of Lidar. Prioritization is done by identifying pockets of dead trees. John M. mentioned County GIS is requesting Lidar information be shared. Steve G. read aloud email stating that CalFire FRAP is compiling and analyzing dead and dying trees (from flight info) and combining it with geospatial data on roads, powerlines, communities and other infrastructures to identify HHZ.

2. Forest Service (Victor) commented about sales of logs in treatment areas. Determining how to treat red, black and green trees in order to mitigate the spread of mortality and protect communities. Currently seeking funding to treat in and around Michigan Bluff & Iowa Hill/Sugar Pine to decrease tree mortality.

3. PGE (Rand) focusing on tree mortality in 2016. Estimating to be around 6500 trees in Eldorado, Placer, Nevada County areas ad forecasting 10K for 2016. Currently using Lidar to patrol hazard areas. Asking to be included w/ CalFire and Forest Service in tree removal projects.

4. UPRR (Mary Beth) is working on a plan to remove dead trees. Only private funding is available and the primary focus is on infrastructure such as main line, bridges, communication compounds etc. Any additional info from other agencies is welcomed. Open to join projects with other agencies. Mary Beth is primary point of contact

5. APCD (Ann) mentioned a "smoke out" of certain areas in Tahoe and is requesting for more burn days to remove vegetation. Suggesting better public education on proper burning techniques and smoke from improper burning affects the public. Mentioned the use of Air Curtain Destructors for fuel reduction.

6. RCD (Elisa) mentioned there is chipper funding available for the next 3 years. SRA grants are due Jan. 7. She also mentioned a need/interest for Community Defensible Space Assistance Program for seniors and low income individuals/families.

DRAFT

7. SNC (Chris) 1st year in Prop 1 grant program. Awarding 1st 5 grants @ board meeting next week. Soliciting efforts for applications for March submission. This grant is more limited and focused compared to Prop 84 program. $25M for Forest Health and Watershed Protection for next 6 years. Check website for more info. This program dovetails with Watershed Improvement Program. Federal agencies not applicable.

8. CalFire (Steve) shared ideas for BioMass Removal such as distributing mulch for irrigation evaporation, Senior Firewood Program to remove material from sitting in the forest creating greenhouse gas.

9. George A. and John M. suggested forming a "distribution list" to funnel any new info and forward information to Luana

10. John M. requested the County gain access to Lidar information

B) CWPP Project Lists, Yearly Update Strategy – Luana Dowling

1. Luana sent out list on CWPP information. Updates to be completed by end of January

C) Firewise Communities Update – Luana Dowling

1. Olive Orchard received plaque and is now recognized as a Firewise Community. Eagle Crest Community is pending as 4th Firewise Community. Blackhawk voted to become Firewise. Michigan Bluff is showing interest

D) Grant Update – Luana Dowling

1. Luana handed out a spreadsheet showing current grant status
2. George mentioned attend BOF meeting and it was initially thought that SRA funding could be used for coordinator position, but that is not the case.

E) Mandarin Festival Update – All

1. Mandarin Festival was a success, thank you to all volunteers

F) Drought Task Force Update – OES

1. (John M.) Not planning further meetings/updates unless requested

G) LHMP Update Status – OES

1. (Rod) LHMP is a Federal requirement and is currently being updated. LHMP was first completed in 2005, then updated in 2010. LHMP is updated every 5 years. The first draft has been completed. Public will be allowed to provide comment in January and the final draft will be submitted in February.
2. George A. mentioned that a strategy was developed to define 5 categories within the 71 projects listed in the CWPP that will state specific details using the same project description sheet listed in LHMP to reference specific details for projects more efficiently.

H) Biomass Box Status – Luana Dowling

1. Funding is still available

6. Action Items:

A) Approval of Meeting Schedule 2016 meeting schedule approved.

7. Core Team Organizational Updates

A) BLM – No Report - George A., Luana and Gary K. attended meeting with Jerry Martinez in which they were going to get CalFire crews to clean up Demonstration site in Foresthill area. Another meeting scheduled for Dec. 17 to collaborate on projects.

B) BOR – no report

C) CAL FIRE – no report

D) USFS – no report

E) Placer County OES – (John M.) In the process of hiring ESS 1.

8. Fire Safe Council Updates

A) Foresthill/Iowa Hill Fire Safe Council – Gary Kirk has stepped in to replace Luana Dowling on Council. Blackhawk to become Firewise Community

B) Placer Sierra Fire Safe Council – Working on worksheets

C) Greater Auburn Area Fire Safe Council – Daniel Berlant is Chairman

D) Greater Lincoln Fire Safe Council – Continuing to work on worksheets

E) Alpine Meadows - No report

9. Agency and Stakeholder Reports:

- RCD/NRCS – Mike Brenner retiring, welcoming new employee in Jan. Received Greenhouse Gas Grant for $1.5M over next 4 years for reforestation.
- Fire Safe Council of Nevada County
- NCSAF – No report

Placer County Fire Safe Alliance

www.placerfirealliance.org
Email: dowlingluana@gmail.com
530-367-6159 Office
530-277-3753 Cell

Core Team:
BLM
BOR
CAL FIRE
PC OES
USFS

- Red Cross – No report
- Fire Protection Districts – No report
- APCD – Appointed new Director
- Sierra Nevada Conservancy – No Report

10. Roundtable – Discussion of items of mutual interest, introduction of new issues, and proposed future agenda items:

11. Next Meeting Date and Adjourn: Next Meeting is scheduled for Thursday, January 28, 2016

DRAFT

Placer County Fire Safe Alliance M

NAME	PHONE
Luana Dowling	530-277-3753
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George Morris III	530-880111
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Gary Kirk	530-320-4454
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MaryBeth Farley	916-789-6356
Ann Hobbs	530-745-2327
John McEldowney	530-886-4600
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Jerry Martinez	916-212-3108

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Foresthill/Iowa Hill Fire Safe Council

Union Pacific Railroad
Air Pollution Control Board
Office of Emergency Services
Sierra Nevada Conservancy

Placer Resource Conservation District

Office of Emergency Services
Greater Lincoln Fire Safe Council

Bureau of Reclamation
Bureau of Land Management

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Appendix C Mitigation Strategy

C.1 Mitigation Strategy Meeting Handout

Placer County
Local Hazard Mitigation Plan Update
Mitigation Strategy Meetings #3 and #4
September 22, 23, 24 & 25 2015

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AGENDA

Placer County
Local Hazard Mitigation Plan (LHMP) Update
Mitigation Strategy Meetings: September 22, 23, 24 & 25, 2015

HMPC Meeting #3: September 22nd (Westside) and 24th (Eastside)

1. Introductions
2. Status of the DMA Planning Process
3. Brief overview of Risk Assessment
4. Review of Data Needs
5. Develop Updated Plan Goals and Objectives
6. Identify and Review Mitigation Alternatives

HMPC Meeting #4: September 23rd (Westside and 25th (Eastside)

1. Identify and discuss Mitigation Alternatives Projects
2. Review Mitigation Selection Criteria
3. Prioritize Mitigation Projects
4. Review of Schedule

Risk Assessment & Mitigation Strategy Meetings

Day 1

Hazard Identification & Profiles

Table 1 Placer County Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Significant	Highly Likely	Critical	High
Avalanche	Limited	Likely	Limited	Low
Dam Failure	Significant	Occasional	Critical	High
Drought and Water Shortage	Extensive	Likely	Critical	High
Earthquake	Significant	Occasional	Critical	Medium
Flood: 100/500 year	Limited	Occasional	Critical	High
Flood: Localized Stormwater Flooding	Limited	Highly Likely	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Low
Levee Failure	Limited	Unlikely	Limited	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	High
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Critical	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Limited	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Highly Likely	Critical	High
Soil Bank Erosion	Limited	Occasional	Limited	Low
Subsidence	Limited	Occasional	Limited	Low
Wildfire	Extensive	Highly Likely	Critical	High
Hazardous Materials Transport	Limited	Highly Likely	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Risk Assessment Methodology

Calculating Likelihood of Future Occurrence

The frequency of past events is used in this section to gauge the likelihood of future occurrences. Based on historical data, the likelihood of future occurrence is categorized into one of the following classifications:

- **Highly Likely**: Near 100% chance of occurrence in next year, or happens every year.
- **Likely**: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
- **Occasional**: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
- **Unlikely**: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Calculating Vulnerability

Vulnerability is measured in general, qualitative terms, and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential:

- **Extremely Low**: The occurrence and potential cost of damage to life and property is very minimal to non-existent.
- **Low**: Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**: Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**: Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have already occurred in the past.
- **Extremely High**: Very widespread and catastrophic impact.

Defining Significance (Priority) of a Hazard

Defining the significance or priority of a hazard to a community is based on a subjective analysis of several factors. This analysis is used to focus and prioritize hazards and associated mitigation measures for the plan. These factors include the following:

- **Past Occurrences**: Frequency, extent, and magnitude of historic hazard events.
- **Likelihood of Future Occurrences**: Based on past hazard events.
- **Ability to Reduce Losses through Implementation of Mitigation Measures**: This looks at both the ability to mitigate the risk of future occurrences as well as the ability to mitigate the vulnerability of a community to a given hazard event.

Risk Assessment Summary: Placer County Planning Area

Agricultural Hazard

- Most agricultural disasters in Placer County associated with severe weather events, including heavy rains, floods, heat, and drought; insects and noxious weeds also a concern
- All but one USDA event (20 total) from 2002-2008 was associated with severe weather events; one associated with fire.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

Avalanche

- High and moderate avalanche zones are located near the Nevada County line, south of Donner Lake and Lake Van Norden, east of Tahoe City, near Twin Peaks and McKinney Bay, and in areas near Squaw Valley, Alpine Meadows, and Sugar Bowl.
- 19 avalanche fatalities since 1982
- Likelihood of Future Occurrence: Likely
- Vulnerability: Low
- Non-Priority Hazard

Dam failure

- Federal (NPDP) has 60 dams located in County; 11 Low, 30 Significant, 19 High Hazard; State DWR has 54 dams; 17 Low, 23 Significant, and 14 High Hazard.
- There are several dams, which, if they fail, may impact the people and resources of Placer County. Twelve dams in Placer County are at least 75 feet tall or have a capacity of 10,000 acre-feet of water. Failure of any one of these dams would flood downstream areas and could cause loss of life and property. Both unincorporated and incorporated areas of the County are identified on dam failure inundation maps prepared for the County. The inundation areas for each of the dams are generally downstream and include large rural and urban areas on the valley floor below the dams.
- 3 Dam failures in the County: 1964 Hell Hole Dam failure, 1986 Auburn Coffer Dam Failure. August 2004 Ralston Dam Release Gate Break.
- Likelihood of Future Occurrence: Occasional
- Vulnerability: High
- Priority Hazard

Drought and Water Shortage

- Historical drought data for the Placer County Planning Area and region indicate there have been 5 significant droughts in the last 84 years.
- Since 2012, snowpack levels in California have dropped dramatically. 2015 estimates place snowpack as 5 percent of normal levels. Snowpack measurements have been kept in California since 1950.
- 1 disaster declaration for drought since 1950
- Likelihood of Future Occurrence: Likely
- Vulnerability: Extremely High?

- Priority Hazard

Earthquake

- Placer County lies between two seismically active regions in the western United States. Tectonic stresses associated with the North American-Pacific Plate boundary can generate damaging earthquakes along faults 30 to 100 miles to the west of the County. Extreme eastern Placer County borders the Basin and Range province that entails most of Nevada and western Utah. This area is riddled with active faults that are responsible for and form the boundary between each basin or valley and the neighboring mountain range.
- There have been several felt occurrences in the County from area earthquakes, with limited damages to the County: There have been no disaster declarations in the County.
- Likelihood of Future Occurrence: Unlikely – large, damaging earthquake; Occasional – minor earthquake
- Vulnerability: Medium
- Priority Hazard

Flood Hazards

100/500 year

- Historically, portions of Placer County have always been at risk to flooding because of its high annual percentage of rainfall, heavy snowfall in the winter, and the number of watercourses that traverse the County.
- Of the 30 state/federal declarations from 1950-present– 18 were for severe winter weather, storms, heavy rains, or flooding.
- The Placer County Flood Control and Water Conservation District and the City of Roseville maintain a system of ALERT Flood Warning gages located throughout western Placer County that provide real time monitoring information on current flood conditions.
- Likelihood of Future Occurrence: 100-Occasional; 500-Unlikely
- Vulnerability: High
- Priority Hazard

Localized/Stormwater flooding

- Significant localized flood history in the County – occurs annually
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Landslides and Debris Flows

- The NCDC contains no records of landslides in the County. There have been no disaster declarations associated with landslides in Placer County.
- Notable landslides of record include the landslides in the Tahoe area along the Truckee River, Squaw Creek, and Bear Creek rivers associated with the 1997 Flood event:

- Other landslide incidents of varying degrees of magnitude tend to occur in places throughout the county several times in a given year, but in most cases do not cause significant damage or public safety risk. Recent landslides areas include: Old Foresthill Road, ,Ophir Road (two sites) – (1) near Stonehouse Road and (2) near Wise Road, Yankee Jims Road
- Likelihood of Future Occurrence: Occasional
- Vulnerability: Low
- Non-Priority Hazard

Levee Failure

- Several levees within Placer County and its incorporated communities (Roseville/Lincoln) have been determined to provide protection from the flood that has a 1-percent-chance of being equaled or exceeded in any given year.
- There are several existing levee systems at the downstream end of Auburn Ravine (mainly past the confluence with Orchard Creek) that are not certified by FEMA as providing protection against a 1% annual chance flood
- No past occurrences of levee failure
- Likelihood of Future Occurrence: Unlikely based on past occurrences; occasional based on levee conditions
- Vulnerability: Medium
- Priority Hazard

Seiche (Lake Tsunami)

- Research from the University of Nevada estimates that an earthquake must be at least a magnitude 6.5 to cause a damaging seiche at Lake Tahoe. The three faults directly underneath the lake are considered capable of generating magnitude 7.0 or larger earthquakes. Computer models of seiche activity at Lake Tahoe prepared by the University of Nevada research team estimate that waves as high as 30 feet could strike the shore. These projections suggest largest waves might hit Sugar Pine Point, Rubicon Point, and the casinos in South Lake Tahoe.
- There have been no occurrences of major seiche activity at Lake Tahoe in recent years. University of Nevada geologists have found deposits that extend for 10 miles along the McKinney Bay shore from Sunnyside through Tahoma. These deposits indicate a tsunami or seiche with 30-foot-high waves occurred approximately 7,000 years ago.
- Likelihood of Future Occurrence: Unlikely
- Vulnerability: High
- Priority Hazard

Severe weather

Extreme heat

- Annual occurrences – it gets hot every summer
- 29 severe heat events
- 3 excessive heat events identified (2006, 2007, 2008) requiring opening of cooling centers for summer months
- Climate change might affect this hazard in the future

- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Low
- Non-Priority Hazard?

Freeze and Snow

- Annual occurrences of winter weather
- 398 severe winter weather and freeze events (NCDC) from 1993-2014
- 1 freeze and severe weather Federal Disaster Declaration, 1972
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Fog and Freezing Fog

- Annual occurrences of fog events
- 11 fog events (NCDC) from 1993-2014
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Low
- Non-Priority Hazard

Heavy rains and storms (Thunderstorms, Hail, Lightning, Wind, Tornados)

- Significant County history: annual occurrences
- The NCDC data recorded 103 hail, heavy rain, wind, and tornado incidents for Placer County since 1950.
- Severe storms/heavy rains are the primary cause of most major flooding
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

Soil Bank Erosion

- No information on areas prone to soil bank/stream erosion.
- Due to the high number of linear feet of levees and creek banks, the likelihood of future occurrences of streambank erosion in Placer County is highly likely.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Low
- Non-Priority Hazard

Subsidence

- In Placer County, the type of subsidence of greatest concern is the settling of the ground over abandoned mine workings.
- In addition to mines, the planning area may also be at risk to subsidence from karst. Distinctive surficial and subterranean features developed by solution of carbonate and other rocks and characterized by closed depressions, sinking streams, and cavern openings are commonly referred to as karst.
- Research shows no past occurrences of subsidence.

- Likelihood of Future Occurrence: Occasional
- Vulnerability: Low
- Non-Priority Hazard

Wildfire

- Wildfires occur on an annual basis in the Placer County Planning Area
- Numerous named fires causing a variety of damages.
- Any ignition has the potential to become an out of control wildfire.
- 6 state and federal disaster declarations for Wildfire since 1950 in the County
- The County's #1 Natural Hazard with potentially catastrophic outcomes
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Extremely High
- Priority Hazard

Hazardous Materials Transport

- Most of the hazardous materials transported through Placer County is carried by truck on the State Highway or railway systems. Pipeline Systems also carry hazardous materials that can cause a release.
- Interstate 80 and certain Highways are areas of concern, as are the two Union Pacific railroad tracks that roughly parallel I-80 and Highway 65.
- The United States Department of Transportation Pipeline and Hazardous Materials Safety Administration's (PHMSA) Office of Hazardous Materials Safety tracks transportation incidents: 410 rail and roadway incidents have occurred in last 45 years.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High – Extremely High?
- Priority Hazard

Placer County: Summary of Priority Hazards

Unincorporated Placer County

- Agricultural Hazards
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 100/200/500–year
- Flood: Localized/Stormwater
- Seiche (Lake Tsunami)
- Severe Weather: Freeze and snow
- Severe Weather: Heavy rains and storms
- Wildfire
- Hazardous Materials Transport

Participating Jurisdictions: Data Needs

Review of Jurisdictional Participation Requests to date:

- Letter of Commitment
- Review, input, and update of existing Annexes (for 2010 plan participants)
- Hazard Identification Worksheet #1
- Historic Hazard Worksheet #2
- Mitigation Action Strategy Status Update (for 2010 plan participants)
- Electronic Logos
- Map of Jurisdictions (excluding County and incorporated communities)
- Photos – of past hazard events, areas, before and after (past mitigation projects)
- Vulnerability Worksheets #3 and Capability Tables

Future Jurisdictional Participation Needs:

- Review of Base Plan Chapter 4 and Draft Plan Document
- Review of Updated Jurisdictional Annexes
- New Mitigation Actions for all Jurisdictions and Priority Hazards

Mitigation Strategy: Goals

The most important element of the LHMP is the resulting mitigation strategy which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy is comprised of three components:

1. Mitigation Goals
2. Mitigation Actions
3. Action (Implementation) Plan

Mitigation Goals

Up to now, the HMPC has been involved in collecting and providing data for the Placer County Local Hazard Mitigation Plan Update. From this information, a Risk Assessment has been developed that describes the risk and vulnerability of the Placer County planning area to identified hazards and includes an assessment of the area's current capabilities for countering these threats through existing policies, regulations, programs, and projects.

This analysis identifies areas where improvements could or should be made. Formulating Goals will lead us to incorporating these improvements into the Mitigation Strategy portion of the plan. Our planning goals should provide direction for what loss reduction activities can be undertaken to make the planning area more disaster resistant.

Mitigation Goals are general guidelines that represent the community's vision for reducing or avoiding losses from identified hazards. Goals are stated without regard for achievement, that is, implementation cost, schedule, and means are not considered. Goals are public policy statements that:

- Represent basic desires of the jurisdiction;
- Encompass all aspects of planning area, public and private;
- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
- Are future-oriented, in that they are achievable in the future; and
- Are time-independent, in that they are not scheduled events.

While goals are not specific (quantitative), they should not be so general as to be meaningless or unachievable.

Goals statements will form the basis for objectives. They should be stated in such a way as to develop one or more objectives related to each goal.

The key point in writing goals is to remember that they must deal with results, not the activities that produce those results.

Finally, before we formulate our goals, we should discuss other planning area goals from other regional/county/city programs and priorities. This keeps us from "reinventing the wheel," as well as being consistent with Multi-Objective Management --- or "MOM" --- where communities strive for efficiency by combining projects/needs that are similar in nature or location. Utilizing "MOM" effectively can result in

identifying multiple sources of funding that can be "packaged" and broadening the supporting constituency base by including "outcomes" desired by various stakeholder groups.

Types/Sources of other area mitigation plans and programs include:

- Emergency Operations Plans
- General Plans
- Stormwater Program and Plans
- Flood/Watershed Management Plans and Studies
- Drought Plans
- Community Wildfire Protection Plans
- Dam Failure Plans
- Other?

Sample Goals from other Plans

Goals from the 2013 California State Hazard Mitigation Plan

- Significantly reduce life loss and injuries
- Minimize damage to structures and property, as well as minimizing interruption of essential services and activities
- Protect the environment
- Promote hazard mitigation as an integrated public policy and as a standard business practice

Table 2 Example: Goals from the Placer County General Plan

Goals/Policy	Explanation
Safety Element – Seismic and Geologic Hazards	
Goal 8.A	**To minimize the loss of life, injury, and property damage due to seismic and geological hazards.**
Safety Element – Flood Hazards	
Goal 8.B	**To minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from flood hazards.**
Safety Element – Fire Hazards	
Goal 8.C	**To minimize the risk of loss of life, injury, and damage to property and watershed resources resulting from unwanted fires.**
Safety Element – Emergency Management	
Goal 8.E	**To ensure the maintenance of an Emergency Management Program to effectively prepare for, respond to, recover from, and mitigate the effects of natural or technological disasters.**
Safety Element – Public Safety and Emergency Management Facilities	
Goal 8.F	**To protect public health and safety through safe location of structures necessary for the protection of public safety and/or the provision of emergency services.**

Goals/Policy	Explanation
Safety Element – Hazardous Materials	
Goal 8.G	**To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.**
Safety Element – Avalanche Hazards	
Goal 8.H	**To minimize the risk of loss of life, injury, and damage to property due to avalanche.**
Goals/Policy	Explanation
Public Facilities– Water Supply and Delivery	
Goal 4.C	**To ensure the availability of an adequate and safe water supply and the maintenance of high quality water in water bodies and aquifers used as sources of domestic supply.**
Public Facilities– Drainage and Water Quality	
Goal 4.E	**To manage rainwater and stormwater at the source in a sustainable manner that least inconveniences the public, reduces potential water-related damage, augments water supply, mitigates storm water pollution, and enhances the environment.**
Public Facilities–Flood Protection	
Goal 4.F	**To protect the lives and property of the citizens of Placer County from hazards associated with development in floodplains and manage floodplains for their natural resource values.**
Public Facilities–Fire Protection Services	
Goal 4.I	**To protect residents of and visitors to Placer County from injury and loss of life and to protect property and watershed resources from fires.**

Goals from 2010 Placer County LHMP

- Goal 1: Prevent Future Hazard Related Losses of Life and Property
- Goal 2: Increase Public Awareness/Action of Vulnerability to Hazards
- Goal 3: Improve Community Emergency Services/Management Capability
- Goal 4: Implement and Complete Identified High Priority Projects Listed in the Plan
- Goal 5: Pursue Multi-Objective Opportunities "MOM" Whenever Possible
- Goal 6: Maintain FEMA Eligibility/Position Jurisdictions for Grant Funding

Goal Development

You will each be given 3 sticky notes. On each note you will write what you think the goals for this mitigation planning effort should be. To get you started, provided below are possible goals for this mitigation plan. You may reword these or develop your own. These goal statements should serve as examples. It is vital that our Hazard Mitigation Planning Committee establish its own goals. Use one note for each goal. The purpose of the goal development is to reach a consensus on plan goals.

- Minimize risk and vulnerability from natural hazards
- Increase communities' awareness of vulnerability to hazards
- Increase the use of shared resources
- Improve communities' capabilities to mitigate losses
- Maintain coordination of disaster plans with changing DHS/FEMA needs
- Maintain FEMA eligibility/position jurisdictions for grant funding
- Maintain/enhance the flood mitigation program to provide 200/500-year flood protection
- Maintain current service levels
- Provide protection for existing buildings from hazards
- Provide protection for future development from hazards
- Provide protection for natural and cultural resources from hazard impacts
- Provide protection for people's lives from hazards
- Provide protection for public health
- Provide protection for critical services (fire, police, etc.) from hazard impacts
- Provide protection for critical lifeline utilities from hazard impacts
- Reduce exposure to hazard related losses
- Reduce the number of emergency incidents
- Make better use of technology

When done, we will:

- Pin/tape them to the wall/easel-chart and arrange them by category
- Combine and reword them into 3-4 goals for the plan.

Risk Assessment and Mitigation Strategy Meetings
Day 2

Mitigation Strategy: Actions

Mitigation Actions are specific projects and activities that help achieve the goals and accomplish risk reduction in the community.

Categories of Mitigation Measures

PREVENTION: Preventive measures are designed to keep the problem from occurring or getting worse. Their objective is to ensure that future development is not exposed to damage and does not increase damage to other properties.

- Planning
- Zoning
- Open Space Preservation
- Land Development Regulations
  - ✓ Subdivision regulations
  - ✓ Building Codes
    - Fire-Wise Construction
  - ✓ Floodplain development regulations
  - ✓ Geologic Hazard Areas development regulations (for roads too!)
- Storm Water Management
- Fuels Management, Fire-Breaks

EMERGENCY SERVICES: protect people during and after a disaster. A good emergency services program addresses all hazards. Measures include:

- Warning (flooding, tornadoes, winter storms, geologic hazards, fire)
  - ✓ NOAA Weather Radio
  - ✓ Sirens
  - ✓ "Reverse 911" (Emergency Notification System)
- Emergency Response
  - ✓ Evacuation & Sheltering
  - ✓ Communications
  - ✓ Emergency Planning
    - Activating the EOC (emergency management)
    - Closing streets or bridges (police or public works)
    - Shutting off power to threatened areas (utility company)
    - Holding/releasing children at school (school district)
    - Passing out sand and sandbags (public works)
    - Ordering an evacuation (mayor)
    - Opening emergency shelters (Red Cross)
    - Monitoring water levels (engineering)
    - Security and other protection measures (police)
- Critical Facilities Protection (Buildings or locations vital to the response and recovery effort, such as police/fire stations, hospitals, sewage treatment plants/lift stations, power substations)

- ✓ Buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities and nursing homes
- ✓ Lifeline Utilities Protection

- Post-Disaster Mitigation
- Building Inspections
  - ✓ ID mitigation opportunities & funding before reconstruction

PROPERTY PROTECTION: Property protection measures are used to modify buildings subject to damage rather than to keep the hazard away. A community may find these to be inexpensive measures because often they are implemented by or cost-shared with property owners. Many of the measures do not affect the appearance or use of a building, which makes them particularly appropriate for historical sites and landmarks.

- Retrofitting/disaster proofing
  - ✓ Floods
    - Wet/Dry floodproofing (barriers, shields, backflow valves)
    - Relocation/Elevation
    - Acquisition
    - Retrofitting
  - ✓ High Winds/Tornadoes
    - Safe Rooms
    - Securing roofs and foundations with fasteners and tie-downs
    - Strengthening garage doors and other large openings
  - ✓ Winter Storms
    - Immediate snow/ice removal from roofs, tree limbs
    - "Living" snow fences
  - ✓ Geologic Hazards (Landslides, earthquakes, sinkholes)
    - Anchoring, bracing, shear walls
    - Dewatering sites, agricultural practices
    - Catch basins
  - ✓ Drought
    - Improve water supply (transport/storage/conservation)
    - Remove moisture competitive plants (Tamarisk/Salt Cedar)
    - Water Restrictions/Water Saver Sprinklers/Appliances
    - Grazing on CRP lands (no overgrazing-see Noxious Weeds)
    - Create incentives to consolidate/connect water services
    - Recycled wastewater on golf courses
  - ✓ Wildfire, Grassfires
    - Replacing building components with fireproof materials
    - Roofing, screening
    - Create "Defensible Space"
    - Installing spark arrestors
    - Fuels Modification

- ✓ Noxious Weeds/Insects
  - Mowing
  - Spraying
  - Replacement planting
  - Stop overgrazing
  - Introduce natural predators
- Insurance

NATURAL RESOURCE PROTECTION: Natural resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. In so doing, these activities enable the naturally beneficial functions of floodplains and watersheds to be better realized. These natural and beneficial floodplain functions include the following:

- storage of floodwaters
- absorption of flood energy
- reduction in flood scour
- infiltration that absorbs overland flood flow
- groundwater recharge
- removal/filtering of excess nutrients, pollutants, and sediments from floodwaters
- habitat for flora and fauna
- recreational and aesthetic opportunities

Methods of protecting natural resources include:

- Wetlands Protection
- Riparian Area/Habitat Protection/Threatened-Endangered Species
- Erosion & Sediment Control
- Best Management Practices

Best management practices ("BMPs") are measures that reduce nonpoint source pollutants that enter the waterways. Nonpoint source pollutants come from non-specific locations. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, and other farm chemicals, animal wastes, oils from street surfaces and industrial areas and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams. BMPs can be implemented during construction and as part of a project's design to permanently address nonpoint source pollutants. There are three general categories of BMPs:

1. Avoidance: setting construction projects back from the stream.
2. Reduction: Preventing runoff that conveys sediment and other water-borne pollutants, such as planting proper vegetation and conservation tillage.
3. Cleanse: Stopping pollutants after they are en route to a stream, such as using grass drainageways that filter the water and retention and detention basins that let pollutants settle to the bottom before they are drained

- Dumping Regulations
- Set-back regulations/buffers

- Fuels Management
- Water Use Restrictions
- Landscape Management
- Weather Modification

STRUCTURAL: Projects that have traditionally been used by communities to control flows and water surface elevations. Structural projects keep flood waters away from an area. They are usually designed by engineers and managed or maintained by public works staff. These measures are popular with many because they "stop" flooding problems. However, structural projects have several important shortcomings that need to be kept in mind when considering them for flood hazard mitigation:

- They are expensive, sometimes requiring capital bond issues and/or cost sharing with Federal agencies, such as the U.S. Army Corps of Engineers or the Natural Resources Conservation Service.
- They disturb the land and disrupt natural water flows, often destroying habitats or requiring Environmental Assessments.
- They are built to a certain flood protection level that can be exceeded by a larger flood, causing extensive damage.
- They can create a false sense of security when people protected by a structure believe that no flood can ever reach them.
- They require regular maintenance to ensure that they continue to provide their design protection level.

Structural measures include:

- Detention/Retention structures
- Erosion and Sediment Control
- Basins/Low-head Weirs
- Channel Modifications
- Culvert resizing/replacement/Maintenance
- Levees and Floodwalls
- Anchoring, grading, debris basins (for landslides)
- Fencing (for snow, sand, wind)
- Drainage System Maintenance
- Reservoirs (for flood control, water storage, recreation, agriculture)
- Diversions
- Storm Sewers

PUBLIC INFORMATION: A successful hazard mitigation program involves both the public and private sectors. Public information activities advise property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. These activities can motivate people to take protection

- Hazard Maps and Data
- Outreach Projects (mailings, media, web, speakers, displays)
- Library Resources
- Real Estate Disclosure
- Environmental Education

Placer County Mitigation Actions from 2010 Plan

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
County Mitigation Actions				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Replacement of the Alpine Meadows Road Bridge over the Truckee River		X		
Inspection of Bridges Less than 20 Ft in Length				
Replacement of the Walerga Road Bridge over Dry Creek		X		
Replacement of Yankee Jims Road Bridge over the North Fork of the American River		X		
Generators for Sewer Pump Stations		X		
SCADA Systems				
Elevate Repetitive Loss Structures in 100-year Floodplain			X	Y
Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program				
Continue and Maintain Noxious Weed Eradication Program				
Placer County Noxious Vegetation Management in Land Conservatory				
Placer County Low Intensity Development Program				
Establish Additional Fire Safe Councils on the Western Slope				
Placer County Chipper Program Operational Funds				
Firewise Communities/USA Educational Outreach				
Establish the "Rural Lincoln Fire Safe Council"				
Hazardous Vegetation Abatement Program				
Shaded Fuel Break Establishment and Maintenance in Hidden Falls Regional Park				
Biomass Removal Projects				
Provide Fire Protection Water Source in Sheridan				
Develop a Community Wildfire Prevention Plan (CWPP) for West Placer County				
Maintenance on Shaded Fuel Breaks and Demonstration Fuel Breaks.				
Annual Defensible Space Inspections Program in the Unincorporated County				
Enhance Enforcement of County Building Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the Unincorporated County				
Ensure That All Homes In The Placer County Foothills Have PRC 4290 Compliant Address Signs				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Develop and fund an enforceable weed abatement program				
Annual Multi-Agency Wildland Fire Drill.				
Cooperative Fire Service Response Agreement for the Western Side of All Placer County Fire Agencies.				
City of Auburn				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents				
GIS Mapping of Flood Zones within the City.				
Lincoln Basin (Downtown) Drainage Infrastructure				
Creek and Stream Cleaning and Maintenance Program				
Implementation of Storm Water Treatment Plan				
Electric Street Diversion Project				
Old Town Auburn Storm Drain System				
American River Canyon Shaded Fuel Break				
Community Education on Wildfire (was Action #3 – Public Education of the Results of a Wildfire in a Community and What Can Be Done by Citizens in Developing Safeguards)				
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.				
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)				
City of Colfax				
Identify Un-Reinforced Masonry Buildings in the City				
Obtain Funding for a Residential Fuel Reduction Program (was Obtain Funding For A Residential Fire Protection Program in 2005 Plan)				
Evaluate the Need and Feasibility of Improving Fire Prevention for The Historic Business District				
City of Lincoln				
Flood Warning System				
State Route 65: Auburn Ravine Bridge – Reconstruct Bridge				
State Route 193: Auburn Ravine Bridge – Additional 110' Span				
Lakeview Farms Regional Volumetric Mitigation Improvements – Phase 1				
Gladding Parkway, State Route 65, McCourtney Road Stream Restoration and Culvert Improvements.				
"O" Street Drainage Improvements.				
7th Street Drainage Improvements.				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Auburn Ravine at State Route 193 Bridge.				
Auburn Ravine at State Route 65 Bridge.				
Ingram Slough – Orchard Creek return channel				
Markham Ravine – Updated FEMA Analysis and Mapping.				
Markham Ravine Drainage Improvements – Union Pacific Railroad and State Route 65 crossings.				
Auburn Ravine Stream Restoration Projects (analysis and repairs).				
Markham Ravine Streambed Restoration Projects (analysis only).				
Coon Creek Streambed Restoration Projects (analysis only).				
Fire Prevention and Fuels Management Plan				
City of Rocklin				
GIS Based Mapping of Pertinent Information that can be Used by all Agencies in the Development of Plans and During Emergency Incidents				
Open Space Fire Prevention & Vegetation Management Prescribed Grazing				
Town of Loomis				
Address signage for property addresses				
Delmar Avenue Headwall Reconstruction Project				
Creek Maintenance Secret Ravine & Antelope Creek				
Reconstruction of Brace Bridge at Secret Ravine				
Alpine Springs County Water District				
Mineral Springs Soil Bank Stabilization Project				
Alpine Meadows Consolidated Defensible Space Project				
Foresthill Fire Protection District				
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County				
Assess And Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing And Maintenance Ordinance. Put Programs In Place With Homeowners Associations In CC&R's And Maintenance Contracts				
Todd Valley Shaded Fuel Break				
Foresthill Biomass Project				
Completion of Fuels Management Projects within Identified Areas of the Western Slope of Placer County				

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Completion of Fuels Management Projects Within the Foresthill / Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County				
Nevada Irrigation District				
Portable Generator Project				
Canal Culvert Replacement Program				
Reservoir Cleaning				
North Tahoe Fire Protection District				
FCC P-25 Interoperability Radio Systems				
District GIS Technology, Equipment, Database and Mapping Improvements				
Emergency Radio Transmitters and Information Systems				
Evacuation Shelter Improvements				
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements				
North Tahoe Fire Protection District Headquarters Station Relocation and North Tahoe Command Center Development				
Sieche Wave Warning Systems, Signs and Public Education				
Community Wildfire Protection Plan (CWPP) projects (was Completion of Fuels Management Projects on Various Parcels in the North Tahoe Fire Protection District, as Outlined in the North Tahoe Community Fire Protection Plan in 2005 plan)				
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education				
Hazardous Wood Roof Replacement Program				
Regional Water System Fire Protection Upgrades and Interoperability				
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment				
Hydrant Risers, Replacements and Markers				
PCFCWCD/Placer County				
Squaw Creek Restoration & Drainage Enhancement Project		X		Y – (Move to County)
Elevate Remaining 95 Homes in the Dry Creek Watershed			X	Y – (Move to County)
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds.		X		Y

Jurisdiction/Mitigation Action	Complete	Ongoing	Not Started	Project in 2015 Update
Update Hydrology and Hydraulic Models within the Critical Dry Creek and Cross Canal Watersheds.	X	X		Y (Dry Creek update complete, keep Cross Canal)
Implementation of Identified Bridge and Culvert Replacement Projects.		X		Y – (Move to County)
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities		X		Y
Placer County Water Agency				
Maintain and Enhance Canal Systems by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas				
Replace Wooden Flume Structures with Steel Structures				
De-Silt Reservoirs				
Placer Hills Fire Protection				
Annual Defensible Space Inspections Program for the Placer Hills Fire Protection District (PHFPD)				
Assess and Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements for Minor Lot Splits				
Squaw Valley Public Service District				
East Booster Emergency Power				
Easement Abatement/Maintenance of Emergency Access				
Develop a Community-Wide Emergency Notification System				
Water & Sewer System GPS Project				
SVPSD/Mutual Water Company Inter-tie Hazards				
Water Tank Earthquake Retrofit Project				
Tahoe City Public Utility District				
Seismic Stability Study and Retrofit				
Forest Fuel Reduction - Highlands				
Forest Fuel Reduction, Water, Sewer Pump & Lift Stations				
Tahoe Truckee Unified School District				
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.				
HVAC Control Upgrades				
Forest Thinning Around Lake Area Schools				
Structural Upgrades of Roofs at School Sites to Support Higher Snow Loads.				

Mitigation Strategy: Action Plan

The mitigation action plan describes how the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the community's existing planning mechanism. Each participating jurisdiction must have a mitigation actions and an action plan specific to that jurisdiction and its priority hazards and vulnerabilities.

Mitigation Criteria

For use in selecting and prioritizing Proposed Mitigation Measures

1. STAPLEE

Social: Does the measure treat people fairly? (different groups, different generations)

- Community Acceptance
- Effect on Segment of Population
- Social Benefits

Technical: Will it work? (Does it solve the problem? Is it feasible?)

- Technical Feasibility
- Reduce Community Risk
- Long Tem Solution/Sustainable
- Secondary Impacts

Administrative: Do you have the capacity to implement & manage project?

- Staffing
- Funding Allocated
- Maintenance/Operations

Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support?

- Political Support
- Local Champion
- Public Support
- Achieves Multiple Objectives
- Supported by a broad array of Stakeholders

Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?

- Existing Local Authority
- State Authority
- Potential Legal Challenges

Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development?

- Benefit of Action

- Cost of Action
- Cost Effective/Economic Benefits
- Economically Viable
- Outside Funding Required

Environmental: Does it comply with Environmental regulations?

- Effect on Land/Water
- Effect on Endangered Species
- Effect on Cultural Resources
- Effect on Hazmat sites
- Consistent with Community Environmental Goals
- Consistent with Environmental Laws
- Environmental Benefits

2. SUSTAINABLE DISASTER RECOVERY

- Quality of Life
- Social Equity
- Hazard Mitigation
- Economic Development
- Environmental Protection/Enhancement
- Community Participation

3. SMART GROWTH PRINCIPLES

- Infill versus Sprawl
- Efficient Use of Land Resources
- Full Use of Urban Resources
- Mixed Uses of Land
- Transportation Options
- Detailed, Human-Scale Design

4. OTHER

- Does measure address area with highest risk?
- Does measure protect …
  - ✓ The largest # of people exposed to risk?
  - ✓ The largest # of buildings?
  - ✓ The largest # of jobs?
  - ✓ The largest tax income?
  - ✓ The largest average annual loss potential?
  - ✓ The area impacted most frequently?
  - ✓ Critical Infrastructure (access, power, water, gas, telecommunications)
- Timing of Available funding
- Visibility of Project
- Community Credibility

Mitigation Action Prioritization Instructions

Our Team recommendations are listed on flip-chart paper around the room.

You each have 3 sets of colored dots:

- 3 red dots
- 3 blue dots
- 3 green dots

The red dots are for high priority (5 points each)

The blue dots are for medium priority (3 points each)

The green dots are for low priority (1 point each)

Place your dots on the recommendations, using the different colors to indicate your priority. You may use as many of your dots, of any color, on any recommendation --- or you may spread them out using as few of your dots as you wish. The dots will indicate the consensus of the team.

Use your list of criteria to help you make your determinations.

After the totals are counted, we will discuss them further to confirm or change any of the results as we see fit.

Mitigation Action Worksheet

Jurisdiction:	
Mitigation Action/Project Title:	
Hazards Addressed:	
Issue/Background:	
Other Alternatives:	
Existing Planning Mechanism(s) through which Action Will Be Implemented:	
Responsible Office/Partners:	
Cost Estimate:	
Benefits (Losses Avoided):	
Potential Funding:	
Timeline:	
Project Priority:	

Worksheet completed by:	
Name and Title:	
Phone:	

C.2 Categories of Mitigation Measures Considered

The following categories of mitigation measures are based on the Community Rating System.

- Prevention
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information

C.3 Placer County Analysis of Alternative Mitigation Measures per Category

Note: This review of mitigation measures is in compliance with the FEMA's nationally accepted six mitigation categories and FEMA's CRS Program requirement to provide a comprehensive evaluation of the six mitigation categories with a specific requirement that Preventative Measures be thoroughly reviewed. This review leads to the projects incorporated into the mitigation strategy action plan.

C.3.1. Preventive Measures

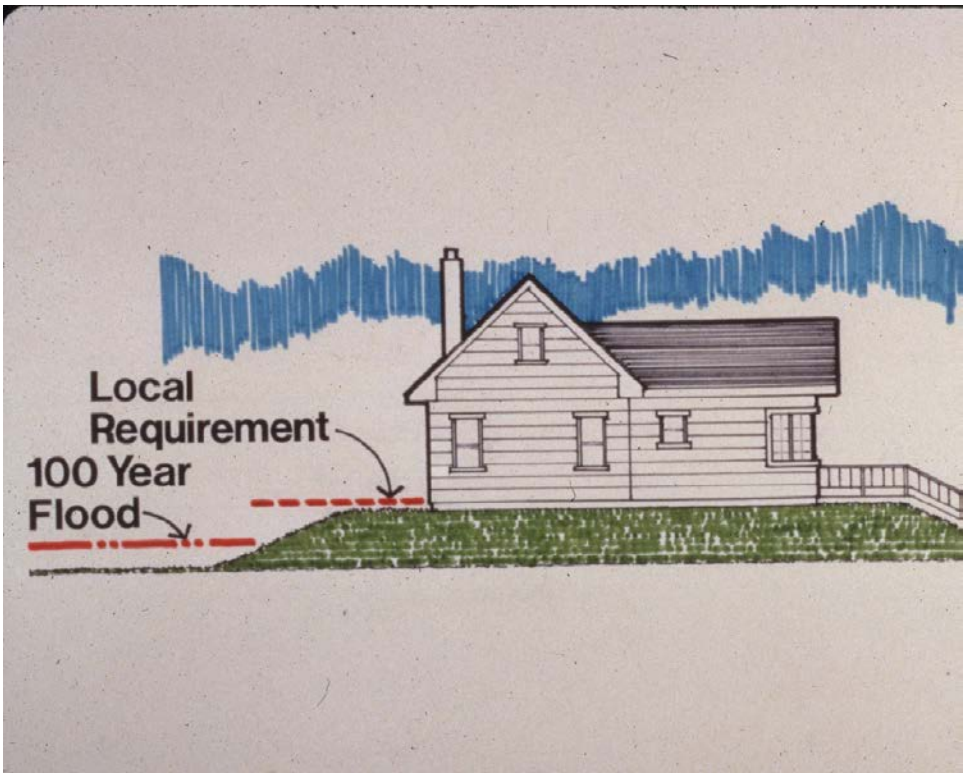
Preventive measures are designed to keep a problem - such as flooding - from occurring or from getting worse. The objective of preventive measures is to ensure that future development is not exposed to damage and does not cause an increase in damages to other properties. Building, zoning, planning and code enforcement offices usually administer preventive measures. Some examples of types of preventive measures include:

- Building codes and floodplain regulations
- Comprehensive land use planning, zoning, and open space preservation
- Stormwater management and subdivision regulations

Building Codes

Building codes provide one of the best methods of addressing natural hazards. When properly designed and constructed according to code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. Building codes can ensure that the first floors of new buildings are constructed to be higher than the elevation of the 100-year flood (the flood that is expected to have a one percent chance of occurring in any given year). This is shown in Figure C-1.

Figure C-1 Building Codes and Flood Elevations



Floodplain Regulations

Most communities with a flood problem participate in the National Flood Insurance Program (NFIP). The NFIP sets minimum requirements for the participating communities' standards for development, subdivision of land, construction of buildings, installation of mobile homes, and improvements and repairs to buildings. These are usually spelled out in a separate ordinance.

The NFIP minimum requirements are summarized below. It should be stressed that these are minimum requirements. Local conditions, such as high velocity flooding or the presence of a potential dam failure, may warrant higher local standards.

Enforcement

To ensure that communities are meeting the NFIP standards, FEMA periodically conducts a Community Assessment Visit. During this visit, the maps and ordinances are reviewed, permits are checked, and issues are discussed with staff. Failure to meet all of the requirements can result in one or more consequences:

- Reclassification under the Community Rating System to a higher class
- Probation, which entails a $50 surcharge on every flood insurance policy in the community, or
- Suspension from the NFIP.

Suspension is the most serious. It means that the community is out of the NFIP and the following sanctions are imposed:

- Flood insurance will not be available. No resident will be able to purchase a flood insurance policy.
- Existing flood insurance policies will not be renewed.
- No direct federal grants or loans for development may be made in identified flood hazard areas under programs administered by federal agencies, such as HUD, EPA, and the Small Business Administration.
- Federal disaster assistance will not be provided to repair insurable buildings located in identified flood hazard areas for damage caused by a flood.
- No federal mortgage insurance or loan guarantees may be provided in identified flood hazard areas. This includes policies written by FHA, VA, and others.
- Federally insured or regulated lending institutions, such as banks and credit unions, must notify applicants seeking loans for insurable buildings in flood hazard areas that there is a flood hazard and the property is not eligible for federal disaster relief.

These sanctions can be severe for any community with a substantial number of buildings in the floodplain. Most communities with a flood problem have joined the NFIP and are in full compliance with their regulatory obligations.

One way to assure good administration and enforcement is to have Certified Floodplain Managers on staff. The Association of State Floodplain Managers administers the national Certified Floodplain Manager (CFM®) program.

Minimum National Flood Insurance Program Regulatory Requirements

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). As a condition of making flood insurance available for their residents, communities that participate in the NFIP agree to regulate new construction in the area subject to inundation by the 100-year (base) flood. The floodplain subject to these requirements is shown as an A or V Zone on the Flood Insurance Rate Map (FIRM).

There are five major floodplain regulatory requirements. Additional floodplain regulatory requirements may be set by state and local laws.

1. All development in the 100-year floodplain must have a permit from the community. The NFIP regulations define "development" as any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
2. Development along a river or other channel cannot obstruct flows so as to cause an increase in flooding on other properties. An analysis must be conducted to demonstrate that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.
3. New buildings may be built in the floodplain, but they must be protected from damage from the base flood. In riverine floodplains, the lowest floor of residential buildings must be elevated to be at or above the base flood elevation (BFE). Nonresidential buildings must be either elevated or floodproofed.

4. Under the NFIP, a "substantially improved" building is treated as a new building. The NFIP regulations define "substantial improvement" as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This requirement also applies to buildings that are substantially damaged.
5. Communities are encouraged to adopt local ordinances that are more comprehensive or provide more protection than the federal criteria. The NFIP's Community Rating System provides insurance premium credits to recognize the additional flood protection benefit of higher regulatory standards.

Local Implementation

Placer County has adopted the 2013 California Building Code based on the 2012 International Building Code. Placer County has Floodplain Damage Prevention Regulations that exceed minimum NFIP standards and implement floodplain regulations that include some higher regulatory standards.

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during the course of construction to ensure that the builder understands the requirements and is following them. Making sure a structure is properly elevated and anchored requires site inspections at each step.

Reduce Future Flood Losses

Future flood losses should be reduced by enforcement of current floodplain regulations. For new residential construction, nonresidential construction, or substantial improvement, Placer County, requires that either the lowest floor be elevated to one foot above the base flood elevation or that below the base flood level the structure is watertight, "with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy." This reduces future flood losses by keeping development out of known floodplains. This is done by enacting and enforcing the current standards and/or adopting higher regulatory standards.

Current Standards

As mentioned above, Placer County has Flood Damage Prevention Regulations that meet all of the NFIP's minimum floodplain regulatory requirements and exceed some of them such as establishing one foot of freeboard. Their regulations include methods and provisions for:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increase in erosion or flood heights or velocities;
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controlling fill, grading, dredging, and other development which may increase flood damage; and
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

In addition, all new construction or substantial improvements shall be:

- Designed or modified and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy
- Constructed in ways that minimize flood damage
- Constructed with materials resistant to flood damage
- Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities designed or located so as to prevent water from entering or accumulating within components during flooding

Placer County also requires that:

- All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters.
- On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Placer County also has regulations that exceed minimum NFIP standards. These include:

- Floodways are delineated and certain requirements apply to construction within these floodways so as to not result in any increase in flood levels during the occurrence of the base flood discharge.
- Requiring new construction and substantial improvements to have the lowest flood, including basement, elevated a minimum of one foot above the base flood elevation.
- All building permit applicants who may be located in Flood Zone A must have a California registered engineer prepare an engineering study including an evaluation of the building site, determination as to whether the structure will be located in a 100-year flood zone and supporting flood data.
- Restrictions and standards are included on the use of enclosures below elevated buildings.

In addition, Placer County's floodplain management program is implemented by Certified Floodplain Managers on staff with the County's Department of Public Works and Facilities

Manufactured Homes

Manufactured or mobile homes are usually not regulated by local building codes. They are built in a factory in another state and are shipped to a site. They do have to meet construction standards set by the U.S. Department of Housing and Urban Development. All mobile homes constructed after 1976 must comply with HUD's National Manufactured Home Construction and Safety Standards. These standards apply uniformly across the country and it is illegal for a local unit of government to require additional construction requirements. Local jurisdictions may regulate the location of these structures and their on-site installation.

Local Implementation

Placer County requires that all manufactured homes that are placed or substantially improved within a special flood hazard area on the community's Flood Insurance Rate Map: (1) outside of a manufactured home park or subdivision, (2) in a new manufactured home park or subdivision, (3) in an expansion to an existing manufactured home park or subdivision, (4) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood: will be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to a minimum of one foot above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation collapse and lateral movement. All manufactured homes to be placed or

substantially improved on sites in an existing manufactured home park or subdivision on the community's Flood Insurance Rate Map that are not subject to the provisions of subsection A of this section will be elevated so that either: 1) The lowest floor of the manufactured home is a minimum of one foot above the base flood elevation; or 2) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and be securely anchored to an adequately anchored foundation system to resist floatation, collapse, and lateral movement.

CRS Credit

Building Codes: The CRS encourages strong building codes. It provides credit in two ways: points are awarded based on the community's BCEGS classification and points are awarded for adopting the International Code series. Placer County's BCEGS rating is a Class 2 for both residential and commercial. Placer County uses the California Building Code.

The CRS also has a prerequisite for a community to attain a Class 6 or better within the CRS program, the community must have a BCEGS class of 5/5 or better. To attain a Class 4 or better in the CRS program, the community must have a BCEGS class of 4/4 or better. Placer County has a BCEGS classification of 2/2. Placer County has also adopted the International Code series.

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the Community Rating System in the NFIP.

- The CRS recognizes 18 creditable activities, organized under four categories numbered 300 through 600:
  - ✓ Public Information
  - ✓ Mapping and Regulations
  - ✓ Flood Damage Reduction
  - ✓ Flood Preparedness
- Placer County participates in the Community Rating System (CRS) of the National Flood Insurance Program.
- By implementing these floodplain management activities, the residents of Placer County can qualify for a flood insurance premium rate reduction. When communities go beyond the minimum standards for floodplain management, the CRS can provide discounts up to 45% off flood insurance premiums.

The County of Placer is currently a Class 5 community, which provides a 25% discount on flood insurance to properties located in the Special Flood Hazard Area.

Floodplain management regulations: There are many higher regulatory standards that warrant CRS credit. These standards include:

- Delineating a floodway, the area of higher hazard near the channel. This would allow development outside the floodway (called the "floodplain fringe") without engineering studies to determine their impact on others.

- Requiring all new construction to be elevated one or two feet above the base flood elevation to provide an extra level of protection from waves and higher floods. This extra protection is reflected in a distinct reduction in flood insurance rates.
- Having all developers (not just the larger ones) provide flood data where none are available.
- Specifications to protect foundations from erosion, scour and settling.
- Prohibiting critical facilities from all or parts of the floodplain.
- Prohibiting hazardous materials.
- Requiring buffers adjacent to streams or natural areas.
- Restrictions on use of enclosures below elevated buildings.
- Flood storage lost due to filling and construction must be compensated for by removal of an equal volume of storage.
- The CRS also provides credit for having trained staff and a higher credit if the staff members are Certified Floodplain Managers.

It should be noted that one of the prerequisites for participation in the CRS is that the community be in full compliance with the minimum requirements of the NFIP. A community with a number of "potential violations" risks being removed from the CRS entirely.

Manufactured homes: The NFIP allows communities to exempt mobile homes in existing mobile home parks from some of the flood protection requirements. The CRS provides up to 50 points if the community does not use this exemption.

Comprehensive Land Use Planning, Zoning, and Open Space Preservation

Building codes provide guidance on how to build in hazardous areas. Planning and zoning activities direct development away from these areas, particularly floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Planning and zoning activities can also provide benefits by simply allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach.

General and Comprehensive Plans

These plans are the primary tools used by communities to address future development. They can reduce future flood-related damages by indicating open space or low density development within floodplains and other hazardous areas. Unfortunately, natural hazards are not always emphasized or considered in the specific land use recommendations.

Generally, a plan has limited authority. It reflects what the community would like to see happen. Its utility is that it guides other local measures, such as capital improvement programs, zoning ordinances, and subdivision regulations.

Capital Improvement Plans

A capital improvement plan can guide a community's major public expenditures for a 5- to 20-year period. Capital expenditures may include acquisition of open space within the hazardous areas, extension of public services into hazardous areas, or retrofitting existing public structures to withstand a hazard.

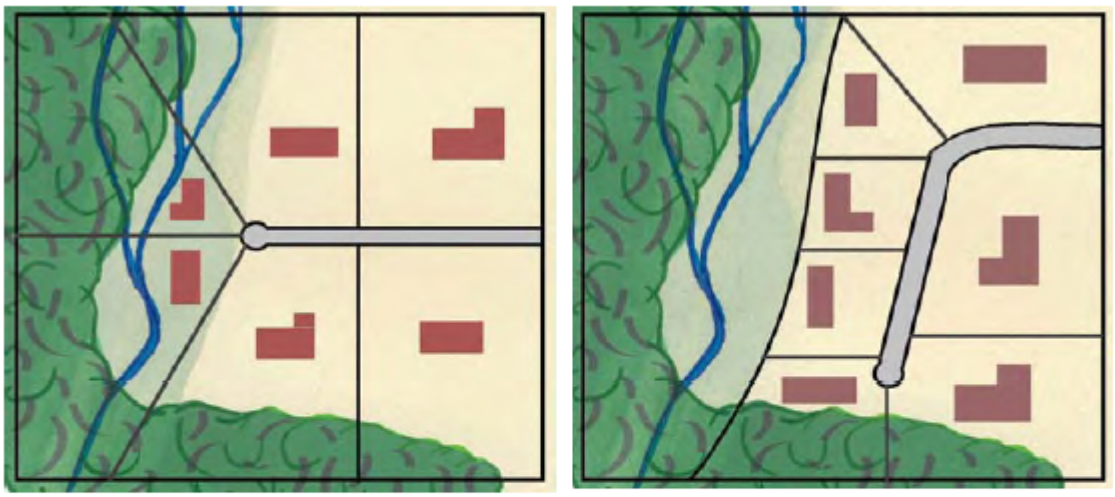
Zoning

A zoning ordinance regulates development by dividing a community into zones or districts and setting development criteria for each of those zones or districts. Zoning codes are considered the primary tool to implement a general/comprehensive plan's guidelines for how land should be developed.

Zoning ordinances can limit development in hazardous areas, such as reserving floodplain zones for agricultural uses. Often, developers will produce a standard grid layout. The ordinance and the community can allow flexibility in lot sizes and location so developers can avoid hazardous areas.

One way to encourage such flexibility is to use the planned unit development (PUD) approach or cluster development. The PUD and cluster approach's allows the developer to easily incorporate flood hazard mitigation measures into the project. Open space or floodplain preservation can be facilitated as site design standards and land use densities can be adjusted to fit the property's specific characteristics, as shown in Figure C-2.

Figure C-2 Zoning for Development in the Floodzone



PUD: In the standard zoning approach (left), the developer considers six equally-sized lots without regard for the flood hazard. Two properties are subject to flooding and the natural stream is disrupted. An alternative, flexible, PUD approach is shown on the right. The floodplain is dedicated as public open space. There are seven smaller lots, but those abutting the floodplain have the advantage of being adjacent to a larger open area. Four lots have riverfront views instead of two. These amenities compensate for the smaller lot sizes, so the parcels are valued the same. The developer makes the same or more income and the future residents are safer.

Open Space Preservation

Keeping the floodplain and other hazardous areas open and free from development is the best approach to preventing damage to new developments. Open space can be maintained in agricultural use or can serve as parks, greenway corridors and golf courses.

Comprehensive and capital improvement plans should identify areas to be preserved by acquisition and other means, such as purchasing an easement. With an easement, the owner is free to develop and use private property, but property taxes are reduced or a payment is made to the owner if the owner agrees to not build on the part set aside in the easement.

Although there are some federal programs that can help acquire or reserve open lands, open space lands and easements do not always have to be purchased. Developers can be encouraged to dedicate park land and required to dedicate easements for drainage and maintenance purposes. These are usually linear areas along property lines or channels. Maintenance easements also can be donated by streamside property owners in return for a community maintenance program.

Local Implementation

General Plan: On May 21, 2013, Placer County adopted their new General Plan. As part of the 2013 General Plan update, the County revised the standards pertaining to new flood protection requirements. This included changes to the Safety Element and other areas of the General Plan and includes the introduction of the term "County Regulatory Floodplains" that includes both the 100-year FEMA floodplain and the 200-year floodplainNo update to the flood damage prevention ordinance is required since current regulations already regulate projects in the regulatory floodplain. Under this program the County is also considering the 200-year storm when reviewing projects. The Central Valley Flood Protection Board (CVFPB) is currently reviewing the updated General Plan update document. Any CVRPB comments will be incorporated and the final General Plan updates will be finalized later in 2016.

Zoning and Open Space Preservation: Placer County's General Plan, in coordination with the local Codes, protects current open space. In addition, the General Plan includes a statement:

> *The County shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The County shall permanently protect, as open space, areas of natural resource value, including wetlands, riparian corridors, unfragmented woodlands, and floodplains.*

Reduce Future Flood Losses

Enacting the General Plans and the comprehensive zoning and future land uses contained in the County General Plan will help to reduce future flood losses by helping to keep development out of hazardous areas and known floodplains.

Current Standards

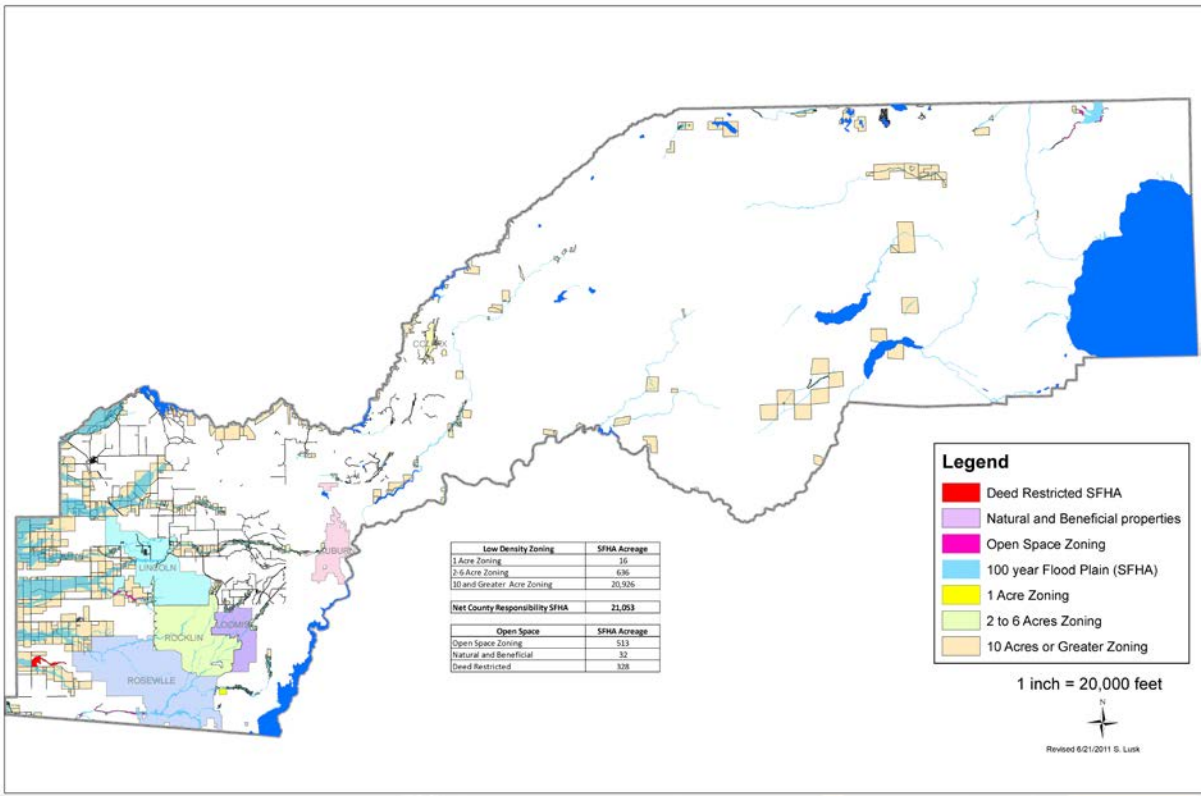
Placer County's zoning codes do not provide for any additional restrictions on development in floodplains, aside from what is required under each jurisdiction's floodplain regulations regarding building standards for floodplains.

CRS Credit

The CRS provides flood insurance discounts to those communities that implement various floodplain management activities that meet certain criteria. Comparing local activities to those national criteria helps determine if local activities should be improved.

Credits are provided for regulations that encourage developers to preserve floodplains or other hazardous areas from development. There is no credit for a plan, only for the enforceable regulations that are adopted pursuant to a plan. Credits are also provided for setting aside floodplains for low density zoning, such as five acre lots or conservation. The County has placed zoning requirements within floodplain areas that are for low density development, open space and deed restrictions. See Figure C-3 for the location of specific parcels.

Figure C-3 Placer County SFHA with Open Space and Low Density Zoning

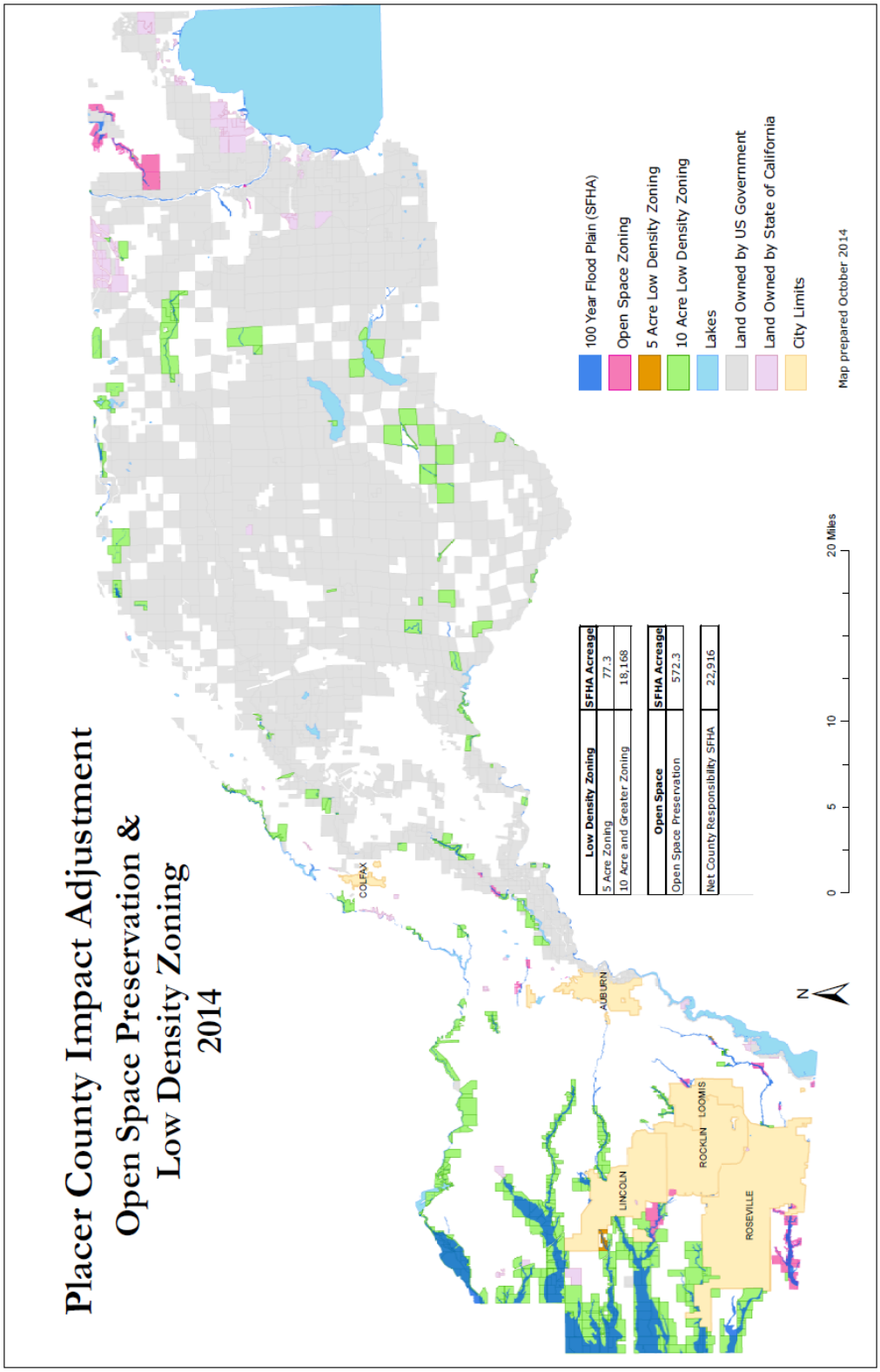


Source: Placer County

Preserving flood prone areas as open space is one of the highest priorities of the Community Rating System. Up to 1,450 points can be given, based on how much of the floodplain is in community public undeveloped

properties, parks, wildlife refuges, golf courses, or other uses that can be depended on to stay open (Activity 420 - Open Space Preservation). Placer County has over 570 acres designated as open space zoning within the SFHA. See Figure C-4 for these areas.

Figure C-4 Placer County Impact Adjustment



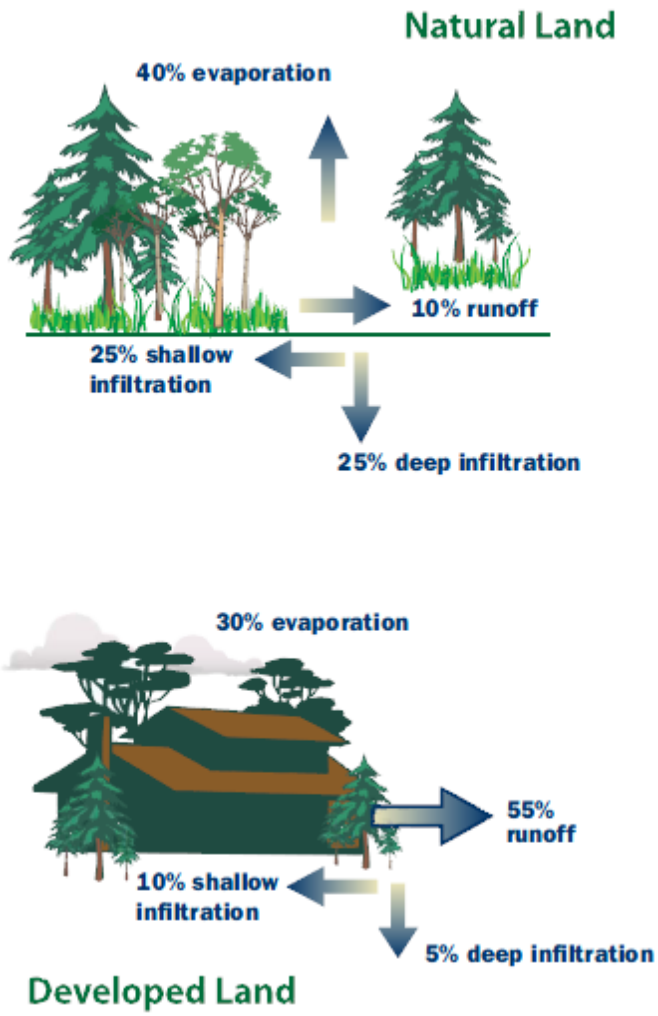
Source: Placer County

Stormwater Management and Subdivision Ordinance

Development in floodplains is development in harm's way. New construction in the floodplain increases the amount of development exposed to damage and can aggravate flooding on neighboring properties.

Development outside a floodplain can also contribute to flooding problems. Stormwater runoff is increased when natural ground cover is replaced by urban development (see Figure C-3). Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality.

Figure C-5 Runoff and Infiltration of Natural and Developed Land



There are three ways to prevent flooding problems caused by stormwater runoff:

- Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties, and

- Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions.
- Set construction standards so buildings are protected from shallow water.

Most communities participate in the NFIP, which sets minimum requirements for regulating development in the floodplain. All new buildings must be protected from the base or 100-year flood and no development can cause an increase in flood heights or velocities.

Stormwater runoff regulations require developers to build retention or detention basins to minimize the increases in the runoff rate caused by impervious surfaces and new drainage systems. Generally, each development must not let stormwater leave at a rate higher than what existed under pre-development conditions.

Standards for drainage requirements are typical in subdivision regulations. Standards for storm sewers, ditches, culverts, etc., are best set when an area is laid out and developed. Traditionally, the national standard is to require that the local drainage system carry the 10-year storm. Recently, communities are finding that older estimates of the 10-year storm understated the true hazard, so they are addressing larger storms.

One problem with requiring the drainage system to carry water away is that runoff increases with urban development. The runoff equivalent of a 10-year storm occurs more frequently, and from smaller storms. The problem is just sent downstream onto someone else's property.

Accordingly, modern subdivision regulations require new developments to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions. This is usually done by constructing retention or detention basins to hold the runoff for a few hours or days, until flows in the system have subsided and the downstream channels can accept the water without flooding.

If the storm sewers or roadside ditches cannot handle a heavy rain, the standard subdivision design uses the streets to carry excess runoff. If the flows exceed the streets' capacity, adjacent properties will flood. Therefore, the third approach to protecting from stormwater flooding is to make sure new buildings are elevated one or two feet above the street or above adjacent grade.

Local Implementation

Reduce Future Flood Losses

Current practices and tracking mechanisms are seeking to reduce flood risks. Future flood control and stormwater improvements in the County will help reduce localized flood risks by improving flood control mechanisms and drainage within the County. In order to reduce future flood losses, the County may consider revisiting their stormwater management ordinances.

Current Standards

Placer County has a stormwater management ordinance. Subdivision design standards require that subdivisions provide for adequate drainage of surface waters and erosion control. All land development

must be related to the surrounding drainage pattern, with provisions made for proper drainage facilities. The minimum runoff must be determined by the rational method. In addition, all natural drainage courses into which other drainage courses empty shall be left undisturbed and shall be provided with adequate dedicated rights of way. Street alignment should follow contour lines or be generally parallel to drainage ways.

Subdivision Regulations

In addition to controlling stormwater runoff as described above, subdivision regulations govern how land will be subdivided and they set construction standards. These standards generally address roads, sidewalks, utilities, storm sewers, and drainage ways. They can include the following flood protection standards:

- Requiring that the final plat show all hazardous areas
- Requiring that each lot be provided with a building site above the flood level
- Requiring that all roadways be no more than one foot below the flood elevation

Local Implementation

Placer County implements local subdivision regulations which require hazard areas to be shown on the final plate. In addition, Placer County's subdivision regulations require, at a minimum, the following to protect the natural and beneficial functions of the floodplain:

- The subdivider shall design the subdivision so that it shall be protected from inundation, flood hazard, sheet overflow and ponding of local storm water, springs and other surface waters.
- The design of improvements shall be such that water occurring within the subdivision will be carried off such subdivision without injury to any improvements, residential sites, or residences to be installed on sites within the subdivision, or to adjoining areas or cause erosion of siltation that would be detrimental to the environment of the area.
- Waters occurring within the subdivision shall be carried to a storm drainage facility or to a natural watercourse by such improvements as may be required to meet the design standards herein set forth, and as outlined within the land development manual.
- Drainage design within the subdivision shall accommodate reasonably anticipated future development within the drainage area.
- Any off-tract outlet drainage facility required to carry storm water from the proposed subdivision to a defined channel or conduit shall be made adequate for the ultimate state of development in the drainage area.
- In any case when a watercourse traverses or serves a subdivision, adequate on-site and/or off-site easements for storm drainage purposes shall be provided.
- A storm drainage maintenance district or acceptable alternate which includes the entire subdivision shall be established for the maintenance of storm drainage facilities within the subdivision and any off-site drainage easements.
- If a storm drainage maintenance district has previously been established within a particular drainage area, where said subdivision is being proposed, the proposed subdivision shall be annexed to the existing district.
- In the event that the county has adopted a drainage plan for said particular drainage area, the subdivider shall be required to pay a fee consisting of a pro rata share of the cost of contracting or estimated cost of constructing drainage facilities within the drainage area.

CRS Credit

CRS credit is provided for both higher regulatory standards in the floodplain and stormwater management standards for new developments. Credit is based on how those standards exceed the minimum NFIP requirements.

Conclusions and Recommendations

- Placer County has floodplain development ordinances that exceed minimum national and state standards and will be helpful in preventing flood problems from increasing.
- When the preliminary DFIRM map for Placer County becomes finalized or when the County is remapped in its entirety, the floodplain regulations for the County may need to be revisited.
- Placer County should continue to implement CRS activities, because of the recent changes in the 2013 Coordinator's Manual including many changes to CRS activities that the community is currently receiving credit. The County should consider amending its floodplain ordinance for additional higher standards.
- State administration of installation of mobile or manufactured homes does not guarantee that they will be adequately tied down or protected from flooding and other hazards.
- Most zoning ordinances do not designate floodprone areas for any special type of land use.
- Placer County should continue to enforce stormwater management best management practices to control post development site runoff. Consideration of a unified countywide stormwater ordinance will provide consistent regulations between all communities within the Placer County planning area.
- Standards in subdivision regulations for public facilities should account for the hazards present at the site. New building sites, streets, and water systems should facilitate access and use by fire and emergency equipment.

C.3.2. Property Protection Measures

Property protection measures are used to modify buildings or property subject to damage. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building,
- Modify the building so it can withstand the impacts of the hazard, and
- Insure the property to provide financial relief after the damage occurs.

Property protection measures are normally implemented by the property owner, although in many cases technical and financial assistance can be provided by a government agency.

Keeping the Hazard Away

Generally, natural hazards do not damage vacant areas. As noted earlier, the major impact of hazards is to people and improved property. In some cases, properties can be modified so the hazard does not reach the damage-prone improvements. For example, a berm can be built to prevent floodwaters from reaching a house.

Flooding

There are five common methods to keep a flood from reaching and damaging a building:

- Erect a barrier between the building and the source of the flooding.
- Move the building out of the floodprone area.
- Elevate the building above the flood level.
- Demolish the building.
- Replace the building with a new one that is elevated above the flood level.

Barriers

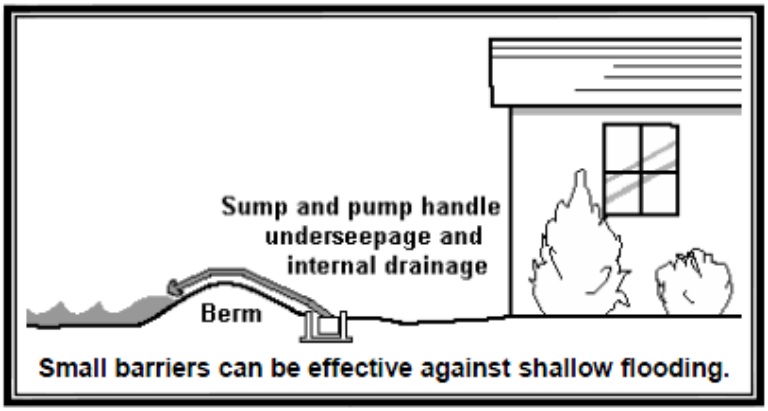
A flood protection barrier can be built of dirt or soil (a "berm") or concrete or steel (a "floodwall"). Careful design is needed so as not to create flooding or drainage problems on neighboring properties. Depending on how porous the ground is, if floodwaters will stay up for more than an hour or two, the design needs to account for leaks, seepage of water underneath, and rainwater that will fall inside the perimeter. This is usually done with a sump or drain to collect the internal groundwater and surface water and a pump and pipe to pump the internal drainage over the barrier.

Figure C-6 Types of Barriers

This low floodwall has landscaping to minimize the adverse impact on the property's appearance.

Small, wood frame buildings are the easiest to relocate

Source: Kennedy House Movers, Huntsville, AL



Small barriers can be effective against shallow flooding.

Barriers can only be built so high. They can be overtopped by a flood higher than expected. Barriers made of earth are susceptible to erosion from rain and floodwaters if not properly sloped, covered with grass, and properly maintained. A berm can also settle over time, lowering its protection level. A floodwall can crack, weaken, and lose its watertight seal. Therefore, barriers need careful design and maintenance (and insurance on the building, in case of failure).

Relocation

Moving a building to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost increases for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings.

In areas subject to flash flooding, deep waters, or other high hazard, relocation is often the only safe approach. Relocation is also preferred for large lots that include buildable areas outside the floodplain or where the owner has a new flood-free lot (or portion of the existing lot) available.

Building Elevation

Raising a building above the flood level can be almost as effective as moving it out of the floodplain. Water flows under the building, causing little or no damage to the structure or its contents. Raising a building above the flood level is cheaper than moving it and can be less disruptive to a neighborhood. Elevation has proven to be an acceptable and reasonable means of complying with floodplain regulations that require new, substantially improved, and substantially damaged buildings to be elevated above the base flood elevation.

One concern with elevation is that it may expose the structure to greater impacts from other hazards such as wind and groundshaking. If not braced and anchored properly, an elevated building may have less resistance to the shaking of an earthquake and the pressures of high winds.

Demolition

Some buildings, especially heavily damaged or repetitively flooded ones, are not worth the expense to protect them from future damages. It is cheaper to demolish them and either replace them with new, flood protected structures ("pilot reconstruction"), or relocate the occupants to a safer site. Demolition is also appropriate for buildings that are difficult to move - such as larger, slab foundation or masonry structures - and for dilapidated structures that are not worth protecting. Generally, demolition projects are undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to public open space use, like a park.

Figure C-7 Demolition of Flooded Home

Demolishing a repetitively flooded home

One problem that sometimes results from an acquisition and demolition project is a "checkerboard" pattern in which nonadjacent properties are acquired. This can occur when some owners, especially those who have and prefer a waterfront location, are reluctant to leave their homes. Creating such an acquisition pattern in a community simply adds to the maintenance costs that taxpayers must support.

Pilot Reconstruction

If a building is not in good shape, elevating it may not be worthwhile or it may even be dangerous. An alternative is to demolish the structure and build a new one on the site that meets or exceeds all flood and wind protection codes. This was formerly known as "demo/rebuild." FEMA funding programs refer to this approach as "pilot reconstruction." It is still a pilot program, and not a regularly funded option.

Certain rules must be followed to qualify for federal funds for pilot reconstruction:

- Pilot reconstruction is only possible after it has been shown that acquisition or elevation are not feasible, based on the program's criteria.
- Funds are only available to people who owned the property at the time of the event for which funding is authorized.
- It must be demonstrated that the benefits exceed the costs.
- The new building must be elevated to the advisory base flood elevation.
- The new building must not exceed more than 10% of the old building's square footage.
- The new building must meet all flood and wind protection codes.
- There must be a deed restriction that states the owner will buy and keep a flood insurance policy.
- The maximum federal grant is 75% of the cost, up to $150,000. FEMA is developing a detailed list of eligible costs to ensure that disaster funds are not used to upgrade homes.

Local Implementation

Within the Placer County planning area, acquisition projects have occurred within the City of Roseville, which is not a participant to this plan. However, following the 1995 floods, Placer County, through a hazard mitigation grant, elevated 38 structures along Miners Ravine and Dry Creek.

CRS Credit

The CRS provides the most credit points for acquisition and relocation, because this measure permanently removes insurable buildings from the floodplain. The CRS credits barriers and elevating existing buildings (Activity 530 - Flood Protection). Elevating a building above the flood level will also reduce the flood insurance premiums on that individual building. Because barriers are less secure than elevation, not as many points are provided. Higher scores are possible, but they are based on the number of buildings removed compared to the number remaining in the floodplain.

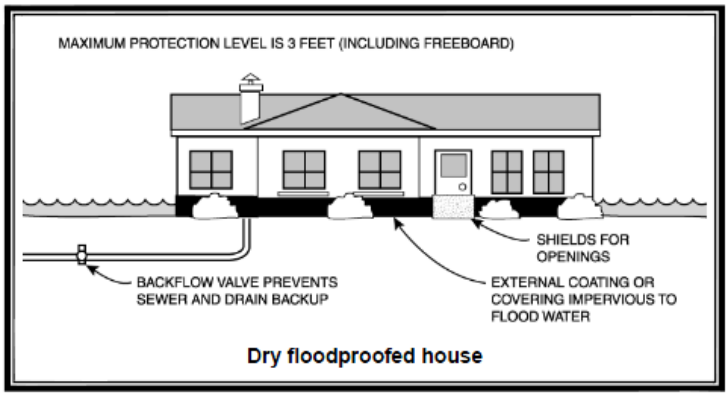
Retrofitting

An alternative to keeping the hazard away from a building is to modify or retrofit the site or building to minimize or prevent damage. There are a variety of techniques to do this, as described below.

Dry Floodproofing

Dry floodproofing means making all areas below the flood protection level watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings, such as doors, windows and vents, are closed, either permanently, with removable shields, or with sandbags. Dry floodproofing of new and existing nonresidential buildings in the regulatory floodplain is permitted under state, FEMA and local regulations. Dry floodproofing of existing residential buildings in the floodplain is also permitted as long as the building is not substantially damaged or being substantially improved. Owners of buildings located outside the regulatory floodplain can always use dry floodproofing techniques.

Figure C-8 Dry Floodproofing



Dry floodproofing is only effective for shallow flooding, such as repetitive drainage problems. It does not protect from the deep flooding along lakes and larger rivers caused by hurricanes or other storms.

Wet Floodproofing

The alternative to dry floodproofing is wet floodproofing: water is let in and everything that could be damaged by a flood is removed or elevated above the flood level. Structural components below the flood level are replaced with materials that are not subject to water damage. For example, concrete block walls are used instead of wooden studs and gypsum wallboard. The furnace, water heater and laundry facilities are permanently relocated to a higher floor. Where the flooding is not deep, these appliances can be raised on blocks or platforms.

Local Implementation

Dry flood proofing would likely be most appropriate for most of Placer County due to the current base flood elevations and the nature of flooding in the County (relatively low level flooding).

CRS Credit

Credit for dry and wet floodproofing and sewer backup protection is provided under Activity 530 - Retrofitting. Because these property protection measures are less secure than barriers and elevation, not as many points are provided.

Insurance

Technically, insurance does not mitigate damage caused by a natural hazard. However, it does help the owner repair, rebuild, and hopefully afford to incorporate some of the other property protection measures in the process. Insurance offers the advantage of protecting the property, as long as the policy is in force, without requiring human intervention for the measure to work.

Private Property

Although most homeowner's insurance policies do not cover a property for flood damage, an owner can insure a building for damage by surface flooding through the NFIP. Flood insurance coverage is provided for buildings and their contents damaged by a "general condition of surface flooding" in the area.

Figure C-9 Flood Insurance Coverage

Table 5-1 Example Flood Insurance Premiums	
Building Exposure	**Premium**
In the Special Flood Hazard Area (AE Zone)	
Pre-FIRM ("subsidized") rate	$1,689
Post-FIRM (actuarial) rates	
2 feet above the base flood elevation	$440
1 foot above the base flood elevation	$643
At the base flood elevation	$1,167
1 foot below the base flood elevation	$4,379
Outside the Special Flood Hazard Area	$1,029
Premiums are for $150,000 in building coverage and $75,000 in contents coverage for a one story house with no basement and a $500 deductible, using the October 2008 *Flood Insurance Manual*. Premiums include the 5% Community Rating System discount in unincorporated St. Tammany Parish. Premiums are higher in the municipalities, which are not in the CRS.	

Most people purchase flood insurance because it is required by the bank when they get a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. Contents coverage can be purchased separately. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building. Most people don't realize that there is a 30-day waiting period to purchase a flood insurance policy and there are limits on coverage.

Public Property

Governments can purchase commercial insurance policies. Larger local governments often self-insure and absorb the cost of damage to one facility, but if many properties are exposed to damage, self-insurance can drain the government's budget. Communities cannot expect federal disaster assistance to make up the difference after a flood.

Under Section 406(d) of the Stafford Act:

> *"If an eligible insurable facility damaged by flooding is located in a [mapped floodplain] … and the facility is not covered (or is underinsured) by flood insurance on the date of such flooding, FEMA is required to reduce Federal disaster assistance by the maximum amount of insurance proceeds that would have been received had the buildings and contents been fully covered under a National Flood Insurance Program (NFIP) standard flood insurance policy. [Generally, the maximum amount of proceeds for a non-residential property is $500,000.]*

[Communities] Need to:

- Identify all insurable facilities, and the type and amount of coverage (including deductibles and policy limits) for each. The anticipated insurance proceeds will be deducted from the total eligible damages to the facilities.

- Identify all facilities that have previously received Federal disaster assistance for which insurance was required. Determine if insurance has been maintained. A failure to maintain the required insurance for the hazard that caused the disaster will render ineligible for Public Assistance funding…
- [Communities] must obtain and maintain insurance to cover [their] facility - buildings, equipment, contents and vehicles - for the hazard that caused the damage in order to receive Public Assistance funding. Such coverage must, at a minimum, be in the amount of the eligible project costs. FEMA will not provide assistance for that facility in future disasters if the requirement to purchase insurance is not met. - FEMA Response and Recovery Directorate Policy No. 9580.3, August 23, 2000

In other words, the law expects public agencies to be fully insured as a condition of receiving federal disaster assistance.

Local Implementation

Flood insurance is available in the County. NFIP insurance data indicates that as of September 30, 2015, there were 568 policies in force in the unincorporated County, resulting in $163,034,100 of insurance in force. Of these, 546 are for residential properties; 22 are nonresidential. 201 (or 18%) of these are in A zones; 367 policies are for parcels in the B, C, & X zones. Additional information on these policies are described in Section 4.3.7 of the base plan.

CRS Credit

There is no credit for purchasing flood insurance, but the CRS does provide credit for local public information programs that explain flood insurance to property owners. The CRS also reduces the premiums for those people who do buy NFIP coverage.

The Government's Role

Property protection measures are usually considered the responsibility of the property owner. However, local governments should be involved in all strategies that can reduce flood losses, especially acquisition and conversion of a site to public open space. There are various roles a municipality can play in encouraging and supporting implementation of these measures.

One of the first duties of a local government is to protect its own facilities. Fire stations, water treatment plants and other critical facilities should be a high priority for retrofitting projects and insurance coverage. Often public agencies discover after the disaster that their "all-hazard" insurance policies do not cover the property for the type of damage incurred. Flood insurance is even more important as a mitigation measure because of certain Stafford Act provisions.

Providing basic information to property owners is the first step in supporting property protection measures. Owners need general information on what can be done. They need to see examples, preferably from nearby.

Communities can help owners by helping to pay for a retrofitting project. Financial assistance can range from full funding of a project to helping residents find money from other programs. Some communities assume responsibility for sewer backups, street flooding, and other problems that arise from an inadequate public sewer or public drainage system. Less expensive community programs include low interest loans, forgivable low interest loans and rebates. A forgivable loan is one that does not need to be repaid if the

owner does not sell the house for a specified period, such as five years. These approaches don't fully fund the project, but they cost the community less and they increase the owner's commitment to the flood protection project. Often, small amounts of money act as a catalyst to pique the owner's interest to get a self-protection project moving.

The more common outside funding sources are listed below. Unfortunately, the last three are only available after a disaster, not before, when damage could be prevented.

Pre-disaster funding sources:

- FEMA's Pre-Disaster Mitigation (PDM) grants
- FEMA's Flood Mitigation Assistance (FMA) grants
- Community Development Block Grants
- Conservation organizations, although generally these organizations prefer to purchase vacant land in natural areas, not properties with buildings on them.

Post-disaster funding sources:

- Insurance claims
- The NFIP's Increased Cost of Compliance. This provision increases a flood insurance claim payment to help pay for a flood protection project required by code as a condition to rebuild the flooded building. It can also be used to help pay the non-federal cost-share of an elevation project.

Post-disaster funding sources, federal disaster declaration needed:

- FEMA's disaster assistance (for public properties). However, after a flood, the amount of assistance will be reduced by the amount of flood insurance that the public agency should be carrying on the property.
- Small Business Administration disaster loans (for non-governmental properties)
- FEMA's Hazard Mitigation Grant Program

Acquisition Agent

The community can be the focal point in an acquisition project. Most funding programs require a local public agency to sponsor the project. The local government could process the funding application, work with the owners, and provide some, or all, of the local share. In some cases, the local government would be the ultimate owner of the property, but in other cases another public agency could assume ownership and the attendant maintenance responsibilities.

Mandates

Mandates are considered a last resort if information and incentives are insufficient to convince a property owner to take protective actions. An example of a retrofitting mandate is the requirement that communities have to disconnect downspouts from the sanitary sewer line.

There is a mandate for improvements or repairs made to a building in the mapped floodplain. If the project equals or exceeds 50% of the value of the original building, it is considered a "substantial improvement." The building must then be elevated or otherwise brought up to current flood protection codes.

Another possible mandate is to require less expensive hazard protection steps as a condition of a building permit. For example, many communities require upgraded electrical service as a condition of a home improvement project. If a person were to apply for a permit for electrical work, the community could require that the service box be moved above the base flood elevation or the installation of a separate ground fault interrupter circuits in the basement.

Local Implementation

Within Placer County several homes have been retrofitted for flood protection and others have been elevated, while no homes have been acquired and relocated. The largest retrofit project within the unincorporated county was after the 1995 flood event, along with the 38 elevations, located along Miners Ravine and Dry Creek.

CRS Credit

Except for public information programs, the CRS does not provide credit for efforts to fund, provide incentives, or mandate property protection measures. CRS credits are provided for the actual projects after they are completed. However, to participate in CRS, a community must certify that it has adequate flood insurance on all properties that have been required to be insured. The minimum requirement is to insure those properties in the mapped floodplain that have received federal aid, as specified by the Flood Disaster Protection Act of 1973.

Repetitive Loss Properties and Analysis

Repetitive loss properties deserve special attention because they are more prone to damage by natural hazards than any other properties in the County planning area. Further, protecting repetitive loss buildings is a priority with FEMA mitigation funding programs.

Unincorporated Placer County's vulnerability to flooding is highlighted by its number of Repetitive Losses. According to the September 15, 2014 data from the state on NFIP communities, there are 9 repetitive loss (RL) buildings in the unincorporated County with 21 paid losses totaling 418,069.75. Of these RL buildings, 4 are in the A zones and 5 are in the B, C, or X zone. None of these structures has incurred four or more losses. There are no severe repetitive loss properties in the Unincorporated County.

Conclusions and Recommendations

- There are several ways to protect individual properties from damage by natural hazards. The advantages and disadvantages of each should be examined for each situation.
- Property protection measures can protect the most damage-prone buildings in the County planning area including repetitive loss properties.
- Less than 19% of the buildings in the floodplains in unincorporated Placer County are covered by flood insurance.
- Property owners can implement some property protection measures at little cost, especially for sites in areas of low hazards (e.g., shallow flooding, sewer backup, and thunderstorms). For other measures, such as relocation and elevation, the owners may need financial assistance.
- Local government agencies can promote and support property protection measures through several activities, ranging from public information to financial incentives to full funding.

- It is unlikely that most government properties, including critical facilities, have any special measures to protect them from flooding.
- Because properties in floodplains will be damaged at some point, efforts should continue to provide information and advice to floodplain property owners. Special attention should be given to repetitive loss and high hazard areas.
- Public education materials can be developed/enhanced to explain property protection measures that can help owners reduce their exposure to damage by floods and the various types of insurance that are available.
- All property protection projects should be voluntary. Other than state and federally mandated regulations, local incentives should be positive as much as possible, such as providing financial assistance.
- A FEMA Hazard Mitigation Assistance (HMA) Grant workshop focused on private firms and citizens could be conducted annually to showcase the assistance that FEMA (HMGP, PDM, FMA, RFC and SRL) provides and to encourage public participation.
- A standard checklist could be developed to evaluate a property's exposure to damage from floods. It should include a review of insurance coverage and identify where more information can be found on appropriate property protection measures. The checklist should be provided to each agency participating in this planning process and made available to the public.
- Placer County should evaluate its own properties using the standard checklist. A priority should be placed on determining critical facilities' vulnerability to damage and whether public properties are adequately insured.
- Placer County should protect their own publicly owned facilities with appropriate mitigation measures.

References

Disaster Mitigation Guide for Business and Industry, Federal Emergency Management Agency, FEMA-190, 1990.

Engineering Principles and Practices for Retrofitting Flood Prone Residential Buildings, FEMA, FEMA-259, 1995.

Flood Insurance Agent's Manual, FEMA, 2000.

Flood Proofing Techniques, Programs and References, U.S. Army Corps of Engineers National Flood Proofing Committee, 1991.

Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding. FEMA, FEMA-312, 1998.

Local Flood Proofing Programs, U.S. Army Corps of Engineers, 1994.

C.3.3. Natural Resource Protection

Resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. These activities enable the naturally beneficial functions of fields, floodplains, wetlands, and other natural lands to operate more effectively. Natural and beneficial functions of watersheds, floodplains and wetlands include:

- Reduction in runoff from rainwater and snow melt in pervious areas

- Infiltration that absorbs overland flood flow
- Removal and filtering of excess nutrients, pollutants and sediments
- Storage of floodwaters
- Absorption of flood energy and reduction in flood scour
- Water quality improvement
- Groundwater recharge
- Habitat for flora and fauna
- Recreational and aesthetic opportunities

As development occurs, many of the above benefits can be achieved through regulatory steps for protecting natural areas or natural functions. The regulatory programs are discussed in Section 5.3 Preventive Measures of the base plan. This section covers the resource protection programs and standards that can help mitigate the impact of natural hazards, while they improve the overall environment. Seven areas are reviewed:

- Wetland protection
- Erosion and sedimentation control
- River restoration
- Best management practices
- Dumping regulations
- Urban forestry
- Farmland protection

Wetland Protection

Wetlands are often found in floodplains and depressional areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flows. They also serve as a natural filter, which helps to improve water quality, and they provide habitat for many species of fish, wildlife and plants.

Wetlands that are determined to be part of the waters of the United States are regulated by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (US EPA) under Section 404 of the Clean Water Act. Before a "404" permit is issued, the plans are reviewed by several agencies, including the Corps and the U.S. Fish and Wildlife Service. Each of these agencies must sign off on individual permits.

There are also nationwide permits that allow small projects that meet certain criteria to proceed without individual permits. Wetlands not included in the Corps' jurisdiction or that are addressed by a nationwide permit may be regulated against by local authorities.

If a permit is issued by the Corps, County, or one of the cities, the impact of the development is typically required to be mitigated. Wetland mitigation can include creation, restoration, enhancement or preservation of wetlands elsewhere. Wetland mitigation is often accomplished within the development site, however, mitigation is allowed off-site and sometimes in another watershed. The appropriate type of mitigation is addressed in each permit.

Some developers and government agencies have accomplished the required mitigation by buying into a wetland bank. Wetland banks are large wetlands created for the purpose of mitigation. The banks accept money to reimburse the owner for setting the land aside from development.

When a wetland is mitigated at a separate site there are drawbacks to consider. First, it takes many years for a new wetland to approach the same quality as an existing one. Second, a new wetland in a different location (especially if it is in a different watershed) will not have the same flood damage reduction benefits as the original one did.

Local Implementation

Placer County has ordinances that reduce the ability to develop near a wetland. The building and development section of the municipal code restricts grading and soil disturbances in wetlands, drainage ways, stream environment zones, or water bodies.

CRS Credit

The CRS focuses on activities that directly affect flood damage to insurable buildings. While there is no credit for relying on the Corps of Engineers' 404 regulations, there is credit for preserving open space in its natural condition or restored to a state approximating its natural condition. The credit is based on the percentage of the floodplain that can be documented as wetlands protected from development by ownership or local regulations.

The CRS focuses on activities that directly affect flood damage to insurable buildings. While there is no credit for relying on the Corps of Engineers' 404 regulations, there is credit for maintaining water quality buffers that protect streams, rivers, lakes and shorelines in their natural condition or restoring them to an approximate natural state. Credit is also available for an approved habitat conservation plan.

Erosion and Sedimentation Control

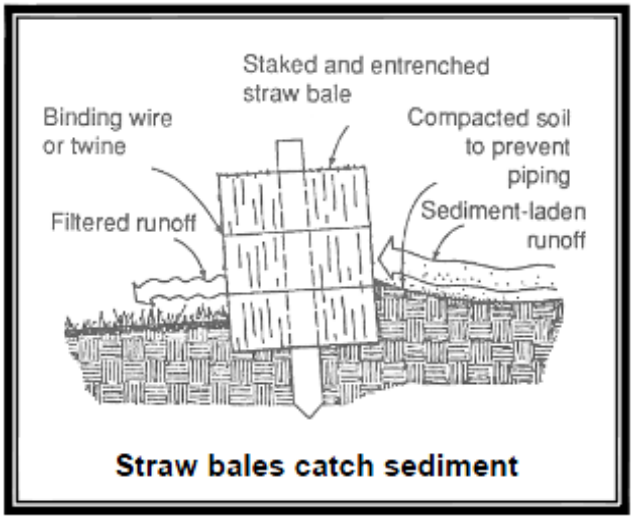
Farmlands and construction sites typically contain large areas of bare exposed soil. Surface water runoff can erode soil from these sites, sending sediment into downstream waterways. Erosion also occurs along stream banks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil.

Sediment suspended in the water tends to settle out where flowing water slows down. This can clog storm drains, drain tiles, culverts and ditches and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands. When channels are constricted and flooding cannot deposit sediment in the bottomlands, even more sediment is left in the channels. The result is either clogged streams or increased dredging costs.

Not only are the drainage channels less able to perform their job, but the sediment in the water reduces light, oxygen and water quality, and often carries chemicals, heavy metals and other pollutants. Sediment has been identified by the US EPA as the nation's number one nonpoint source pollutant for aquatic life.

There are two principal strategies to address these problems: minimize erosion and control sedimentation. Techniques to minimize erosion include phased construction, minimal land clearing, and stabilizing bare ground as soon as possible with vegetation and other soil stabilizing practices.

Figure C-10 Erosion Control



If erosion occurs, other measures are used to capture sediment before it leaves the site. Silt fences, sediment traps and vegetated filter strips are commonly used to control sediment transport. Runoff from the site can be slowed down by terraces, contour strip farming, no-till farm practices, hay or straw bales, constructed wetlands, and impoundments (e.g., sediment basins and farm ponds). Slowing surface water runoff on the way to a drainage channel increases infiltration into the soil and reduces the volume of topsoil eroded from the site.

Erosion and sedimentation control regulations mandate that these types of practices be incorporated into construction plans. The most common approach is to require applicants for permits to submit an erosion and sediment control plan for the construction project. This allows the applicant to determine the best practices for the site.

Local Implementation

The County has ordinances that include standards for erosion and sedimentation control. The Placer County Flood Control District has an annual stream clearing program. Placer County completed water quality monitoring in the Truckee River Basin and monitors sediment loading the Lake Tahoe Basin https://www.enviroaccounting.com/TahoeTMDL/Program/Display/ForUrbanJurisdictions .

CRS Credit

Local governments whose ordinances include erosion and sedimentation control provisions can qualify for up to 45 points for this measure.

River Restoration

There is a growing movement that has several names, such as "stream conservation," "bioengineering," or "riparian corridor restoration." The objective of these approaches is to return streams, stream banks and

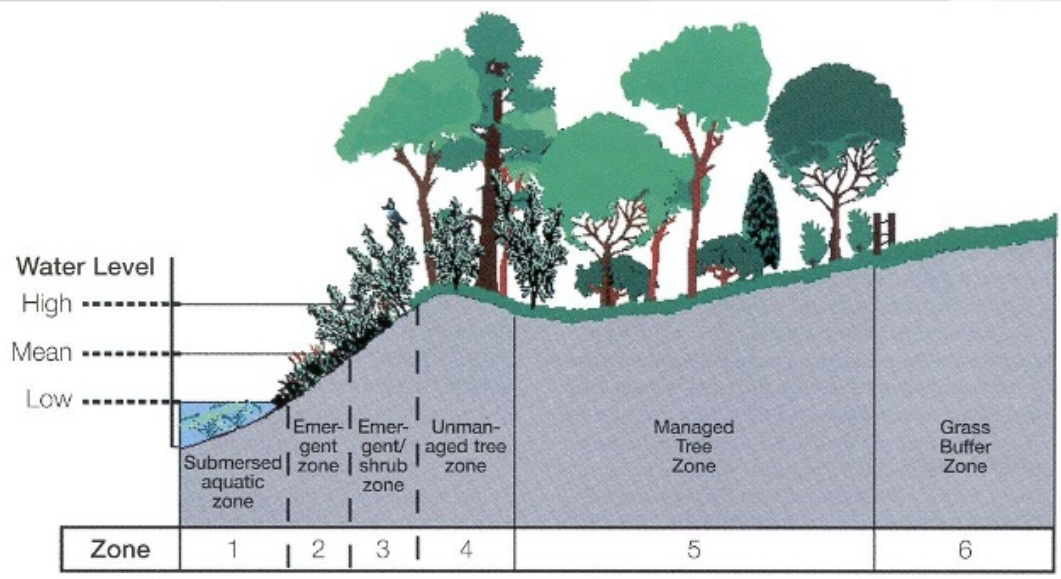
adjacent land to a more natural condition, including the natural meanders. Another term is "ecological restoration," which restores native indigenous plants and animals to an area.

A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

In all, restoring the right vegetation to a stream has the following advantages:

- Reduces the amount of sediment and pollutants entering the water
- Enhances aquatic habitat by cooling water temperature
- Provides food and shelter for both aquatic and terrestrial wildlife
- Can reduce flood damage by slowing the velocity of water
- Increases the beauty of the land and its property value
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing and bird watching
- Reduces long-term maintenance costs

Figure C-11 River Restoration Zones



Aquatic and riparian buffer plant zones

Different types of plants are used in different buffer zones along a channel. Zone 1 plants are normally submerged while zone 2 plants are inundated during much of the growing season. Zone 3 plants are water tolerant, but are flooded only during high water. By using the proper plants in each zone, they stabilize streambanks, filter polluted runoff, and provide habitat. *Source: Banks and Buffers – A Guide to Selecting Native Plants for Streambanks and Shorelines*, Tennessee Valley Authority

Local Implementation

Placer County has implemented these activities for water quality and floodplain management purposes. See http://www.placer.ca.gov/Departments/CommunityDevelopment/planning/PCCP.aspx.

CRS Credit

The CRS focuses on activities that directly affect flood damage to insurable buildings. However, there are credits for preserving open space in its natural condition or restored to a state approximating its natural condition. There are also credits for channel setbacks, buffers and protecting shorelines. Placer County currently receives a small credit for open space conservation.

Best Management Practices

Point source pollutants come from pipes such as the outfall of a municipal wastewater treatment plant. They are regulated by the US EPA and the California Department of Water Resources. Nonpoint source pollutants come from non-specific locations and harder to regulate. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, other chemicals, animal wastes, oils from street surfaces and industrial areas, and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams.

The term "best management practices" (BMPs) refers to design, construction and maintenance practices and criteria that minimize the impact of stormwater runoff rates and volumes, prevent erosion, protect natural resources and capture nonpoint source pollutants (including sediment). They can prevent increases in downstream flooding by attenuating runoff and enhancing infiltration of stormwater. They also minimize water quality degradation, preserve beneficial natural features onsite, maintain natural base flows, minimize habitat loss, and provide multiple usages of drainage and storage facilities.

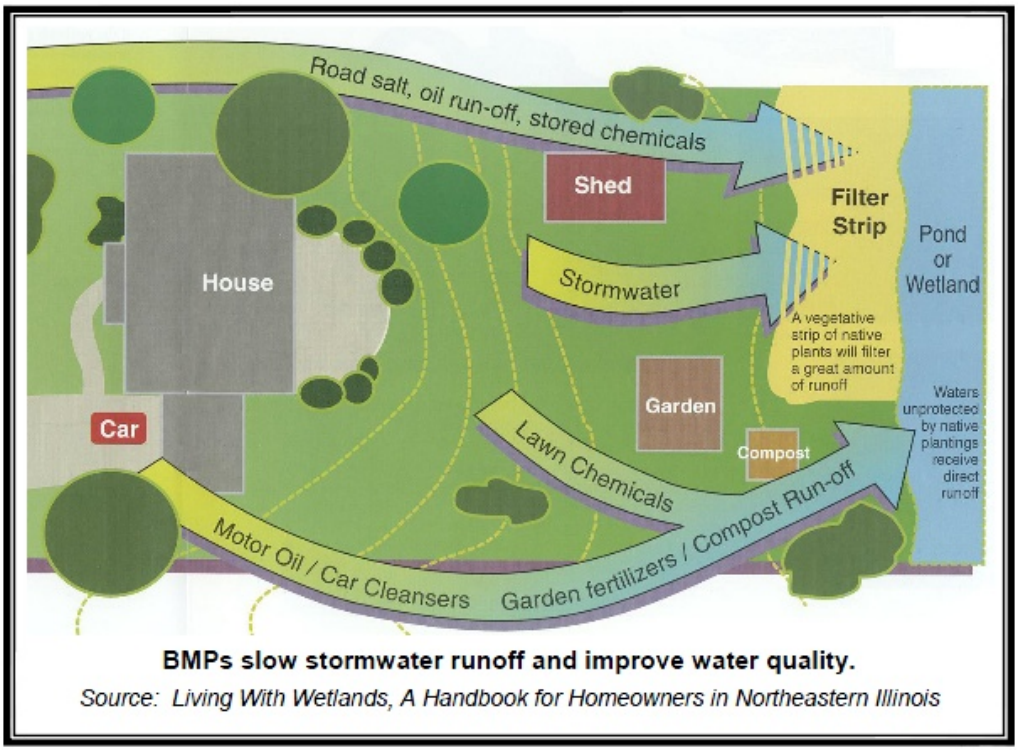
Local Implementation

Placer County participates in the National Pollutant Discharge Elimination System permitting program and require BMPs to minimize stormwater impacts.

CRS Credit

A community can receive CRS points if regulations require new developments to include in the design of their permanent stormwater management facilities appropriate BMPs that will improve the quality of surface waters.

Figure C-12 Stormwater Best Management Practices



BMPs slow stormwater runoff and improve water quality.

Source: Living With Wetlands, A Handbook for Homeowners in Northeastern Illinois

Dumping Regulations

BMPs usually address pollutants that are liquids or are suspended in water that are washed into a lake or stream. Dumping regulations address solid matter, such as shopping carts, appliances and landscape waste that can be accidentally or intentionally thrown into channels or wetlands. Such materials may not pollute the water, but they can obstruct even low flows and reduce the channels' and wetlands' abilities to convey or clean stormwater.

Many communities have nuisance ordinances that prohibit dumping garbage or other "objectionable waste" on public or private property. Waterway dumping regulations need to also apply to "non-objectionable" materials, such as grass clippings or tree branches, which can kill ground cover or cause obstructions in channels. Regular inspections to catch violations should be scheduled.

Many people do not realize the consequences of their actions. They may, for example, fill in the ditch in their front yard without realizing that is needed to drain street runoff. They may not understand how regarding their yard, filling a wetland, or discarding leaves or branches in a watercourse can cause a problem to themselves and others. Therefore, a dumping enforcement program should include public information materials that explain the reasons for the rules as well as the penalties.

Local Implementation

Placer County ordinances makes it unlawful for anyone to deposit waste, grass, weeds, brush or other refuse in any street, ditch or watercourse, or on others' property, or on public property. It is also illegal to dispose of certain wastes in public sewers.

CRS Credit

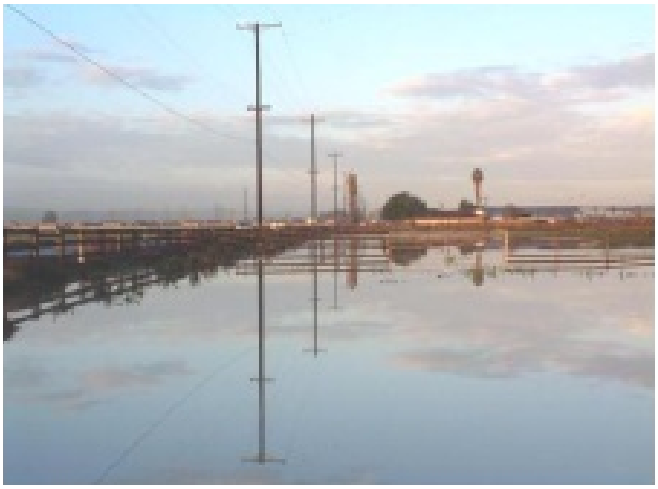
The CRS provides credit for enforcing and publicizing a regulation that prohibits dumping in the drainage system.

Farmland Protection

Farmland protection is quickly becoming an important piece of comprehensive planning and zoning throughout the United States. The purpose of farmland protection is to provide mechanisms for prime, unique, or important agricultural land to remain as such, and to be protected from conversion to nonagricultural uses.

Frequently, farm owners sell their land to residential or commercial developers and the property is converted to non-agricultural land uses. With development comes more buildings, roads and other infrastructure. Urban sprawl occurs, which can lead to additional stormwater runoff and emergency management difficulties.

Figure C-13 Floodplain Damages to Farmland



Farms on the edge of cities are often appraised based on the price they could be sold for to urban developers. This may drive farmers to sell to developers because their marginal farm operations cannot afford to be taxed as urban land. The Farmland Protection Program in the United States Department of Agriculture's 2002 Farm Bill (Part 519) allows for funds to go to state, tribal, and local governments as well as nonprofit organizations to help purchase easements on agricultural land to protect against the development of the land. Eligible land includes cropland, rangeland, grassland, pastureland, or forest land that is part of an agricultural operation. Certain lands within historical or archaeological resources are also included.

The hazard mitigation benefits of farmland protection are similar to those of open space preservation:

- Farmland is preserved for future generations,
- Farmland in the floodplain keeps damageable structures out of harm's way,
- Farmland keeps more stormwater on site and lets less stormwater runoff downstream,
- Rural economic stability and development is sustained,
- Ecosystems are maintain, restored or enhanced, and
- The rural character and scenic beauty of the area is maintained.

Local Implementation

Placer County currently requires farmland protection provisions under the Williamson Act.

CRS Credit

Credit is given for preserving open space in the floodplain, regardless of why it is being preserved. Credit is also provided for density zoning of floodprone areas.

Conclusions and Recommendations

- A hazard mitigation program can use resource protection programs to support protecting areas and natural features that can mitigate the impacts of natural hazards.
- Placer County ordinances prohibit illicit discharges into public sewers or onto public or private property.
- Preserving farmland in the floodplain will maintain open space and prevent damage to homes, businesses, and other development.
- The public and decision makers should be informed about the hazard mitigation benefits of restoring rivers, wetlands and other natural areas. Restoration and protection techniques should be explained.
- Placer County may consider publicizing its illicit discharge rules more widely.
- The public should be informed about the need to protect streams and wetlands from dumping and inappropriate development and the relevant codes and regulations.

References

Banks and Buffers - A Guide to Selecting Native Plants for Stream banks and Shorelines, Tennessee Valley Authority, 1997.

CRS Coordinator's Manual, Community Rating System, FEMA, 2013.

Stream Corridor Restoration Principles, Processes and Practices, Federal Interagency Stream Restoration Working Group, 1998.

C.3.4. Emergency Services Measures

Emergency services measures protect people during and after a disaster. A good emergency management program addresses all hazards, and it involves all local government departments. At the state level, emergency services programs are coordinated by the California Office of Emergency Services (Cal OES). Locally, emergency services are coordinated by the Placer County Office of Emergency Services.

This section reviews emergency services measures following a chronological order of responding to an emergency. It starts with identifying an impending problem (threat recognition) and continues through post-disaster activities.

Threat Recognition

The first step in responding to a flood, storm, or other natural hazard is to know when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated.

The National Weather Service (NWS) is the prime agency for detecting meteorological threats, such as tornadoes, thunderstorms and winter storms. Severe weather warnings are transmitted through NOAA's Weather Radio System. Federal agencies can only look at the large scale, e.g., whether conditions are appropriate for the formation of a thunderstorm. Local emergency managers can provide more site-specific and timely recognition by sending out NWS trained spotters to watch the skies when the Weather Service issues a watch or a warning.

Severe snow storms can often be forecast days in advance of the expected event, which allows time for warning and preparation. Though more difficult, the NWS can also forecast ice storms.

A flood threat recognition system predicts the time and height of a flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels.

On larger rivers, this measuring and calculating is performed by the NWS, a part of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Support for NOAA's efforts is provided by cooperating partners from state and local agencies. Forecasts of expected river stages are made through the Advanced Hydrologic Prediction Service (AHPS) of the National Weather Service. Flood threat predictions are disseminated on the NOAA Weather Wire or NOAA Weather Radio. NOAA Weather Radio is considered by the federal government as the official source for weather information.

On smaller rivers, locally established rainfall and river gauges are needed to establish a flood threat recognition system. The NWS may issue a "flash flood watch." This is issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain nor imminent. These events are so localized and so rapid that a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available. In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

Local Implementation

The County has an emergency operations plan which is currently being updated in 2016 that includes procedures for threat identification The County is not currently a StormReady certified County. StormReady communities are better prepared to save live from the onslaught of severe weather through advanced planning, education, and awareness. Placer County OES does, however, works closely with the

National Weather Service for issuing an Emergency Alert System (EAS). Additional County's threat identification mechanisms include:

ALERT System. The County's network of ALERT Flood Warning gauges, including numerous precipitation gages and stream level gages located throughout western Placer County provide real time monitoring information on current flood conditions which assist in informing the activation of additional warning and evacuation of affected areas.

Dam Protocols. Should an event trigger the activation of an Emergency Action Plan (EAP) for a potential dam failure, County OES receives this information via direct phone calls from the originating source/agency or from PCSO Dispatch and/or Cal OES. County OES then follows the notification and evacuation procedures called for in the EAP.

CRS Credit

Credit can be received for using river flood stage predictions for the NWS's gages. The actual score is based on how much of the community's floodplain is affected by these systems. Potential CRS credit is possible under Activity 610 - Flood Warning Program and Response.

Warning

After the threat recognition system tells the emergency services office that a flood, tornado, thunderstorm, or other hazard is coming, the next step is to notify the public and staff of other agencies and critical facilities. More people can implement protection measures if warnings are early and include specific detail.

The NWS issues notices to the public using two levels of notification:

- Watch: conditions are right for flooding, thunderstorms, tornadoes or winter storms.
- Warning: a flood, tornado, etc., has started or been observed.

A more specific warning may be disseminated by the community in a variety of ways. The following are the more common methods:

- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Outdoor warning sirens
- Sirens on public safety vehicles
- Door-to-door contact
- Mobile public address systems
- Email notifications

Multiple or redundant systems are most effective - if people do not hear one warning, they may still get the message from another part of the system. Each has advantages and disadvantages:

- Radio and television provide a lot of information, but people have to know when to turn them on. They are most appropriate for hazards that that develop over more than a day, such as a tropical storm, hurricane, or winter storm.
- NOAA Weather Radio can provide short messages of any impending weather hazard or emergency and advise people to turn on their televisions for more information, but not everyone has a Weather Radio.
- Outdoor warning sirens can reach many people quickly as long as they are outdoors. They do not reach people in tightly-insulated buildings or those around loud noise, such as at a factory, during a thunderstorm, or in air conditioned homes. They do not explain what hazard is coming, but people should know to turn on a radio or television when they hear the siren.
- Automated telephone notification services are also fast, but can be expensive and do not work when phone lines are down. Nor do they work for unlisted numbers, call screening services, or cellular service, unless people sign up for notifications.
- Where a threat has a longer lead time, going door-to-door and manual telephone trees can be effective.

Just as important as issuing a warning is telling people what to do in case of an emergency. A warning program should have a public information aspect. Citizens should know the difference between a tornado warning (when they should seek shelter in a low spot), a flood warning (when they should stay out of low areas), and other appropriate warnings and responses.

StormReady

The National Weather Service established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center,
- Have more than one way to receive severe weather warnings and forecasts and to alert the public,
- Create a system that monitors weather conditions locally,
- Promote the importance of public readiness through community seminars, and
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Being designated a StormReady community by the National Weather Service is a good measure of a community's emergency warning program for weather hazards. It is also credited by the CRS.

Local Implementation

The Placer County Office of Emergency Services serves as the emergency manager during an emergency. Local police and fire departments are also responsible for enforcing actions required during an emergency. In the event of a severe flood, wildfire or other natural hazard event, the Placer County OES webpage will identify current emergencies at: http://www.placer.ca.gov/Departments/CEO/Emergency/CurrentEmergencyInfo.aspx. The County will also provide emergency information and broadcast warnings on local radio and television stations as well as on social media websites such as Facebook and Twitter. The new Everbridge system, described further below, may be activated and helicopters may be used to broadcast warnings/alerts via a PA system. If time and condition/safety permits, vehicle patrol units may also broadcast warnings in affected areas.

Everbridge. In 2015, Placer County and all participating cities to this plan established the Everbridge Alert System employed for issuing flood warnings, alerts and evacuation notices to the public. The Placer County Flood Control and Water Conservation District coordinated with County OES, Sheriff, County Planning, and Department of Public Works for this system. Flood warning zones across the County were created and Sheriff's dispatch is the lead agency in employing Everbridge and issuing specific flood event warnings as necessary. The District will continue to assist during an event by providing technical input to OES as to the need for a warning issuance as well as any resulting evacuations.

CRS Credit

Community Rating System points are based on the number and types of warning media that can reach the community's flood prone population. Depending on the location, communities can receive credit for the telephone calling system and more points if there are additional measures, like telephone trees. Being designated as a StormReady community can provide additional points. These credits are in Activity 610 - Flood Warning Program and Response.

Response

The protection of life and property is the most important task of emergency responders. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency preparedness),
- Closing streets or bridges (police or public works),
- Shutting off power to threatened areas (utility company),
- Passing out sand and sandbags (public works),
- Holding children at school or releasing children from school (school superintendent),
- Opening evacuation shelters (the American Red Cross),
- Monitoring water levels (public works), and
- Establishing security and other protection measures (police).

An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans are developed in coordination with the agencies or offices that are given various responsibilities.

A flood stage forecast map shows areas that will be under water at various flood stages. Different flood levels are shown as color coded areas, so the emergency manager can quickly see what will be affected. Emergency management staff can identify the number of properties flooded, which roads will be under water, which critical facilities will be affected, and who to warn. With this information, an advance plan can be prepared that shows problem sites and determines what resources will be needed to respond to the predicted flood level.

Emergency response plans should be updated annually to keep contact names and telephone numbers current and to ensure that supplies and equipment that will be needed are still available. They should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and of changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner possible.

Local Implementation

Placer County Office of Emergency Services serves as the Emergency Manager for the County. Response is provided cooperation with the County Sherriff, city police, and fire departments. The 2010 Placer County Emergency Operations Plan (currently being updated in 2016) includes addresses the planned response to emergency situations associated with natural disasters and emergencies in or affecting Placer County. The EOP is intended to facilitate multi-agency and multi-jurisdictional coordination in emergency operations. It seeks to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system to return the County the local jurisdictions to their normal state of affairs.

CRS Credit

The CRS program provides credit under Activity 610- Flood Warning for a warning system that effectively notifies residents of a flood and has procedures for testing and monitoring the system.

Evacuation and Shelter

According to Emergency Management: Principles and Practice, "The principle of evacuation is to move citizens from a place of relative danger to a place of relative safety, via a route that does not pose significant danger." There are six key ingredients to a successful evacuation:

- Adequate warning
- Adequate routes
- Proper timing to ensure the routes are clear
- Traffic control
- Knowledgeable travelers
- Care for special populations (e.g., the handicapped, prisoners, hospital patients, and schoolchildren)

Those who cannot get out of harm's way need shelter. Typically, the American Red Cross will staff a shelter and ensure that there is adequate food, bedding, and wash facilities. Shelter management is a specialized skill. Managers must deal with problems like scared children, families that want to bring in their pets, and the potential for an overcrowded facility.

Local Implementation

The Placer County EOP includes multiple annexes, one of which is the Mass Evacuation Annex. This Annex addresses evacuation policies and procedures due to natural hazards and other events. Emergency evacuation planning involves multiple governmental agencies and private organizations performing such functions as threat identification, warning, evacuation decision making, communications, traffic control, and shelter and medical needs management. A component of this is Pre-Disaster Public Awareness and Education which is major component in successfully reducing loss of life and property in a community when faced with a potentially catastrophic incident.

In addition to the Mass Evacuation Annex to the EOP, the County has several evacuation plans covering various areas of the County.

CRS Credit

Because it is primarily concerned with protecting insurable buildings, the CRS does not provide any special credit for evacuation or sheltering of people (minimal credit is given in Activity 510 - Floodplain Management for evacuation policies and procedures). It is assumed that the emergency response plan would include all necessary actions in response to a flood.

Post-Disaster Recovery and Mitigation

After a disaster, communities should undertake activities to protect public health and safety and facilitate recovery. Appropriate measures include:

- Patrolling evacuated areas to prevent looting,
- Providing safe drinking water,
- Monitoring for diseases,
- Vaccinating residents for tetanus and other diseases,
- Clearing streets, and
- Cleaning up debris and garbage.

Throughout the recovery phase, everyone wants to get "back to normal." The problem is that "normal" means the way they were before the disaster, exposed to repeated damage from future disasters. There should be an effort to help prepare people and property for the next disaster. Such an effort would include:

- Public information activities to advise residents about mitigation measures they can incorporate into their reconstruction work,
- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs,
- Identifying other mitigation measures that can lessen the impact of the next disaster,
- Acquiring substantially or repeatedly damaged properties from willing sellers,
- Planning for long-term mitigation activities, and
- Applying for post-disaster mitigation funds.

Regulating Reconstruction

Requiring permits for building repairs and conducting inspections are vital activities to ensure that damaged structures are safe for people to reenter and repair. There is a special requirement to do this in floodplains, regardless of the type of disaster or the cause of damage. The NFIP requires that local officials enforce the substantial damage regulations. These rules require that if the cost to repair a building in the mapped floodplain equals or exceeds 50% of the building's market value, the building must be retrofitted to meet the standards of a new building in the floodplain. In most cases, this means that a substantially damaged building must be elevated above the base flood elevation.

This requirement can be very difficult for understaffed and overworked offices following a disaster. However, if these activities are not carried out properly, not only does the community miss a tremendous opportunity to redevelop or clear out a hazardous area, it may be violating its obligations under the NFIP. In some areas, mutual aid agreements have been established so building inspectors from a community not affected by the disaster can work in the communities that were hit the hardest.

Local Implementation

The Placer County EOP has post-disaster recovery policies in place for the County. The Placer County EOP is intended to facilitate multi-agency and multi-jurisdictional coordination during emergencies including hazard events. Through it policies and procedures it seeks to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system in order to return the community to their normal state of affairs. The County is in the process of updating the EOP and annexes by July 2016. Post disaster recovery procedures for all hazards, including flood, are primarily addressed the Recovery Annex to the EOP, and are detailed further in Section 4.4 of the base plan

CRS Credit

The CRS does credit post-disaster mitigation procedures if the policies and procedures are incorporated into a flood mitigation or multi-hazard plan through Activity 510 - Floodplain Management Planning.

Conclusions and Recommendations

- Placer County should consider StormReady certification.
- There are several threat recognitions systems that can provide the County with advance notice of an impending emergency.
- Placer County depends on local media outlets, sirens, telephones and door-to-door notices to warn residents. These media should reach most people who need to know of a threat.
- Emergency management guidance could be very helpful when things happen quickly and for hazards that have predictable impacts, such as tornado, winter storms and flooding.
- Placer County should update and exercise its EOP on a regular basis.
- Placer County and its jurisdictions should continue to work together to protect people before and after a disaster including an outreach program to promote each community's warning system.

References

CRS Coordinator's Manual, FEMA, 20013.

CRS Credit for Flood Warning Programs, FEMA, 2006.

Emergency Management: Principles and Practice for Local Government, International City/County Management Association, 1991.

Flood Fight Operations, FEMA, 1995.

Guide for All-Hazard Emergency Operations Planning, FEMA SLG-101, 1996.

C.3.5. Flood Control Measures

Four general types of flood control projects are reviewed here: levees, reservoirs, diversions, and dredging. These projects have three advantages not provided by other mitigation measures:

- They can stop most flooding, protecting streets and landscaping in addition to buildings,

- Many projects can be built without disrupting citizens' homes and businesses, and
- They are constructed and maintained by a government agency, a more dependable long-term management arrangement than depending on many individual private property owners.

However, as shown below, structural measures also have shortcomings. The appropriateness of using flood control depends on individual project area circumstances.

Pros and Cons of Structural Flood Control Projects

- Advantages
  - ✓ They may provide the greatest amount of protection for land area used.
  - ✓ Because of land limitations, they may be the only practical solution in some circumstances.
  - ✓ They can incorporate other benefits into structural project design, such as water supply and recreational uses.
  - ✓ Regional detention may be more cost-efficient and effective than requiring numerous small detention basins.

- Disadvantages
  - ✓ They can disturb the land and disrupt the natural water flows, often destroying wildlife habitat.
  - ✓ They require regular maintenance, which if neglected can have disastrous consequences.
  - ✓ They are built to a certain flood protection level that can be exceeded by larger floods, causing extensive damage.
  - ✓ They can create a false sense of security, as people protected by a project often believe no flood can ever reach them.
  - ✓ Although it may be unintended, in many circumstances they promote more intensive land use and development in the floodplain.

Levees and Floodwalls

Probably the best known flood control measure is a barrier of earth (levee) or concrete (floodwall) erected between the watercourse and the property to be protected. Levees and floodwalls confine water to the stream channel by raising its banks. They must be well designed to account for large floods, underground seepage, pumping of internal drainage, and erosion and scour. Key considerations when evaluating the use of a levee include:

- Design and permitting costs,
- Right of way acquisition,
- Removal of fill to compensate for the floodwater storage that will be displaced by the levee,
- Internal drainage of surface flows from the area inside the levee,
- Cost of construction,
- Cost of maintenance,
- Mitigation of adverse impacts to wetlands and other habitats,
- Loss of river access and views, and
- Creating a false sense of security, because while levees may reduce flood damage for smaller more frequent rain events, they may also overtop or breach in extreme flood events and subsequently create more flood damage than would have occurred without the levee.

Levees placed along the river or stream edge degrade the aquatic habitat and water quality of the stream. They also are more likely to push floodwater onto other properties upstream or downstream. To reduce environmental impacts and provide multiple use benefits, a setback levee is the best project design. The area inside a setback levee can provide open space for recreational purposes and provide access sites to the river or stream.

Floodwalls perform like levees except they are vertical-sided structures that require less surface area for construction. Floodwalls are constructed of steel sheet pile or reinforced concrete, which makes the expense of installation cost prohibitive in many circumstances. Floodwalls also degrade adjacent habitat and can displace erosive energy to unprotected areas of shoreline downstream.

Reservoirs and Detention

Reservoirs reduce flooding by temporarily storing flood waters behind dams or in storage or detention basins. Reservoirs lower flood heights by holding back, or detaining, runoff before it can flow downstream. Flood waters are detained until the flood has subsided, and then the water in the reservoir or detention basin is released or pumped out slowly at a rate that the river can accommodate downstream.

Reservoirs can be dry and remain idle until a large rain event occurs. Or they may be designed so that a lake or pond is created. The lake may provide recreational benefits or water supply (which could also help mitigate a drought).

Flood control reservoirs are most commonly built for one of two purposes. Large reservoirs are constructed to protect property from existing flood problems. Smaller reservoirs, or detention basins, are built to protect property from the stormwater runoff impacts of new development.

Figure C-14 Retention Pond

Retention pond

Regardless of size, reservoirs protect the development that is downstream from the reservoir site. Unlike levees and channel modifications, they do not have to be built close to or disrupt the area to be protected. Reservoirs are most efficient in deeper valleys where there is more room to store water, or on smaller rivers where there is less water to be stored.

In urban areas, some reservoirs are simply manmade holes, excavated to store floodwaters. Reservoirs in urban areas are typically constructed adjacent to streams (though usually outside of the floodplain). When built in the ground, there is no dam for these retention and detention basins and no dam failure hazard. Wet or dry basins can also serve multiple uses by doubling as parks or other open space uses.

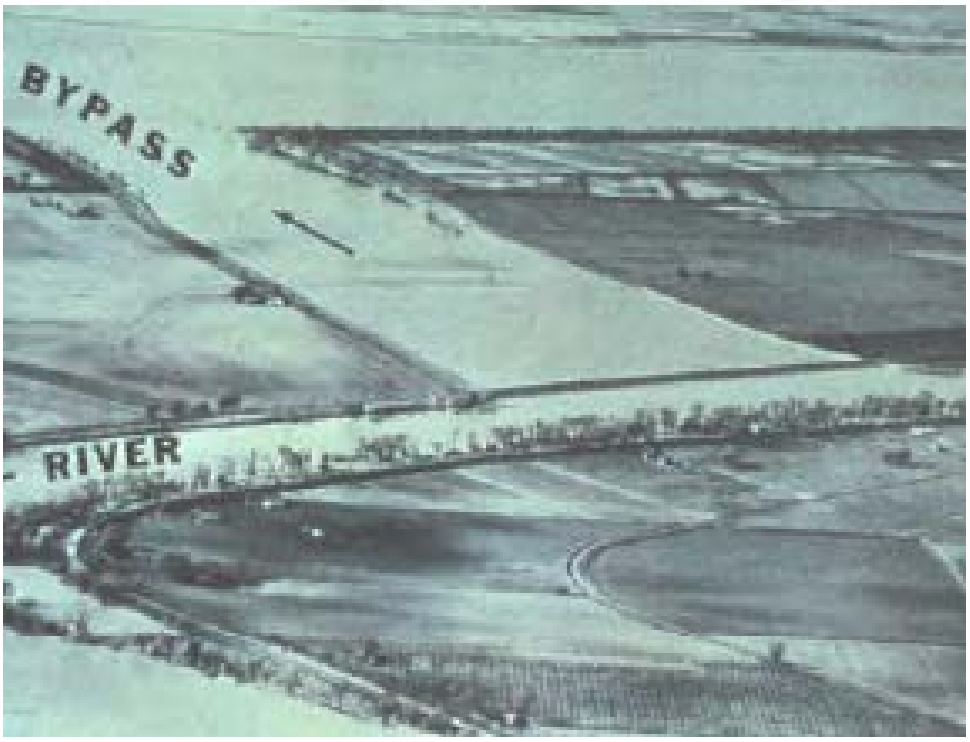
There are several considerations when evaluating the use of reservoirs and detention:

- There is the threat of flooding the protected area should the reservoir's dam fail,
- There is a constant expense for the management and maintenance of the facility,
- They may fail to prevent floods that exceed their design levels,
- Sediment deposition may occur and reduce the storage capacity over time,
- They can impact water quality as they are known to affect temperature, dissolved oxygen and nitrogen, and nutrient levels, and
- If not designed correctly, in-stream reservoirs may cause backwater flooding problems upstream

Diversion

A diversion is a new channel that sends floodwaters to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During floods, the floodwaters spill over to the diversion channel or tunnel, which carries the excess water to a receiving lake or river.

Figure C-15 Diversion



Diversions are limited by topography; they will not work in some areas. Unless the receiving water body is relatively close to the floodprone stream and the land in between is low and vacant, the cost of creating a diversion can be prohibitive.

Dredging

Dredging is often viewed as a form of conveyance improvement. However, it has the following problems:

- Given the large volume of water that comes downstream during a flood, removing a foot or two from the bottom of the channel will have little effect on flood heights.
- Dredging is often cost prohibitive because the dredged material must be disposed of somewhere.
- Unless in-stream or tributary erosion is corrected upstream, the dredged areas usually fill back in within a few years, and the process and the expense have to be repeated.
- If the channel has not been disturbed for many years, dredging will destroy the habitat that has developed.

Figure C-16 Dredging Activity

To protect the natural values of the stream, federal law requires a U.S. Army Corps of Engineers permit before dredging can proceed. This can be a lengthy process that requires a lot of advance planning and many safeguards to protect habitats, which adds to the cost of the project.

CRS Credit

Structural flood control projects that provide 100-year flood protection and that result in revisions to the Flood Insurance Rate Map are not credited by the CRS in order to avoid duplicating the larger premium reduction provided by removing properties from the mapped floodplain.

The CRS credits smaller flood control projects that meet the following criteria:

- They must provide protection to at least the 25-year flood,
- They must meet certain environmental protection criteria,
- They must meet federal, state and local regulations, such as the Corps of Engineers' 404 permit and California Division of Dam Safety for dam safety rules, and
- They must meet certain maintenance requirements.

These criteria ensure that credited projects are well-planned and permitted. Any of the measures reviewed in this section would be recognized under Activity 530 - Flood Protection, although it would be very hard to qualify a dredging project. Credit points are based on the type of project, how many buildings are protected, and the level of flood protection provided.

Local Implementation

In coordination with California Department of Water Resources and the Placer County Flood Control and Water Conservation District, flood control and drainage facilities are being brought to current standards of flood protection and prevention.

Conclusions and Recommendations

- The County has previously received funding for construction of flood control and drainage facilities that will move storm and flood waters more efficiently and reduced potential for overbank flooding. The County is also considering additional projects in the Placer County planning area.
- Placer County, the cities, and special districts should continue to implement countywide drainage improvement projects to reduce the potential from overbank flooding along local drainages.

References

CRS Coordinator's Manual, FEMA, 20013.

CRS Credit for Drainage System Maintenance, FEMA, 2006.

Kane County, IL Natural Hazards Mitigation Plan, January, 2009

C.3.6. Public Information Measures

A successful hazard mitigation program involves both the public and private sectors. Public information activities advise property owners, renters, and businesses about hazards and ways to protect people and property from these hazards. These activities can motivate people to take the steps necessary to protect themselves and others.

Information can bring about voluntary mitigation activities at little or no cost to the government. Property owners mitigated their flooding problems long before government funding programs existed. The typical approach to delivering information involves two levels of activity. The first is to broadcast a short and simple version of the message to everyone potentially affected. The second level provides more detailed information to those who respond and want to learn more.

This section starts with activities that reach out to people and tell them to be advised of the hazards and some of the things they can do. It then covers additional sources of information for those who want to learn more. It ends with a general public information strategy.

Outreach Projects

Outreach projects are the first step in the process of orienting property owners to the hazards they face and to the concept of property protection. They are designed to encourage people to seek out more information in order to take steps to protect themselves and their properties.

Research has shown that outreach projects work. However, awareness of the hazard is not enough; people need to be told what they can do about the hazard. Thus, projects should include information on safety, health and property protection measures. Research has also shown that a properly run local information program is more effective than national advertising or publicity campaigns. Therefore, outreach projects should be locally designed and tailored to meet local conditions.

Community newsletters/direct mailings: The most effective types of outreach projects are mailed or distributed to everyone in the community. In the case of floods, they can be sent only to floodplain property owners.

News media: Local newspapers can be strong allies in efforts to inform the public. Press releases and story ideas may be all that's needed to gain their interest. After a flood in another community, people and the media become interested in their flood hazard and how to protect themselves and their property. Local radio stations and cable TV channels can also help. These media offer interview formats and cable TV may be willing to broadcast videos on the hazards.

Other approaches: Examples of other outreach projects include:

- Presentations at meetings of neighborhood, civic or business groups,
- Displays in public buildings or shopping malls,
- Signs in parks, along trails and on waterfronts that explain the natural features (such as the river) and their relation to the hazards (such as floods),
- Brochures available in municipal buildings and libraries, and
- Special meetings, workshops and seminars.

Local Implementation

Placer County maintains a website that provides in-depth flood protection information. The County also provides a direct mailing annually to residents, with a focus on repetitive loss areas, which include flyers on flood protection and property protection measures. The County also provides direct mailings on flood protection information to insurance brokers and realtors located throughout the County. In addition, the County's flood protection and stormwater group also conduct and participate in a variety of public community events throughout the year such as community fairs, river runs, river cleanups, etc. and provide information to the public on stormwater management and flood protection measures. The County also has a variety of flood materials placed in public locations.

CRS Credit

The Community Rating System provides credit for outreach projects which cover six flood-related topics. Credit is also available for producing flood response materials. Another way to achieve credit for outreach is for producing a plan for public information (PPI). A 40% bonus is applied to outreach credits which are included in a PPI.

Real Estate Disclosure

Many times after a flood or other natural disaster, people say they would have taken steps to protect themselves if they had known they had purchased a property exposed to a hazard. There are some federal and state requirements about such disclosures, but they have their limits.

Federal law: Federally regulated lending institutions must advise applicants for a mortgage or other loan that is to be secured by an insurable building whether the property is in a floodplain as shown on the Flood Insurance Rate Map. If so, flood insurance is required for buildings located within the floodplain if the mortgage or loan is federally insured. However, because this requirement has to be met only 10 days before closing, the applicant is often already committed to purchasing the property when he or she first learns of the flood hazard.

State law: State laws set standards for real estate sales and licensing of agents and brokers.

Local Implementation

Placer County receives credit for providing for the local real estate agents disclosure of flood hazards to prospective buyers. Credit is also provided for state and community regulations requiring disclosure of flood hazards.

CRS Credit

Communities in areas that have additional disclosure requirements are eligible for five points under the "Other disclosure requirements" as well as 10 points for the "Disclosure of other hazards."

Libraries and Websites

The two previous activities tell people that they are exposed to a hazard. The next step is to provide information to those who want to know more. The community library and local websites are obvious places for residents to seek information on hazards, hazard protection, and protecting natural resources.

Books and pamphlets on hazard mitigation can be given to libraries, and many of these can be obtained for free from state and federal agencies. Libraries also have their own public information campaigns with displays, lectures and other projects, which can augment the activities of the local government. Today, websites are commonly used as research tools. They provide fast access to a wealth of public and private sites for information. Through links to other websites, there is almost no limit to the amount of up to date information that can be accessed on the Internet.

In addition to online floodplain maps, websites can link to information for homeowners on how to retrofit for tornadoes and floods or a website about floods for children. The "FEMA for Kids" website teaches children how to protect their home and what to have in a family disaster kit.

Local Implementation

Placer County provides a variety of flood materials placed in public locations, including public buildings such as County Public Works Department and public libraries. The County also has an extensive flood protection websites at: http://www.placer.ca.gov/departments/Works/FloodControl.aspx

CRS Credit

The Community Rating System provides credit for having a variety of flood references in the local public library and additional credits for similar material included on municipal websites (Activity 350 - Flood Protection Information).

Technical Assistance

Hazard Information

Many benefits stem from providing map information to inquirers. Residents and business owners that are aware of the potential hazards can take steps to avoid problems or reduce their exposure to flooding. Real estate agents and house hunters can find out if a property is floodprone and whether flood insurance may be required.

Communities can easily provide map information from FEMA's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Studies. They may also assist residents in submitting requests for map amendments and revisions when they are needed to show that a building is located outside the mapped floodplain.

Some communities supplement what is shown on the FIRM with information on additional hazards, flooding outside mapped areas and zoning. When the map information is provided, community staff can explain insurance, property protection measures and mitigation options that are available to property owners. They should also remind inquirers that being outside the mapped floodplain is no guarantee that a property will never get wet.

Property Protection Assistance

While general information provided by outreach projects or the library is beneficial, most property owners do not feel ready to retrofit their buildings without more specific guidance. Local building department staffs are experts in construction. They can provide free advice, not necessarily to design a protection measure, but to steer the owner onto the right track.

- Building or public works department staffs can provide the following types of assistance:
- Visit properties and offer protection suggestions,
- Recommend or identify qualified or licensed contractors,
- Inspect homes for anchoring of roofing and the home to the foundation,
- Provide advice on protecting windows and garage doors from high winds, and

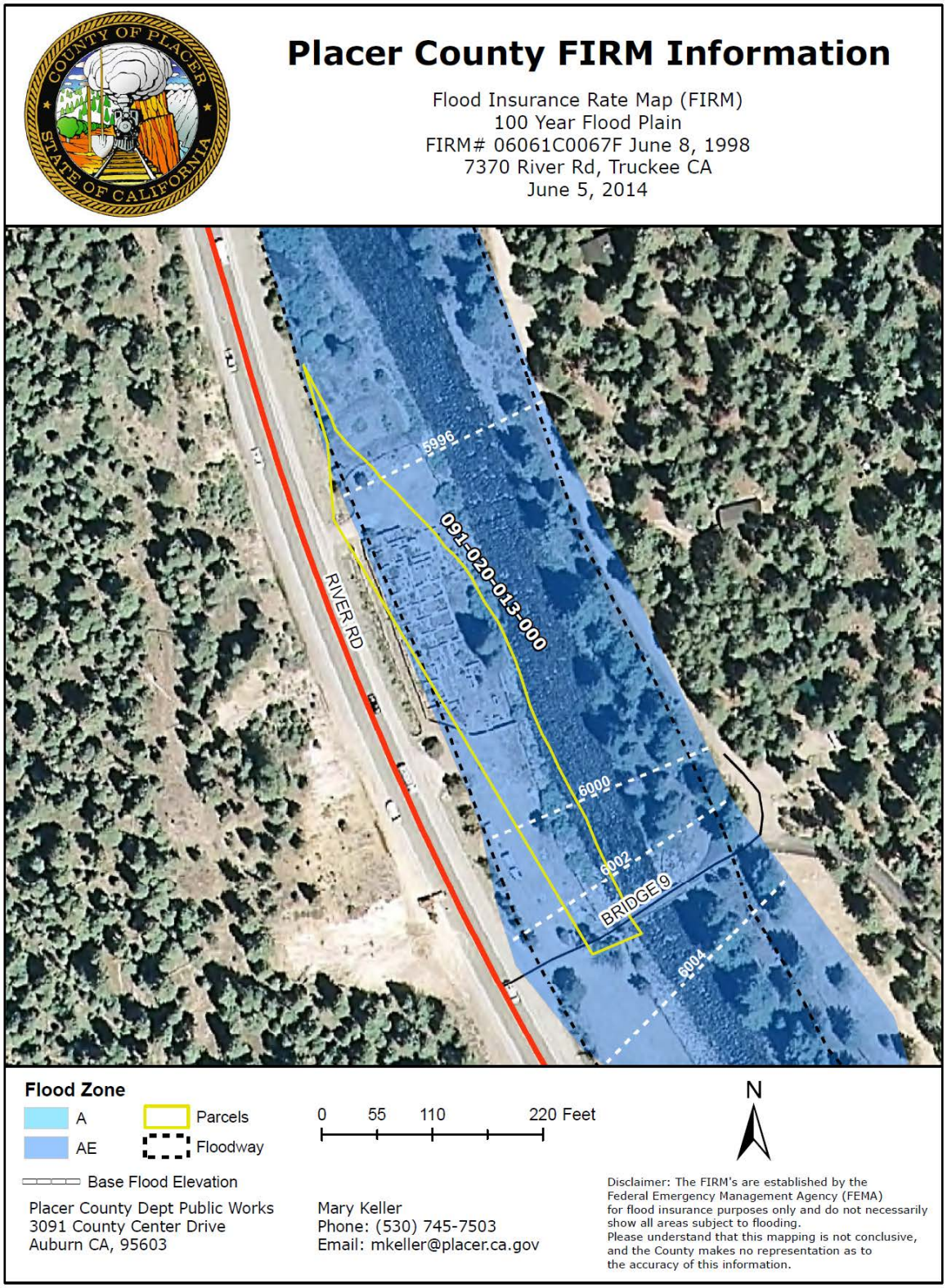
- Explain when building permits are needed for home improvements.

There is a concern that a local official might provide the wrong information and the community would be sued if a project failed. To counter this, there are guidelines for local programs and training on how to identify the right measures. FEMA conducts a free week-long course at its Emergency Management Institute on property protection measures for flooding. FEMA and the Corps of Engineers periodically conduct one- or two-day retrofitting workshops.

Local Implementation

FEMA floodplain maps are available on FEMA's website, which is linked through the Placer County Floodplain Management website. The County also responds to requests on whether a property is located in s Special Flood Hazard Area. (see Figure C-17 for example of what is provided on a floodplain determination request). The County also maintains elevation certificates for many existing home within or near the SFHA. Placer County is working with FEMA to update the current SFHA mapping completed in 2001 and expects a digital product in 2017.

Figure C-17 Placer County Floodplain Determination



CRS Credit

The Community Rating System provides points for providing map information to inquirers. Points are available for providing one-on-one flood protection assistance to residents and businesses and for making site visits. Both services must be publicized.

Public Information Program Strategy

A public information program strategy is a document that receives CRS credit. It is a review of local conditions, local public information needs, and a recommended plan of activities. A strategy consists of the following parts, which are incorporated into this plan:

- The local flood hazard (discussed in Chapter 4 of this plan)
- The property protection measures appropriate for the flood hazard (discussed in Chapter 5 of this plan)
- Flood safety measures appropriate for the local situation (discussed in Chapter 5 of this plan)
- The public information activities currently being implemented within the community, including those being carried out by non-government agencies (discussed in Chapter 4 of this plan and jurisdictional annexes)
- Goals for the community's public information program (discussed in Chapter 3 and 5 of this plan)
- The outreach projects that will be done each year to reach the goals (discussed in Chapter 5 of this plan)
- The process that will be followed to monitor and evaluate the projects (discussed in Chapter 7)

Figure C-15 illustrates several flood safety tips that can be used in an outreach campaign to better inform the public of the hazards associated with flooding.

Figure C-18 Flood Safety Tips for Outreach Campaign

Flood Safety

Pay attention to evacuation orders. Listen to local radio or TV stations for forecasts and emergency warnings. Know about evacuation routes and nearby shelters and have plans for all family members on how to evacuate and where to meet if you're split up during an emergency.

Do not drive through a flooded area. During a flood, more people drown in their cars than anywhere else. Don't drive around road barriers; the road or bridge may be washed out.

Do not walk through flowing water. Flash flooding is the leading cause of weather-related deaths in the U.S. Currents can be deceptive; 6 inches of moving water can knock you off your feet in a strong current. If you walk in standing water, use a stick to help you locate the ground.

Stay away from power lines and electrical wires. Electrical currents can travel through water. Report downed power lines to the police or sheriff by calling 911.

Have the power company turn off your electricity. Some appliances, like TV sets, keep electrical charges even after they've been unplugged. Don't use appliances or motors that have gotten wet unless they have been taken apart, cleaned and dried.

Look before you step. After a flood, the ground and floors are covered with debris like broken bottles and nails. Floors and stairs that are covered with mud can also be slippery.

Be alert for gas leaks. Use a flashlight to inspect damage. Don't smoke or use candles, lanterns, or open flames unless you know the gas has been shut off and the area has been ventilated.

Look out for animals that may have been flooded out of their homes and who may seek shelter in yours. Use a pole or stick to turn things over and scare away small animals.

Look before you step. After a flood, the ground and floors are covered with debris. Floors and stairs that have been covered with mud will be very slippery.

Carbon monoxide exhaust kills. Use a generator or other gasoline-powered machine outdoors. The same goes for camping stoves. Charcoal fumes are especially deadly – cook with charcoal outdoors.

Clean everything that got wet in the flood. Floodwaters have picked up sewage and chemicals from roads, farms, factories, and storage buildings. Spoiled food, and flooded cosmetics and medicines can be health hazards. When in doubt, throw it out.

Take care of yourself. Recovering from a flood is a big job. It is tough on both the body and the spirit and the effects a disaster has on you and your family may last a long time.

CRS Credit

The CRS provides up to 350 points for a Plan for Public Information (PPI).

Conclusions and Recommendations

- There are many ways that public information can be used so that people and businesses will be more aware of the hazards they face and how they can protect themselves.
- Libraries and websites are currently being used as public information tools in Placer County.
- The most important topics to cover in public information activities are:
  - ✓ Safety precautions for all types of hazards, but especially tornados, earthquakes, thunder storms, winter storms, wildfires, and floods.
  - ✓ Knowing where emergency evacuation shelters are in town.
  - ✓ Flood protection measures, including rules for new construction and insurance.

- ✓ Keeping drainage ways clear and protection from local drainage problems.
- ✓ Family and emergency preparedness measures.
- ✓ What the County and cities are doing and sources of assistance.
- ✓ Protecting water quality and wetlands and the benefits of open space.

- The most appropriate ways to spread this information are:
  - ✓ Websites and social media
  - ✓ Mailings to everyone, in utility bills or otherwise
  - ✓ News releases or newspaper articles
  - ✓ Newsletters
  - ✓ Displays, particularly at special events
  - ✓ Handouts, flyers and other materials, which can be distributed at special events and presentations
- County and City staff should continue to reach out to residents, civic organizations and other organizations to help spread the word about flood hazards, flood protection, and safety measures.

References

Are You Ready? A Guide to Citizen Preparedness, FEMA, 2002.

CRS Coordinator's Manual, Community Rating System, FEMA, 2013.

CRS Credit for Outreach Projects, FEMA, 2006.

Appendix D Adoption Resolution

Note to Reviewers: When this plan has been reviewed and approved pending adoption by FEMA Region IX, the adoption resolutions will be signed by the participating jurisdictions and added to this appendix. A model resolution is provided below. Placer County's signed resolution is included below the model resolution.

Resolution # _____

Adopting the Placer County Local Hazard Mitigation Plan

Whereas, (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Local Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, (Name of Government/District/Organization) fully participated in the FEMA-prescribed mitigation planning process to prepare this local hazard mitigation plan; and

Whereas, the California Office of Emergency Services and Federal Emergency Management Agency, Region IX officials have reviewed the Placer County Local Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governing body;

Whereas, the (Name of Government/District/Organization) desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Placer County Local Hazard Mitigation Plan;

Whereas, adoption by the governing body for the (Name of Government/District/Organization), demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Local Hazard Mitigation Plan.

Whereas, adoption of this legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

Now, therefore, be it resolved, that the (Name of Government/District/Organization) adopts the Placer County Local Hazard Mitigation Plan as an official plan; and

Be it resolved, that the (Name of Government/District/Organization) adopts the Placer County Local Hazard Mitigation Plan by reference into the safety element of their general plan in accordance with the requirements of AB 2140, and

Be it further resolved, (Name of Government/District/Organization) will submit this adoption resolution to the California Office of Emergency Services and FEMA Region IX officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000 and to establish conformance with the requirements of AB 2140.

Passed: _____

(date)

_____

Certifying Official

Before the Board of Supervisors
County of Placer, State of California

In the matter of: Adoption of the Placer County 2016 Local Multi-Hazard Mitigation Plan (LHMP) and Authorization for the Emergency Services Program Manager to work with the Federal Emergency Management Agency (FEMA) to provide any additional clarification and documents for the LHMP and transmit the FEMA-approved LHMP to apply for FEMA-grant funding under DR-4240 Hazard Mitigation Grant Program.

Resolution No.: 2016-085

THE FOREGOING INSTRUMENT IS A CORRECT COPY OF THE ORIGINAL ON FILE IN THIS OFFICE
ATTEST
SHARLET PYNE
Clerk of the Board of Supervisors, County of Placer, State of California
Deputy Clerk

The following Resolution was duly passed by the Board of Supervisors of the County of Placer at a regular meeting held May 17, 2016, by the following vote on roll call:

Ayes:	DURAN, HOLMES, UHLER, MONTGOMERY, WEYGANDT
Noes:	NONE
Absent:	NONE

Signed and approved by me after its passage.

Chair, Board of Supervisors

Attest:

Clerk of said Board

WHEREAS, Congress adopted the Disaster Mitigation Act 2000 (DMA-2000) on October 31, 2000 as PL106-390. The emphasis of DMA-2000 is on creating an ongoing, community-wide public/government planning process that results in the local governing board formally adopting a LHMP.

WHEREAS, mitigation planning is a process for state and local governments to identify community-level policies and actions that will mitigate and thus reduce the impacts of natural hazards. As specified by DMA-2000, local governments are required to complete and update a LHMP every five years in order to remain eligible for future federal disaster mitigation funding. In accordance with DMA-2000, a LHMP must describe the type, location, and extent of all natural hazards that can affect the jurisdiction; describe the jurisdictions vulnerability to these hazards; include a mitigation strategy that provides the jurisdictions blueprint for reducing the potential losses; and contain a plan maintenance process.

WHEREAS, in 2005, Placer County Office of Emergency Services (PCOES) working with 15 jurisdictions and a hired consultant, AMEC Consulting, completed the original LHMP and subsequently received your Board's adoption and FEMA approval. The Board incorporated the LHMP into the County's General Plan Safety Element.

WHEREAS, in 2010, PCOES applied and received a FEMA grant, hired AMEC Consulting, and partnered with 17 jurisdictions to complete the LHMP update resulting in the Board's adoption and FEMA approval.

WHEREAS, for the 2016 LHMP update project, PCOES received a FEMA grant in May 2014 and hired Foster Morrison Consulting in early April of 2015. Following a similar process as required by FEMA for the 2005 and 2010 LHMPs, the process began with the reconvening of the Hazard Mitigation Planning Committee (HMPC) Working Group followed by a publicly noticed kick-off meeting in late April 2015. Seven other working meetings, all publicly noticed, were held in subsequent months to conduct the LHMP planning and updating process. The HMPC Working Group consisted of representatives from select County Departments, the cities of Colfax, Auburn, Lincoln and Rocklin, the Town of Loomis, and participating Fire Districts and Special Districts within the County. All HMPC members contributed substantially to the LHMP update process. Additionally, public meetings were held at the beginning of the project and near conclusion of the project to provide the public multiple opportunities to ask questions and provide input on the LHMP Update.

WHEREAS, the 2016 Placer County LHMP Update meets the requirements of DMA-2000. Key LHMP highlights include:

- Positioning the County and participating jurisdictions to compete more effectively for pre- and post-disaster mitigation funding.
- Development of the LHMP Update in accordance with the National Flood Insurance Program (NFIP) Community Rating System (CRS) Activity 510 requirements to enhance the floodplain management programs of the County and Cities and to help reduce the cost of flood insurance for County residents.
- Participation of 22 participating jurisdictions including the County, five incorporated communities and 16 special districts.
- An updated hazard risk assessment for 18 hazards, which included flood, wildfire, drought, earthquake, dam failure, seiche, severe storms, and agricultural hazards as priority hazards of concern to the County.
- An assessment of the impact of climate change on identified hazards of concern.
- Development of an updated mitigation strategy for the County and all participating jurisdictions, including new plan goals and objectives and the identification of 135 mitigation actions to address identified hazards.

WHEREAS, in October 2006, the California Legislature passed AB 2140 which became effective January 1, 2007. This bill prohibits the state share for any eligible project from exceeding 75% of total state eligible costs unless the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan in accordance with DMA-2000 as part of the safety element of its general plan, in which case the Legislature may provide for a state share of local costs that exceeds 75% of total state eligible costs.

WHEREAS, among other requirements specific to the development of a FEMA-approved LHMP, the local agency must provide a certified copy of the Resolution of Adoption to FEMA demonstrating that the approved LHMP has been adopted and incorporated into the Safety Element of the General Plan. While not a guarantee, adoption of the LHMP into the Safety Element of the General Plan would allow Placer County to qualify for additional funding for certain disaster recovery projects.

WHEREAS, approval of this action itself does not create any fiscal impact. However, FEMA has selected three (3) Notice of Interest (NOI) filings from Placer County totaling $3.37 million for submission of full applications for competitive grant funding request from the DR-4240 Hazard Mitigation Grant Program (Presidential Declaration for the Butte Fire and Valley Fire in 2015). The Board's approval of a resolution to adopt the FEMA-approved LHMP will enable the 3 applications to be submitted by the deadline of June 16, 2016, for grant consideration. FEMA grant funding for these three projects is contingent on the County having a FEMA-approved, board adopted LHMP.

BE IT RESOLVED the Board of Supervisors, County of Placer, and State of California hereby approves the Placer County 2016 Local Multi-Hazard Mitigation Plan (LHMP) update.

BE IT FURTHER RESOLVED, the Board of Supervisors, County of Placer, State of California, hereby incorporates into the Placer County General Plan Safety Element by reference the Placer County 2016 Local Multi-Hazard Mitigation Plan (LHMP) update.

BE IT FURTHER RESOLVED, the Board of Supervisors, County of Placer, State of California, hereby authorizes the Emergency Services Program Manager to work with FEMA to provide any additional clarification and documents for the LHMP and transmit the FEMA-approved LHMP to apply for FEMA-grant funding under DR-4240 Hazard Mitigation.

Appendix E Wildfire History

Figure E-1 Placer County – Wildfire History

Year	Fire Name	Total Acres Burned	Placer Acres Burned
1908		1,259	1,259
1908		631	631
1908		219	219
1909		896	896
1910		2,254	2,254
1910		1,533	1,533
1910		770	770
1910		485	485
1910		388	388
1910		260	260
1910		239	239
1910		185	185
1910		114	114
1911		1,267	1,267
1913		1,273	1,273
1913		366	366
1916		293	293
1916		1,408	26
1917		865	865
1917		498	498
1917	Section 28	232	223
1917	Miller Diggins Fire	287	171
1917		6,269	26
1917	Section 28	1,698	0
1918	Wild Cat	387	387
1918		179	179
1918		1,013	173
1918	North Wallace Canon	9	9
1919		1,702	1,702
1919		883	883
1919		787	787
1919		611	610
1919		258	1

Year	Fire Name	Total Acres Burned	Placer Acres Burned
1921	Pennsylvania	273	273
1923		190	190
1924		27,880	27,880
1924		1,770	1,770
1924		1,102	1,102
1924		711	711
1924		244	244
1924		222	222
1924		114	114
1924		114	114
1924		105	105
1924		1,401	12
1925	Deadman's Flat	2,588	2,588
1925	Cement Hill	12	12
1926		2,641	2,641
1926		1,671	1,671
1926		428	408
1927		2,242	2,242
1928		1,412	62
1928		259	1
1929		107	107
1931		3,297	3,297
1931	Rubicon	1,378	1,274
1931		620	620
1931		392	392
1931		53	53
1933		85	85
1934		678	678
1936		21,288	21,288
1939		523	523
1939		523	523
1939	Ramsey Crossing	26	26
1944		244	97
1946		271	271
1948		130	130
1949	Bald Mtn	1,465	1,465
1949	Elliot Ranch	342	342

Year	Fire Name	Total Acres Burned	Placer Acres Burned
1949	Stanford	126	126
1949	Cold Stream	100	100
1949		40	40
1950	Beacon	407	407
1950	Hampshire Rock	201	36
1951	Wizwell	1,050	1,050
1951	Halsey	481	481
1951		258	258
1951	Eureka	221	221
1952		29	29
1953	Mooney	257	257
1954	Omohundro	2,027	2,027
1954		38	38
1955		61	51
1955	Brown Bar Canyon	663	0
1956	Sam Babb	317	317
1958	Lightning #6	551	551
1959	Madonna #2	3,164	3,164
1959	Big Reservoir	299	299
1960	Volcano	42,596	42,536
1960	Volcano	2,136	165
1960	Yellow Hound	20	20
1960		20	20
1961	Gillis Hill	954	954
1961	Auburn	672	649
1961	Green Valley	527	527
1961	Auburn	419	4
1961	Bilderback	926	3
1962	Roadside #20	103	103
1964	Roadside #51	3,545	3,451
1964	Brewer	293	293
1964	Hell Hole	22	22
1964	Placer Roadside #51	1,717	11
1965	Applegate	3,529	3,529
1965	SPRR #71	268	268
1967		157	157
1969	Iowa Hill	464	464

Year	Fire Name	Total Acres Burned	Placer Acres Burned
1970	Jacinto	385	385
1970	Ponderosa	297	297
1972	Sierra College	189	189
1976	Gale	187	187
1977		24	24
1977		19	19
1979	Animal	763	763
1980	Roseville	236	236
1980	Dog Bar	347	6
1981	PG&E #5	812	812
1981	Nadeic	425	425
1982	Andressen	439	439
1983	None	821	821
1984	Curtis	877	877
1985	Roadside 3 4 5 6	1,854	1,854
1985	Dog Bar	187	0
1986	Slate	2,040	2,040
1986		552	552
1986	Roadside 83	189	189
1986	Roadside 82	143	143
1986	Roadside 84	65	65
1987	Big	895	895
1987	Conouck	183	183
1987	Indian	19	19
1988		29	29
1989		16	16
1989	Devil	9	9
1995	Helester	627	627
1996	Spring	16	3
2000	Drivers	349	349
2000	American	148	148
2000	Deadwood	96	96
2001	Star	16,465	16,465
2001	Ponderosa	2,778	2,778
2001	Gap	2,447	2,408
2001	Blue Oaks	1,427	1,427
2001	Lincoln City Asst	372	372

Year	Fire Name	Total Acres Burned	Placer Acres Burned
2001	Whitney	143	143
2001	Bear	90	90
2001	Martis	14,127	21
2002	Sierra	594	594
2002	Garden	284	284
2002	Ponderosa	46	46
2003	Codfish	841	841
2003	Royal	339	339
2003	Valley	52	52
2003	Pines	39	39
2003	Sierra	27	27
2004	Stevens	934	934
2004	Butcher	32	32
2004	Bake	14	14
2004	Mitchell	6	6
2005	Fork	30	30
2006	Foresthill	40	40
2006	Forest	12	12
2007	Ralston	8,421	8,411
2007	Phillips	936	936
2007	Prairie	72	72
2007	Valley	70	70
2007	Fiddyment	63	63
2007	Sixty-Five 2	31	31
2007	Sixty-Five	30	30
2007	Auburn	21	21
2007	Crosby	20	20
2007	Washoe	20	20
2007	Nader	16	16
2007	Athens	15	15
2007	Baseline	14	14
2007	Wilson	14	14
2007	Wilson	11	11
2007	Granite	10	10
2008	Westville	11,090	11,090
2008	Government	9,220	9,220
2008	Gladding	1,090	1,090

Year	Fire Name	Total Acres Burned	Placer Acres Burned
2008	Peavine	581	581
2008	Wise	92	92
2008	Riosa	80	80
2008	Athens	69	69
2008	Foresthill	55	55
2008	Phyllip	52	52
2008	Sunset	50	50
2008	Nicolaus	48	48
2008	Old	40	40
2008	Ravine	23	23
2008	Shooting	20	20
2008	Baseline	13	13
2008	Gilardi	12	12
2009	Mammoth	643	625
2009	Forty Nine	343	343
2009	Dyer	262	262
2009	Sunset	94	94
2009	Nelson	71	71
2009	Fiddyment	70	70
2009	Baseline	48	48
2009	West Wise	16	16
2009	Manzanita	10	10
2009	Foresthill	10	10
2009	Mccourtney	9	9
2010	Baseline	479	479
2010	Black	90	90
2010	Twin Bridges	68	68
2010	Meadowlark Incident	60	60
2010	Dyer Incident	56	56
2010	Rocklin Clover Incident	49	49
2010	Bridge Incident	48	48
2010	Nader2 Incident	34	34
2010	Orr Incident	30	30
2010	Riosa2 Incident	25	25
2010	Dyer2 Incident	24	24
2010	Chamberlin Fire	22	22
2010	Riosa Incident	17	17

Year	Fire Name	Total Acres Burned	Placer Acres Burned
2011	Blacksmith	101	101
2011	Fiddyment	81	81
2011	Longjohn	76	76
2011	West Wise Fire	16	16
2012	Robbers	2,635	2,635
2012	Fiddyment	168	168
2012	Waltz	97	97
2012	Brewer	80	80
2012	Dyer	22	22
2012	Star	15	15
2012	Fiddyment	13	13
2013	American	27,431	27,431
2013	PFE	180	180
2013	Nicolaus Westland	59	59
2013	Nelson	33	33
2013	Mccourtney	24	24
2013	Sierra	24	24
2013	Gladding	17	17
2013	Thousand Oaks	2	2

Source: CAL FIRE

Appendix F Critical Facilities

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Auburn	Class 1	Emergency Operation Center	City of Auburn EOC	1215 Lincoln Wy, Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 1	Dispatch Center	Auburn Police Department	1215 Lincoln Way, Auburn	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	Fire Station	Auburn City FD FS #122	226 Sacramento St., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	Fire Station	Auburn City FD FS #121	485 High St., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	Airport	Auburn Municipal Airport	13626 New Airport Rd, Auburn, CA 95602	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	Fire Station	Auburn City FD FS #123	901 Auburn Folsom Rd., Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	National/Coast Guard	First 184th Infantry Regiment, Charlie Company	1273 High Street, Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 2	Police Station	Auburn Police	1215 Lincoln Way, Auburn, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Auburn	Class 3	School	Placer School for Adults	390 Finley St., Auburn, CA	X	N	High	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	School	Alta Vista Elementary School	173 Oak St., Auburn, CA	X	N	High	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Hall	Foothills Recreation Club	220 Katherine Way, Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Hall	Moose Lodge No 2264	250 Sacramento St., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Hall	Joss House	200 Sacramento St., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Fairground	Gold Country Fairgrounds	1273 High St, Auburn, CA 95604	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Hall	Tahoe Club	900 Lincoln Way, Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	Hall	Auburn Elks Lodge	195 Pine St., Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Auburn	Class 3	School	Skyridge Elementary School	800 Perkins Way, Auburn, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Auburn	Class 3	School	Placer High School	275 Orange St., Auburn, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Auburn	Class 3	School	E. V. Cain Middle School	150 Palm Ave., Auburn, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Colfax	Class 2	Fire Station	Colfax City Vol. FD FS #37	139 Oak St., Colfax, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
City of Colfax	Class 2	Fire Station	Colfax City Vol. FD FS #36	33 Church St., Colfax, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
City of Colfax	Class 2	PCSO	Colfax Substation	33 N. Main St, Colfax, CA 95713	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
City of Colfax	Class 3	Hall	Colfax Veterans Memorial Hall	22 Sunset Cir., Colfax, CA 95713	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
City of Colfax	Class 3	Water Treatment Plant	Colfax Water Treatment Plant	449 Pleasant St., Colfax, CA 95713	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 1	Emergency Operation Center	City of Lincoln EOC	770 7th St, Lincoln, CA 95648	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 1	Dispatch Center	Lincoln Police/Fire Department Dispatch	770 Seventh Street, Lincoln	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 2	Fire Station	Lincoln City FD FS #35	1525 E. Joiner Pkwy., Lincoln, CA	X	N	Moderate	HazMat Highway Route	
City of Lincoln	Class 2	Fire Station	Lincoln City FD FS #34	126 Joiner Pkwy., Lincoln, CA	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Lincoln	Class 2	Airport	Lincoln Municipal Airport	1480 Flightline Dr, Lincoln, CA 95648	X	N	Moderate		
City of Lincoln	Class 2	Fire Station	Lincoln City FD FS #33	75 McBean Park Dr., Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 2	Police Station	Lincoln Police	640 Fifth Street, Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Twelve Bridges Middle School	770 Westview Dr., Lincoln, CA	X	N	Moderate	HazMat Highway Route	
City of Lincoln	Class 3	School	Twelve Bridges Elementary School	2450 Eastridge Dr., Lincoln, CA	X	N	Moderate		
City of Lincoln	Class 3	School	Horizon Charter School	2800 Nicolaus Rd., Ste. 100, Lincoln, CA	X	N	Moderate		
City of Lincoln	Class 3	Water Treatment Plant	Lincoln Wastewater Treatment Plant	1735 Fiddyment Rd., Lincoln, CA 95648	X	N	Non-Wildland/Non-Urban		
City of Lincoln	Class 3	School	Lincoln Adult School	870 J St., Lincoln, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Phoenix High School (Continuation)	870 J St., Lincoln, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Foskett Ranch Elementary School	1561 Joiner Pkwy., Lincoln, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Lincoln	Class 3	School	Carlin C. Coppin Elementary School	150 12th St., Lincoln, CA	X	N	Non-Wildland/Non-Urban	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	Hall	Woman's Club of Lincoln	499 E St., Lincoln, CA 95648	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	Hall	Lincoln Heritage Theater	571 Lincoln Blvd., Lincoln, CA 95648	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	Hazardous Materials Facility	Sierra Pacific Industries	1445 Highway 65., Lincoln CA 95648	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Lincoln Crossing Elementary School	635 Groveland Ln., Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	First Street Elementary School	1400 First St., Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Creekside Oaks Elementary School	2030 First St., Lincoln, CA	X	N	Urban Unzoned		
City of Lincoln	Class 3	School	Glen Edwards Middle School	204 L St., Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Lincoln	Class 3	School	Lincoln High School	790 J St., Lincoln, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 1	Communication Transmission Sites	PCWA Rocklin	3525 Park Dr., Rocklin, CA 95765	X	N	Moderate		HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Rocklin	Class 1	Emergency Operation Center	City of Rocklin EOC	4080 Rocklin Rd, Rocklin, CA 95677	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 1	Dispatch Center	Rocklin Police Department	4060 Rocklin Road, Rocklin	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 2	Fire Station	Rocklin City FD FS #24	3401 Crest Dr., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 2	Fire Station	Rocklin City FD FS #25	2001 Wildcat Blvd., Rocklin, CA	X	N	Moderate	HazMat Highway Route	
City of Rocklin	Class 2	Fire Station	Rocklin City FD FS #23	4060 Rocklin Rd., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 2	Police Station	Rocklin Police	4060 Rocklin Road, Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	Hazardous Materials Facility	United Natural Foods	1101 Sunset Blvd., Rocklin CA 95765	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Sierra Elementary School	6811 Camborne Way, Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Rock Creek Elementary School	2140 Collet Quarry Dr., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Cobblestone Elementary School	5740 Cobblestone Dr., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Rocklin	Class 3	School	Rocklin Academy	6532 Turnstone Way, Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Ruhkala Elementary School	6530 Turnstone Way, Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Twin Oaks Elementary School	2835 Club Dr., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Rocklin	Class 3	School	Whitney High School	701 Wildcat Blvd., Rocklin, CA	X	N	Moderate	HazMat Highway Route	
City of Rocklin	Class 3	School	Valley View Elementary School	3000 Crest Dr., Rocklin, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Rocklin	Class 3	Water Treatment Plant	Sunset 8 mgd Water Treatment Plant	3525 Park Dr., Rocklin, CA 95765	X	N	Moderate		HazMat Railroad Route
City of Rocklin	Class 3	Hall	Rocklin Civic Center	3970 Rocklin Rd., Rocklin, CA 95677	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	Hall	Finnish Temperance Hall	4090 Rocklin Rd., Rocklin, CA 95677	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	School	Antelope Creek Elementary School	6185 Springview Dr., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	School	Rocklin Academy at Meyers Street	5035 Meyers St., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Rocklin	Class 3	School	Sierra College	5000 Rocklin Rd., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	School	Rocklin High School	5301 Victory Ln., Rocklin, CA	X	N	Urban Unzoned		
City of Rocklin	Class 3	School	Rocklin Elementary School	5025 Meyers St., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	School	Victory High School	3250 Victory Dr., Rocklin, CA	X	N	Urban Unzoned		
City of Rocklin	Class 3	School	Independent High School	3250 Victory Dr., Rocklin, CA	X	N	Urban Unzoned		
City of Rocklin	Class 3	School	Breen Elementary School	2751 Breen Dr., Rocklin, CA	X	N	Urban Unzoned		
City of Rocklin	Class 3	School	Granite Oaks Middle School	2600 Wyckford Blvd., Rocklin, CA	X	N	Urban Unzoned		
City of Rocklin	Class 3	School	Parker Whitney Elementary School	5145 Topaz Ave., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Rocklin	Class 3	School	Spring View Middle School	5040 Fifth St., Rocklin, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 1	Dispatch Center	Roseville Police Department	1051 Junction Blvd, Rosevile	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 1	Sutter Roseville Hosp Control Facility	Sutter Roseville Medical Center	1 Medical Plaza Dr, Roseville, CA 95661	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 1	Emergency Operation Center	City of Roseville EOC	1545 Pleasant Grove Blvd, Roseville, CA 95747	X	N	Moderate		
City of Roseville	Class 1	Communication Transmission Sites	South Placer Justice Center	10810 Justice Center Dr., Rocklin, CA 95765	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 2	Fire Station	Roseville City FD FS #3	1300 Cirby Way, Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 2	Fire Station	Roseville City FD FS #4	1900 Eureka Rd., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 2	Fire Station	Roseville City FD FS #1	401 Oak St., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 2	Fire Station	Roseville City FD FS #2	1398 Junction Blvd., Roseville, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 2	Fire Station	Roseville City FD FS #6	1430 East Roseville Pkwy., Roseville, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 2	Fire Station	Roseville City FD FS #5	1565 Pleasant Grove Blvd., Roseville, CA	X	N	Moderate		
City of Roseville	Class 2	Fire Station	Roseville City FD FS #7	911 Highland Point, Roseville, CA	X	N	Moderate	HazMat Highway Route	
City of Roseville	Class 2	Fire Station	Roseville City FD FS #9	2451 Hayden Parkway, Roseville, CA	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 2	Hospital	Kaiser Fnd Hosp - Sacramento/Roseville-Eureka	1600 Eureka Rd., Roseville, CA 95661	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 2	Hospital	Sutter Roseville Medical Center	1 Medical Plaza Dr., Roseville, CA 95661	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 2	National/Coast Guard	115th Support Group, CA National Guard	850 All America City Blvd, Roseville, CA 95678	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 2	Police Station	Roseville Police	1051 Junction Blvd, Rosevile, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	Fairground	Roseville Fairgrounds	800 All American City Blvd, Roseville, CA 95678	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	Hall	Roseville Alano Club	111 5Th St., Roseville, CA 95678	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	Hall	Lions Club	105 Sutter Ave., Roseville, CA 95678	AE	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	Hall	Roseville Masonic Temple # 222	235 Vernon St., Roseville, CA. 95678	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	Hall	Roseville Elks Lodge	3000 Brady Ln., Roseville, CA 95747	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	Hall	Polish American Community Hall	327 Main St., Roseville, CA 95678	X	N	Urban Unzoned		HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 3	Hall	Moose Lodge 1293	506 Lincoln St., Roseville, CA 95678	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	School	Crestmont Elementary School	1501 Sheridan Ave., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Oakmont High School	1710 Cirby Way, Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 3	School	George Sargeant Elementary School	1200 Ridgecrest Way, Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	George Cirby Elementary School	814 Darling Way, Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	School	Maidu Elementary School	1950 Johnson Ranch Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Sierra Gardens Elementary School	711 Oak Ridge Dr., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 3	School	Excelsior Elementary School	2701 Eureka Rd., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Warren T. Eich Intermediate School	1509 Sierra Gardens Dr., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 3	School	Sierra College	333 Sunrise Ave., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 3	School	Olympus Junior High School	2625 La Croix Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Roseville Adult School	200 Branstetter St., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	School	William Kaseberg Elementary	1040 Main St., Roseville, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	School	Adelante High School	350 Atlantic St., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	School	Bradford Woodbridge Fundamental Elementary School	515 Niles St., Roseville, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	School	Heritage Oak Elementary School	2271 Americana Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Roseville High School	1 Tiger Way, Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	School	Silverado Middle School	2525 Country Club Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Coyote Ridge Elementary School	1751 Morning Star Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Independence High School	125 Berry St., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 3	School	Ferris Spanger Elementary School	699 Shasta St, Roseville, CA 95678	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	School	Stoneridge Elementary School	2501 Alexandra Dr., Roseville, CA	X	N	Moderate		
City of Roseville	Class 3	School	Woodcreek High School	2551 Woodcreek Oaks Blvd., Roseville, CA	X	N	Moderate		
City of Roseville	Class 3	School	Quail Glen Elementary School	1250 Canevari Dr., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Catheryn Gates Elementary School	1051 Trehowell Dr., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	
City of Roseville	Class 3	School	George A. Buljan Middle School	100 Hallissy Dr., Roseville, CA	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	School	Vencil Brown Elementary School	250 Trestle Dr., Roseville, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
City of Roseville	Class 3	School	Blue Oaks Elementary School	8150 Horncastle Ave., Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	School	Thomas Jefferson Elementary School	750 Central Park Dr., Roseville, CA	X	N	Moderate	HazMat Highway Route	
City of Roseville	Class 3	School	Robert C. Cooley Middle School	9300 Prairie Woods Way, Roseville, CA	X	N	Urban Unzoned		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
City of Roseville	Class 3	School	Diamond Creek Elementary School	3151 Hopscotch Way, Roseville, CA	X	N	Urban Unzoned		
City of Roseville	Class 3	Water Treatment Plant	Pleasant Grove Wastewater Treatment Plant	9595 Barton Rd., Roseville, CA 95678	X	N	Urban Unzoned		
City of Roseville	Class 3	Water Treatment Plant	Dry Creek Wastewater Treatment Plant	1800 Booth Rd., Roseville, CA 95747	X	N	Urban Unzoned		HazMat Railroad Route
City of Roseville	Class 3	Water Treatment Plant	Pleasant Grove Wastewater Treatment Plant	5051 Phillip Rd., Roseville, CA 95747	X	N	Moderate		
Placer County Adjacent Counties	Class 1	Dispatch Center	CHP Sacramento Communications Center	3165 Gold Valley Dr, Rancho Cordova, 95670		N			
Placer County Adjacent Counties	Class 1	Dispatch Center	Grass Valley ECC	11329 McCourtney Rd, Grass Valley, 95949		N			
Placer County Adjacent Counties	Class 1	Dispatch Center	CHP Truckee Communications Center	10077 State Rte 89, South Truckee, 96161		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 1	Communication Transmission Sites	Signal Peak			N			
Placer County Adjacent Counties	Class 1	Communication Transmission Sites	Cave Rock			N			
Placer County Adjacent Counties	Class 1	Communication Transmission Sites	Genoa Peak			N			

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Adjacent Counties	Class 2	Airport	Truckee-Tahoe Airport	10356 Truckee Airport Rd, Truckee, CA 96161		N		HazMat Highway Route	
Placer County Adjacent Counties	Class 2	CHP Station	Truckee Communications Center	10077 CA-89, Truckee, CA 96161		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #111	6609 Rio Linda Blvd., Rio Linda, CA 95673		N			
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #112	6800 34th St., North Highlands, CA 95660		N			
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #41	6900 Thomas Dr., North Highlands, CA 95660		N			
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #25	7352 Roseville Rd., Sacramento, CA 95842		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #26	8000 Palmerson Dr., Antelope, CA 95843		N			
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #116	7995 Elwyn Ave., Elverta, CA 95626		N			

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Sac Metro Fire FS #117	7961 Cherry Brook Dr., Elverta, CA 95626		N			
Placer County Adjacent Counties	Class 2	Fire Station	Pleasant Grove FD	3100 Howsley Rd., Pleasant Grove, CA 95668		N			
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #96	10277 Tahoe Truckee Airport Rd., Truckee, CA		N		HazMat Highway Route	
Placer County Adjacent Counties	Class 2	Fire Station	CALFIRE FS #50	10277 Tahoe Truckee Airport Rd., Truckee, CA		N		HazMat Highway Route	
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #97	53823 Sherrit Lane, Soda Springs, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #93	15572 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #92	11473 Donner Pass Road, Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #91	10049 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #94	12986 Northwoods Blvd., Tahoe-Donner, CA		N			

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Adjacent Counties	Class 2	Fire Station	Truckee FPD FS #95	10900 Manchester Dr, Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 2	Hospital	Tahoe Forest Hospital	10121 Pine Ave., Truckee, CA 96160		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Barrett Ranch Elementary School	7720 Ocean Park Dr., Antelope, CA		N			HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Olive Grove Elementary School	7926 Firestone Way, Antelope, CA		N			HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Antelope Crossing Middle School	9200 Palmerson Dr., Sacramento, CA		N			HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Antelope Meadows Elementary School	8343 Palmerson Dr., Antelope, CA		N			
Placer County Adjacent Counties	Class 3	School	Donner Trail Elementary School	52755 Donner Pass Rd., Kingvale, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	Water Treatment Plant	Donner Summit Public Utility District	53823 Sherritt Ln., Soda Springs, CA 96161		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Sierra High School (Continuation)	11603 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Truckee Elementary School	11911 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Adjacent Counties	Class 3	School	Tahoe Truckee High School	11725 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Tahoe-Truckee Community Adult School	11839 Donner Pass Rd., Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Adjacent Counties	Class 3	School	Alder Creek Middle School	10931 Alder Dr., Truckee, CA		N		HazMat Highway Route	
Placer County Adjacent Counties	Class 3	School	Glenshire Elementary School	10990 Dorchester, Truckee, CA		N		HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Volcano	5847 Eureka Rd., Granite Bay, CA 95746	X	N	Non-Wildland/Non-Urban		
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Penryn	750 Clark Tunnel Rd., Penryn, CA 95663	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	PCWA	185 Ferguson Rd., Auburn, CA 95603	X	N	High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Dewitt	11295 B Ave., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Iron Mine	3210 Iron Mine Rd., Auburn, CA 95602	X	N	Moderate		
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Thermaland	8800 Vista Ave., Lincoln, CA 95648	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Foresthill		X	N	Very High		
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Foresthill	Bath Rd., Foresthill, CA 95631	X	N	Very High		
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Beacon Hill	25 E. Park Hill Dr., Colfax, CA 95713	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Alpine Meadows		X	N	Moderate		
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Gold Run	Garrett Rd., Gold Run, CA CA 95717	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 1	Communication Transmission Sites	Mount Pluto		X	N	Very High		
Placer County Unincorporated Areas	Class 1	Dispatch Center	Placer County Sheriff-auburn	2929 Richardson Dr, Auburn	X	N	Urban Unzoned	HazMat Highway Route	
Placer County Unincorporated Areas	Class 1	Emergency Operation Center	Placer County OES EOC	2968 Richardson Dr, Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	
Placer County Unincorporated Areas	Class 1	Emergency Operation Center	Placer County - Tahoe EOC	2501 N Lake Blvd, Tahoe City, CA 96145	X	N	Very High		
Placer County Unincorporated Areas	Class 1	Telecommunications	COMIT Telephone/Network (Side B)	11295 B Ave., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 1	Telecommunications	COMIT Radio (Side A)	11295 B Ave., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Airport	Blue Canyon-Nyack Airport	40225 Airport Rd, Alta, CA 95701	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	CHP Station	Newcastle Office	9440 Indian Hill Rd, Newcastle, CA 95658	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	CHP Station	Gold Run Office	50 Canyon Creek Rd, Gold Run, CA 95717	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	South Placer FPD FS #15	4650 East Roseville Pkwy., Granite Bay, CA	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 2	Fire Station	South Placer FPD FS #17	6900 Eureka Rd., Granite Bay, CA	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #100 - Dry Creek	8350 Cook Riolo Rd., Roseville, CA 95747	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	South Placer FPD FS #16	5300 Olive Ranch Rd., Granite Bay, CA	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 2	Fire Station	South Placer FPD FS #19	7070 Auburn Folsom Rd., Granite Bay, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	Loomis FPD FS #29	8501 Hoseshoe Bar Rd., Loomis, CA	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	South Placer FPD FS #20	3505 Auburn Folsom Rd., Loomis, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #77 - Sunset	1300 Athens Ave., Lincoln, CA 95648	X	N	Moderate		HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Penryn FPD FS #38	7206 Church St., Penryn, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Newcastle FPD FS #41	9211 Cypress St., Newcastle, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #75 - Paige	5390 Nicolaus Rd., Lincoln, CA 95648	X	N	Non-Wildland/Non-Urban		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #182 - Ophir	9305 Wise Rd., Auburn, CA 95603	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #73 - Fowler	4710 Fruitvale Rd., Lincoln, CA 95648	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #70 - Lincoln	1112 Wise Rd., Lincoln, CA 95648	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	CALFIRE/PCF FS #10 - Bowman	13760 Lincoln Way, Auburn, CA 95603	X	N	High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #180 - Atwood	11645 Atwood Rd., Auburn, CA 94603-9522	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #78 - Sheridan	4952 Riosa Rd., Sheridan, CA 95681	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #184 - Lone Star	6150 Grass Valley Hwy., Auburn, CA 95603	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	Placer Hills FPD FS #85	18016 Applegate Rd., Applegate, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Placer Hills FPD FS #84	16999 Placer Hills Rd., Meadow Vista, CA	X	N	High		
Placer County Unincorporated Areas	Class 2	Fire Station	Foresthill FPD FS #90	20540 Foresthill Rd., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	Foresthill FPD FS #89	22700 N Foresthill Rd., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #74 - Thermalands	8500 Lakeview Ln., Lincoln, CA 95648	X	N	Moderate		
Placer County Unincorporated Areas	Class 2	Fire Station	USFS FS #41- Foresthill	24125 Race Track St., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	Foresthill FPD FS #88	5981 Gold St., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	CALFIRE FS #11 - Foresthill	25150 Foresthill Rd., Foresthill, CA	X	N	Very High		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Placer Hills FPD FS #86	100 W Weimar Cross Rd., Colfax, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	North Tahoe FPD FS #53	5425 West Lake Blvd., Homewood, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	CALFIRE/PCF FS #30 - Colfax	24020 Fowler Rd., Colfax, CA 95713	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	USFS FS #42- Foresthill	31555 Foresthill Rd., Forestfill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	Iowa Hill Fire Co #31	3350 Iowa Hill Rd, Iowa Hill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	North Tahoe FPD FS #51	300 N. Lake Blvd., Tahoe City, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	Alpine Meadows FS #56	270 Alpine Meadows Rd., Alpine Meadows, CA 96146	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	CALFIRE/PCF FS #33 - Alta	33333 Alta Forestry Rd, Alta, CA 95701	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	North Tahoe FPD FS #54	159 Observation Dr., Tahoe City, CA	X	N	Very High		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	PCF FS #32 - Dutch Flat	980 Sacramento St., Dutch-Flat, CA 95714	X	N	Very High		HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Alta Vol. FPD FS #98	33950 Alta Bonnynook Rd, Alta, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Squaw Valley FD FS #21	305 Squaw Valley Rd., Olympic Valley, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	North Tahoe FPD FS #55 / CALFIRE FS #55	240 Carnelian Bay Rd., Carnelian Bay, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	North Tahoe FPD FS #52	288 Northshore Blvd., Kings Beach, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	Northstar FD FS #32	9100 Highlands View Rd., Northstar, CA 96161	X	N	Very High		
Placer County Unincorporated Areas	Class 2	Fire Station	Northstar FD FS #31	910 Northstar Dr., Northstar, CA 96161	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	Fire Station	USFS FS #34- Soda Springs	49685 Hampshire Rock Rd., Soda Springs, CA 95631	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 2	Fire Station	Truckee FPD FS #98	7305 Short Rd., Serene Lakes, CA	X	N	Very High		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 2	Hospital	Sutter Auburn Faith Hospital	11815 Education St., Auburn, CA 95602	X	N	Urban Unzoned	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	National/Coast Guard	U.S. Coast Guard Station Lake Tahoe	2500 Lake Forest Rd, Tahoe City, CA 96145	X	N	Very High		
Placer County Unincorporated Areas	Class 2	PCSO	Granite Bay Service Center	4120 Douglas Blvd #303, Granite Bay, CA 96145	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 2	PCSO	PCSO Auburn Justic Center	2929 Richardson Dr, Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	
Placer County Unincorporated Areas	Class 2	PCSO	Foresthill Service Center	24580 Main St, Foresthill, CA 95631	X	N	Very High		
Placer County Unincorporated Areas	Class 2	PCSO	Tahoe Substation	2501 N.lake Blvd, Tahoe City, CA 96145	X	N	Very High		
Placer County Unincorporated Areas	Class 2	PCSO	Kings Beach Service Center	8645 N. Lake Blvd, Kings Beach, CA 96143	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hall	Jewish Community Center Chabad of Placer County	4410 Douglas Blvd., Granite Bay, CA 95746	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Hall	Lakeview Hills Clubhouse	8062 N Lake Cir., Granite Bay, CA 95746	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Loomis Grange	6486 Colwell Rd., Penryn, CA 95663	X	N	Moderate		HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall		2221 Penryn Rd.,	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall		2205 Rippey Rd.,	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Long Valley Community Hall	2008 Rattlesnake Rd., Newcastle, CA 95658	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Hall	Central S.D. Community Hall	1445 Fiddyment Rd., Lincoln, CA 95648	X	N	Non-Wildland/Non-Urban		
Placer County Unincorporated Areas	Class 3	Hall	Newcastle Portugese Hall	690 Taylor Rd., Newcastle, CA 95658	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Gold Hill Grange	1405 Gold Hill Rd., Newcastle, CA 95658	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hall	Fruitvale Community Hall	3425 Fruitvale Rd., Lincoln, CA 95648	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Hall	Mt. Vernon Grange Hall	3185 Bell Rd., Auburn, CA 95603	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Mount Pleasant Farm Bureau Hall	3333 Mt Pleasant Rd., Lincoln, CA 95648	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Auburn Trapshooting Club	11540 Lorenson Rd., Auburn, CA 95602	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hall	Meadow Vista Grange #721	1115 Grange Rd., Meadow Vista, CA 95722	X	N	High		
Placer County Unincorporated Areas	Class 3	Hall	Thermalands Community Center	7755 McCourtney Rd., Lincoln, CA 95648	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Hall	Foresthill Veterans Memorial Hall	24601 Harrison St., Foresthill, CA 95631	X	N	Very High		
Placer County Unincorporated Areas	Class 3	Hall		487 Club Dr., Tahoe City, CA 96145	X	N	Very High		
Placer County Unincorporated Areas	Class 3	Hall	Stanford Alpine Chalet	1980 Chalet Rd., Alpine Meadows, CA 96146	X	N	Very High		
Placer County Unincorporated Areas	Class 3	Hall	Dutch Flat Community Center	933 Stockton St., Dutch Flat , CA 95714	X	N	Very High		HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Oddfellows Lodge #81 Io	32775 Main St., Dutch Flat , CA 95714	X	N	Very High		HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Clay Lodge Masonic Hall	32779 Main St., Dutch Flat , CA 95714	X	N	Very High		HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Resort at Squaw Creek	400 Squaw Creek Rd., Olympic Valley, CA 96146	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hall	Dutch Flat Swimming Pool	1045 Mattell Dr., Dutch Flat , CA 95714	X	N	Very High		HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hall	Carpenters Local Union No 1789	296 Deer St., Kings Beach, CA 96143	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	San Juan Suburban Water Dist	9935 Auburn Folsom Rd., Granite Bay CA 95746	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	Enterprise Products Oper LP	1545 Nichols Drive., Rocklin CA 95765	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	Rio Bravo Rocklin	3100 Thunder Valley Ct., Lincoln CA 95648	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	PCWA - Foothill Treatment	9300 Powerhouse Rd., Newcastle CA 95658	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	NID/Locksley	12200 Locksley Lane., Auburn CA 95602	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	PCWA - Bowman Treatment	595 Christian Valley Rd., Auburn CA 95602	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	Placer County DPW	11755 Joeger Road., Auburn CA 95602	X	N	High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Hazardous Materials Facility	Placer Co. Facility Services Special Utility Dist	11755 Joeger Road., Auburn CA 95602	X	N	High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	School	Dry Creek Elementary School	2955 PFE Rd., Roseville, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Oakhills Elementary School	9233 Twin School Rd., Granite Bay, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Ridgeview Elementary School	9177 Twin School Rd., Granite Bay, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Granite Bay High School	1 Grizzly Way, Granite Bay, CA	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 3	School	Eureka Elementary School	5477 Eureka Rd., Granite Bay, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Willma Cavitt Junior High School	7200 Fuller Dr., Granite Bay, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Greenhills Elementary School	8200 Greenhills Way, Granite Bay, CA	X	N	Urban Unzoned		
Placer County Unincorporated Areas	Class 3	School	Franklin Elementary School	7050 Franklin School Rd., Loomis, CA	X	N	Moderate		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	School	Placer Elementary School	8650 Horseshoe Bar Rd., Loomis, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Penryn Elementary School	6885 English Colony Way, Penryn, CA	X	N	Moderate		HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Newcastle Charter School	8951 Valley View Dr., Newcastle, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Newcastle Elementary School	8951 Valley View Dr., Newcastle, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Secret Ravine School	645 Kentucky Greens Way, Newcastle, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Ophir Elementary School	1373 Lozanos Rd., Newcastle, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	Auburn Elementary School	11400 Lariat Ranch Rd., Auburn, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Bowman School	13777 Bowman Rd., Auburn, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Rock Creek Elementary School	3050 Bell Rd., Auburn, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Chana High School	3775 Richardson Dr., Auburn, CA	X	N	Moderate	HazMat Highway Route	

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	School	Maidu High School	3775 Richardson Dr., Auburn, CA	X	N	Moderate	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	School	Sheridan Elementary School	4730 H St., Sheridan, CA	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Sierra Hills Elementary School	16505 Placer Hills Rd., Meadow Vista, CA	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	School	PCOE K-8 Community Independent Study Home	16825 Placer Hills Rd., Meadow Vista, CA	X	N	High		
Placer County Unincorporated Areas	Class 3	School	Foresthill Divide Middle School	22888 Foresthill Rd., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 3	School	Foresthill High School	23319 Foresthill Rd., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 3	School	Foresthill Elementary School	24750 Main St., Foresthill, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 3	School	Weimar Hills Middle School	200 West Weimar Cross Rd., Weimar, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Colfax Elementary School	24825 Ben Taylor Rd., Colfax, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	School	Colfax High School	24995 Ben Taylor Rd., Colfax, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Coldstream Alternative School	740 Timberland Ln., Tahoe City, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	School	Tahoe Lake Elementary School	375 Grove St., Tahoe City, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	School	North Tahoe Middle School	2945 Polaris Rd., Tahoe City, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 3	School	North Tahoe High School	2945 Polaris Rd., Tahoe City, CA	X	N	Very High		
Placer County Unincorporated Areas	Class 3	School	Alta-Dutch Flat Elementary School	34050 Alta Bonnie Nook Rd., Alta, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	School	Kings Beach Elementary School	8125 Steelhead, Kings Beach, CA	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	School	Emigrant Gap Elementary School	42420 Emigrant Gap Rd., Emigrant Gap, CA	X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	San Juan Suburban Water Treatment Plant	9935 Auburn Folsom Rd., Granite Bay, CA 95746	X	N	Moderate		

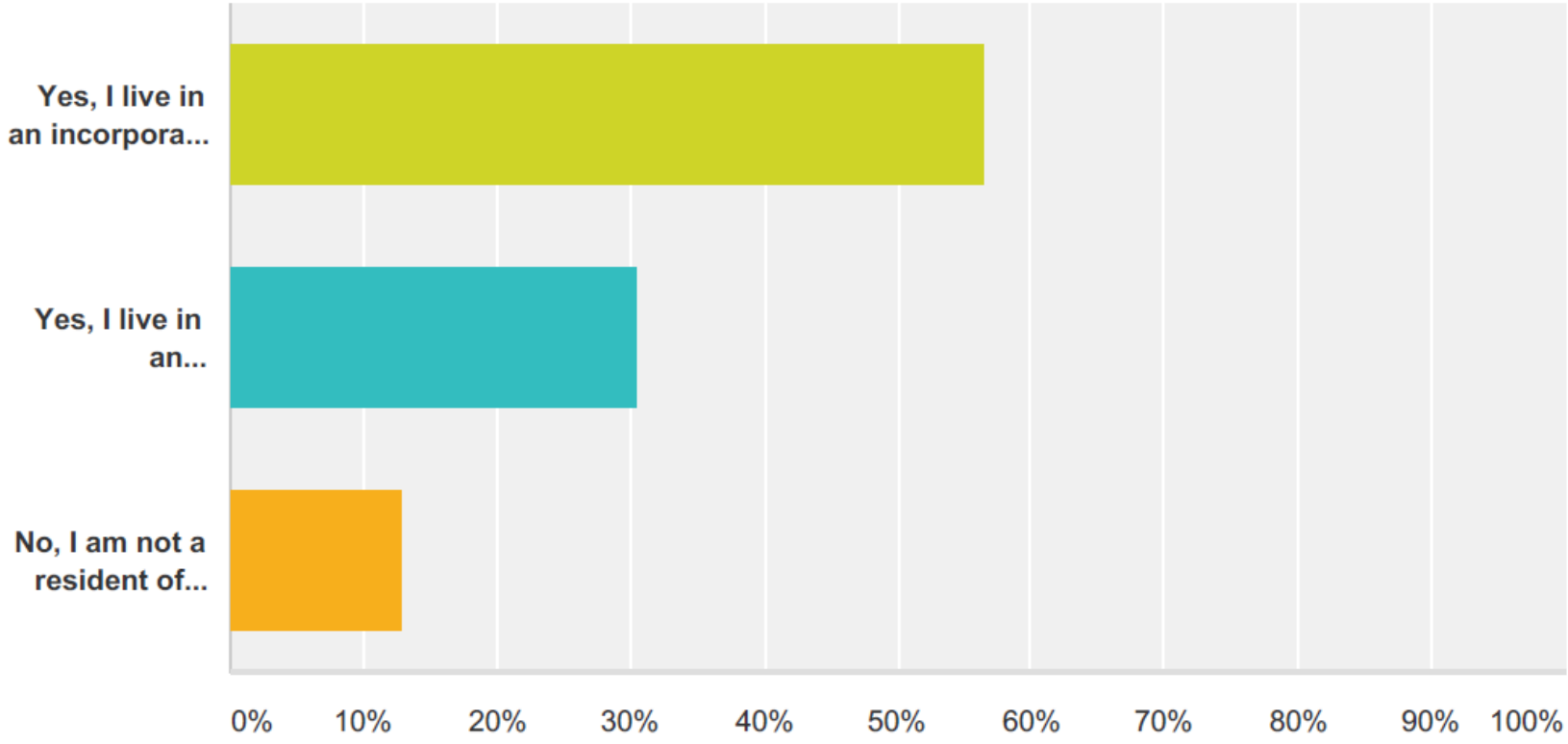
Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Placer County SMD NO 3 Wastewater Treatment Plant	4928 Auburn Folsom Rd., Auburn, CA 95603	X	N	Moderate		
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Foothill 55 mgd Water Treatment Plants	9200 Powerhouse Rd., Newcastle, CA 95658	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Newcastle Sanitary Treatment Plant	Newcastle, CA 95658	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Auburn 6mgd Water Treatment Plant	165 Ferguson Rd., Auburn, CA 95603	X	N	High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	NID North Auburn Water Treatment Plant	12200 Locksley Ln., Auburn, CA 95602	X	N	Urban Unzoned	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Bowman 7 mgd Water Treatment Plants	595 Christian Valley Rd., Auburn, CA 95602	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Placer County SMD NO 1 Wastewater Treatment Plant	11755 Joeger Rd., Auburn, CA 95602	X	N	High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Applegate 0mgd Water Treatment Plant	100 Bon Vue Pl., Applegate, CA 95703	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Foresthill Public Utility District	25985 Foresthill Rd., Foresthill, CA 95631	X	N	Very High		

Jurisdiction	Critical Facility Class	Facility Type	Name	Address	Flood Zone	Floodway	Fire Hazard Severity Zone	Hazardous Materials Road Route	Hazardous Materials Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Monte Vista 0mgd Water Treatment Plant		X	N	Very High	HazMat Highway Route	HazMat Railroad Route
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	Alta 0mgd Water Treatment Plant	990 Alta Reservoir Ct., Alta, CA 95701	X	N	Very High	HazMat Highway Route	
Placer County Unincorporated Areas	Class 3	Water Treatment Plant	NTPUD National Ave. WTP & Lake Intake	7010 North Lake Blvd., Tahoe Vista, CA 96148	X	N	Very High	HazMat Highway Route	
Town of Loomis	Class 2	PCSO	South Placer Substation	6140 Horsehoe Bar Drive, Suite D, Loomis, CA 95650	X	N	Moderate	HazMat Highway Route	HazMat Railroad Route
Town of Loomis	Class 2	Fire Station	Loomis FPD FS #28	5840 Horseshoe Bar Rd., Loomis, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
Town of Loomis	Class 3	School	Loomis Elementary School	3505 Taylor Rd., Loomis, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
Town of Loomis	Class 3	School	Del Oro High School	3301 Taylor Rd., Loomis, CA	X	N	Urban Unzoned	HazMat Highway Route	HazMat Railroad Route
Town of Loomis	Class 3	School	H. Clarke Powers Elementary School	3296 Humphrey Rd., Loomis, CA	X	N	Urban Unzoned		HazMat Railroad Route

Source: Placer County GIS

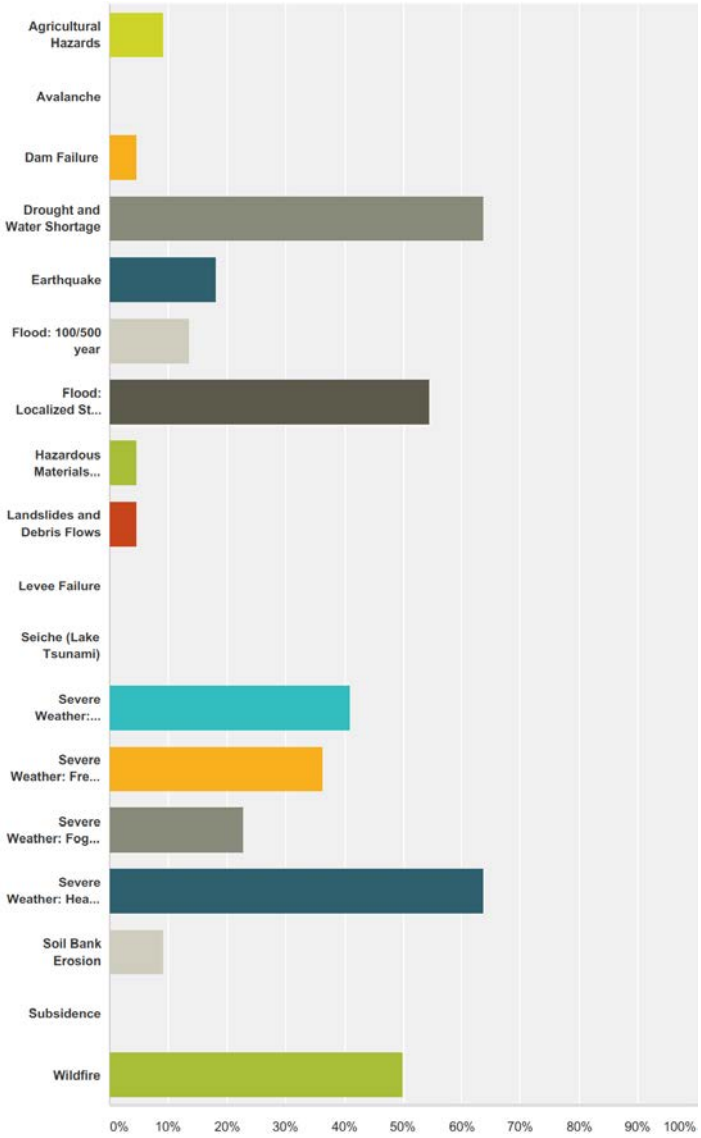
Appendix G Public Survey

Question 1 – Are you a resident of Placer County or any of the incorporated communities within Placer County?



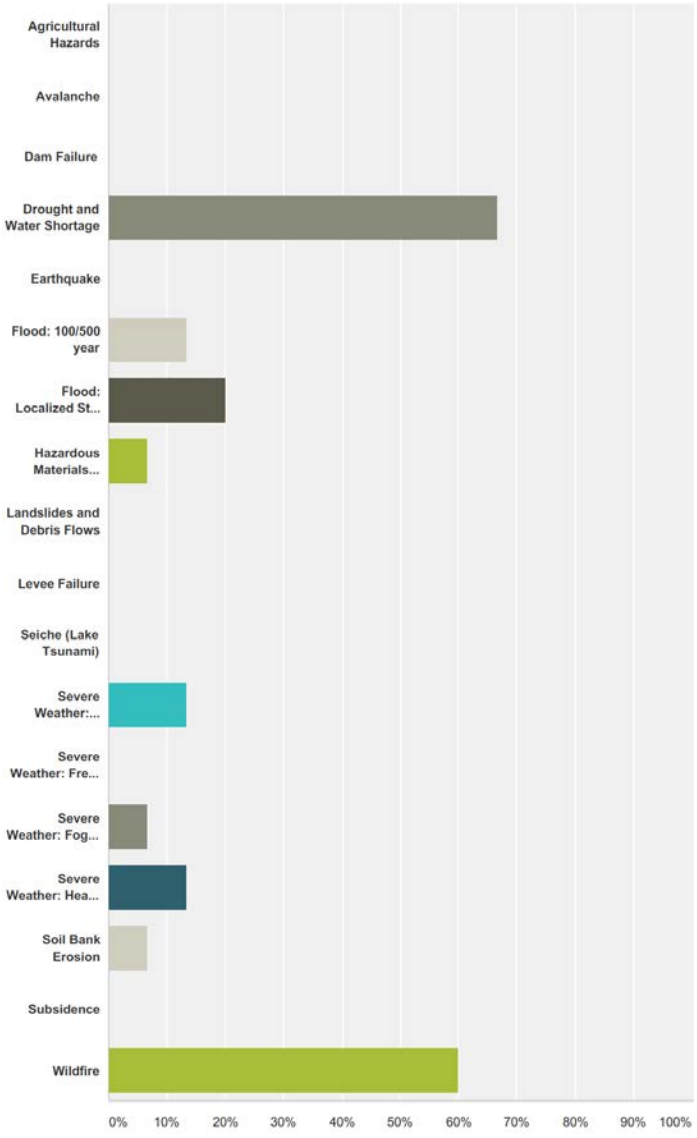
Answer Choices	Responses	
Yes, I live in an incorporated city	56.52%	13
Yes, I live in an unincorporated area of the county	30.43%	7
No, I am not a resident of Placer County	13.04%	3
Total		23

Which of the following types of natural hazard events have you or someone in your household experienced within Placer County? Please check all that apply.



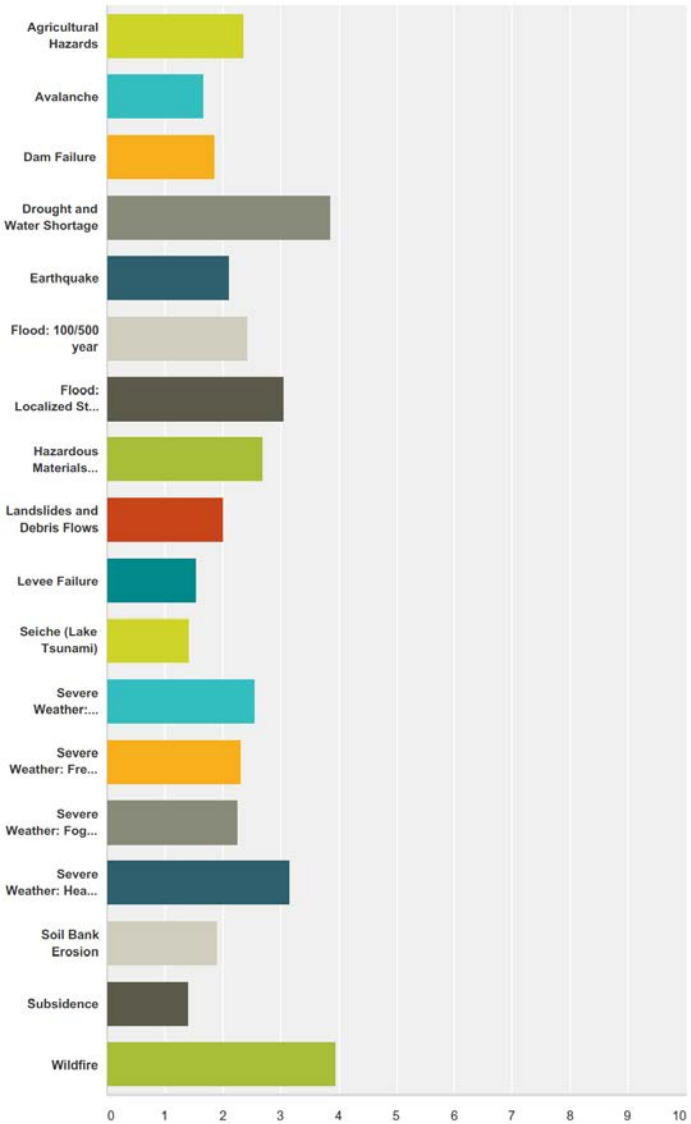
Answer Choices	Responses	
Agricultural Hazards	9.09%	2
Avalanche	0.00%	0
Dam Failure	4.55%	1
Drought and Water Shortage	63.64%	14
Earthquake	18.18%	4
Flood: 100/500 year	13.64%	3
Flood: Localized Storm Water Flooding	54.55%	12
Hazardous Materials Transport	4.55%	1
Landslides and Debris Flows	4.55%	1
Levee Failure	0.00%	0
Seiche (Lake Tsunami)	0.00%	0
Severe Weather: Extreeme Heat	40.91%	9
Severe Weather: Freeze and Snow	36.36%	8
Severe Weather: Fog and Freezing Fog	22.73%	5
Severe Weather: Heavy Rains and Storms	63.64%	14
Soil Bank Erosion	9.09%	2
Subsidence	0.00%	0
Wildfire	50.00%	11
Total Respondents: 22		

About which of the above events, if any, have you received educational information from the county? Please check all that apply.



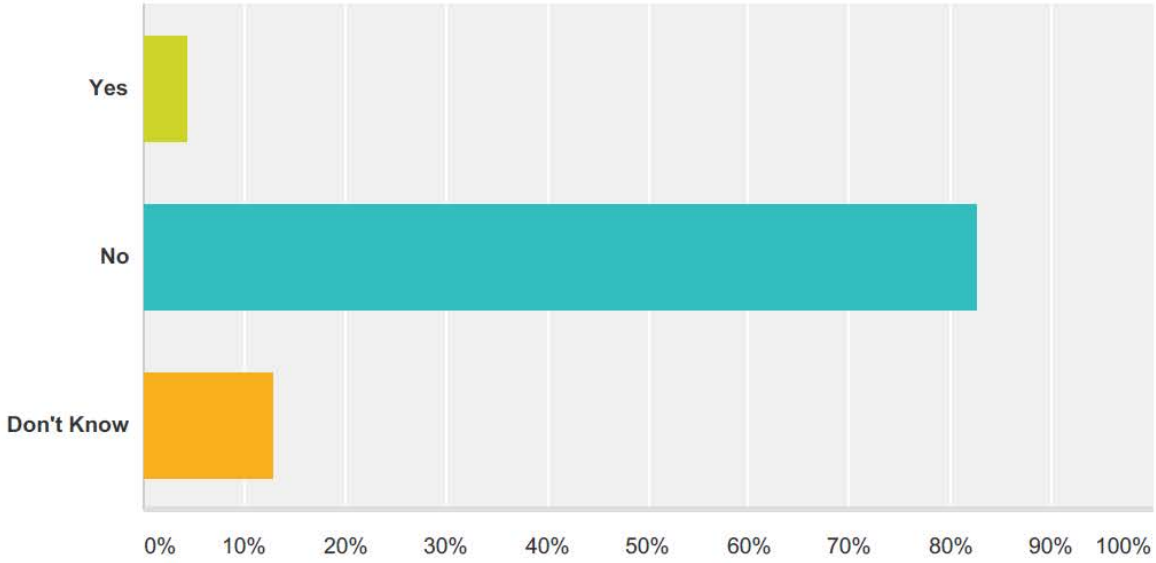
Answer Choices	Responses	
Agricultural Hazards	0.00%	0
Avalanche	0.00%	0
Dam Failure	0.00%	0
Drought and Water Shortage	66.67%	10
Earthquake	0.00%	0
Flood: 100/500 year	13.33%	2
Flood: Localized Storm Water Flooding	20.00%	3
Hazardous Materials Transport	6.67%	1
Landslides and Debris Flows	0.00%	0
Levee Failure	0.00%	0
Seiche (Lake Tsunami)	0.00%	0
Severe Weather: Extreeme Heat	13.33%	2
Severe Weather: Freeze and Snow	0.00%	0
Severe Weather: Fog and Freezing Fog	6.67%	1
Severe Weather: Heavy Rains and Storms	13.33%	2
Soil Bank Erosion	6.67%	1
Subsidence	0.00%	0
Wildfire	60.00%	9
Total Respondents: 15		

How concerned are you about the impact of those hazards on the county? Rank each hazard from 'not very concerned' to 'most concerned.'



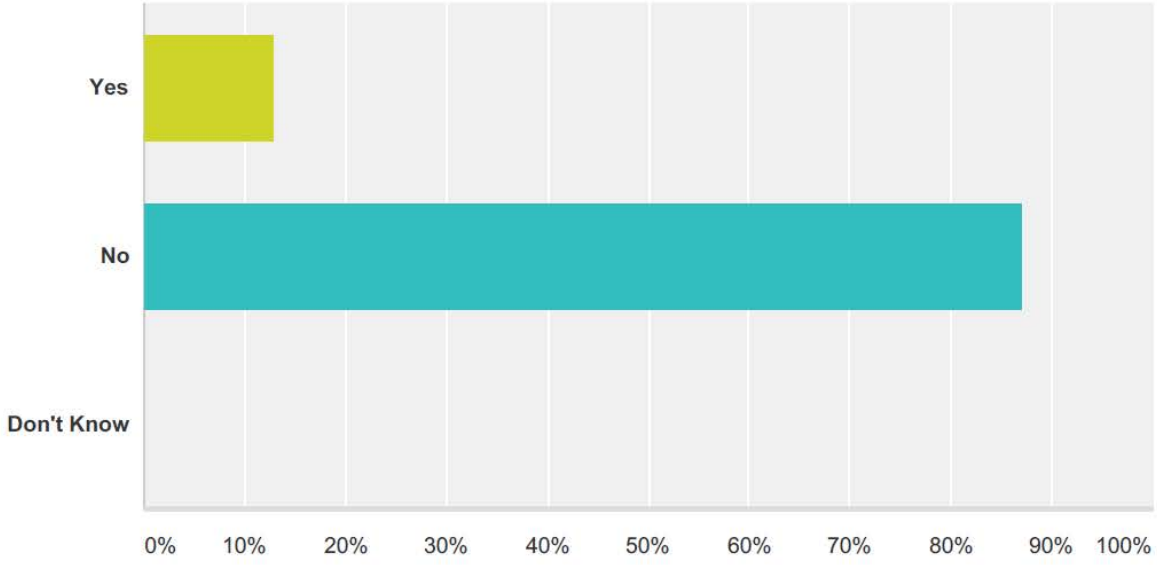
	Not Very Concerned	(no label)	Concerned	(no label)	Most Concerned	Total	Weighted Average
Agricultural Hazards	30.00% 6	15.00% 3	45.00% 9	10.00% 2	0.00% 0	20	2.35
Avalanche	52.63% 10	26.32% 5	21.05% 4	0.00% 0	0.00% 0	19	1.68
Dam Failure	45.00% 9	30.00% 6	20.00% 4	5.00% 1	0.00% 0	20	1.85
Drought and Water Shortage	9.52% 2	0.00% 0	23.81% 5	28.57% 6	38.10% 8	21	3.86
Earthquake	30.00% 6	35.00% 7	30.00% 6	5.00% 1	0.00% 0	20	2.10
Flood: 100/500 year	36.84% 7	21.05% 4	15.79% 3	15.79% 3	10.53% 2	19	2.42
Flood: Localized Storm Water Flooding	15.00% 3	10.00% 2	40.00% 8	25.00% 5	10.00% 2	20	3.05
Hazardous Materials Transport	20.00% 4	25.00% 5	20.00% 4	35.00% 7	0.00% 0	20	2.70
Landslides and Debris Flows	31.58% 6	42.11% 8	21.05% 4	5.26% 1	0.00% 0	19	2.00
Levee Failure	60.00% 12	30.00% 6	5.00% 1	5.00% 1	0.00% 0	20	1.55
Seiche (Lake Tsunami)	63.16% 12	31.58% 6	5.26% 1	0.00% 0	0.00% 0	19	1.42
Severe Weather: Extreme Heat	20.00% 4	20.00% 4	50.00% 10	5.00% 1	5.00% 1	20	2.55
Severe Weather: Freeze and Snow	26.32% 5	21.05% 4	47.37% 9	5.26% 1	0.00% 0	19	2.32
Severe Weather: Fog and Freezing Fog	26.32% 5	36.84% 7	26.32% 5	5.26% 1	5.26% 1	19	2.26
Severe Weather: Heavy Rains and Storms	0.00% 0	31.58% 6	36.84% 7	15.79% 3	15.79% 3	19	3.16
Soil Bank Erosion	35.00% 7	45.00% 9	15.00% 3	5.00% 1	0.00% 0	20	1.90
Subsidence	61.11% 11	38.89% 7	0.00% 0	0.00% 0	0.00% 0	18	1.39
Wildfire	4.55% 1	4.55% 1	22.73% 5	27.27% 6	40.91% 9	22	3.95

Is your home located in a FEMA designated floodplain?



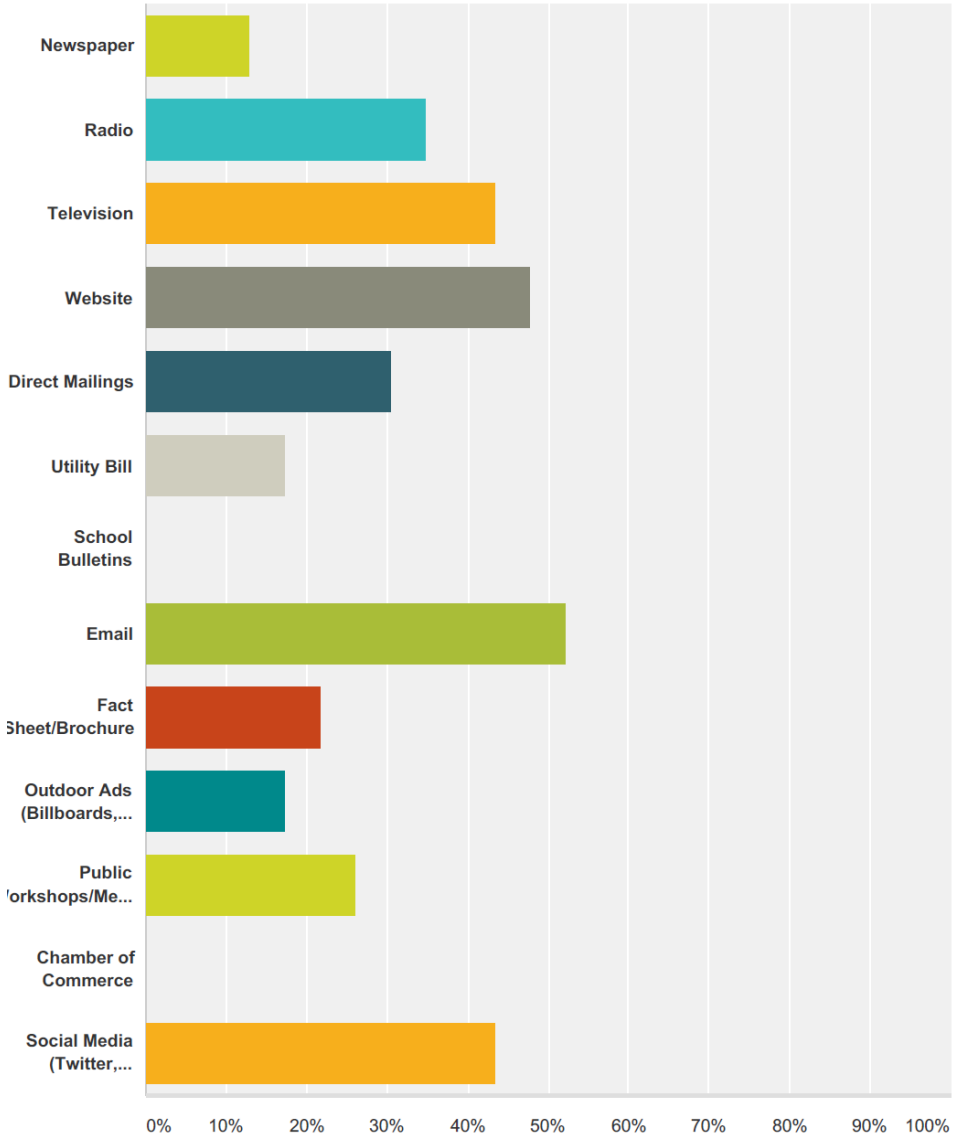
Answer Choices	Responses	
Yes	**4.35%**	1
No	**82.61%**	19
Don't Know	**13.04%**	3
Total		**23**

Do you have flood insurance (normally not part of a Homeowner Insurance Policy)?



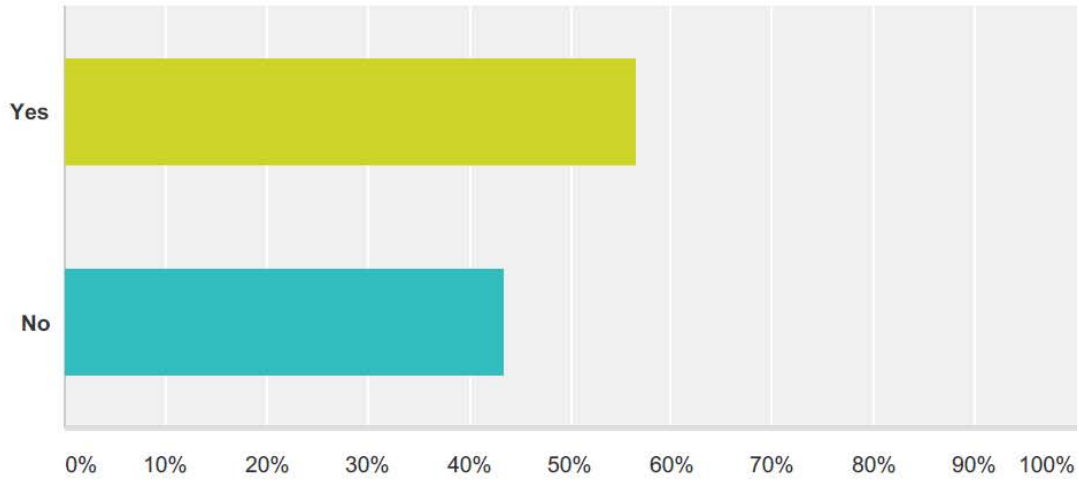
Answer Choices	Responses	
Yes	**13.04%**	3
No	**86.96%**	20
Don't Know	**0.00%**	0
Total		**23**

What is the most effective way for you to receive information about disaster preparedness? Please mark all that apply.



Answer Choices	Responses	
Newspaper	13.04%	3
Radio	34.78%	8
Television	43.48%	10
Website	47.83%	11
Direct Mailings	30.43%	7
Utility Bill	17.39%	4
School Bulletins	0.00%	0
Email	52.17%	12
Fact Sheet/Brochure	21.74%	5
Outdoor Ads (Billboards, etc.)	17.39%	4
Public Workshops/Meetings	26.09%	6
Chamber of Commerce	0.00%	0
Social Media (Twitter, Facebook, etc.)	43.48%	10
Total Respondents: 23		

Are you willing to be added to an email list to participate in future surveys and to receive program updates?

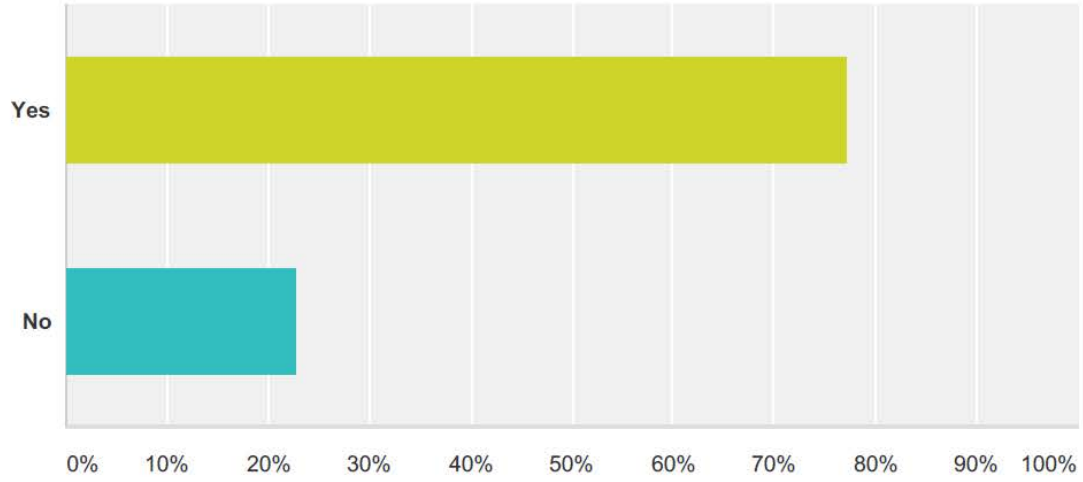


Answer Choices	Responses	
Yes	**56.52%**	13
No	**43.48%**	10
Total		**23**

Please identify how prepared you feel you and your household are for the possible impacts of natural hazard events likely to occur within Placer County.

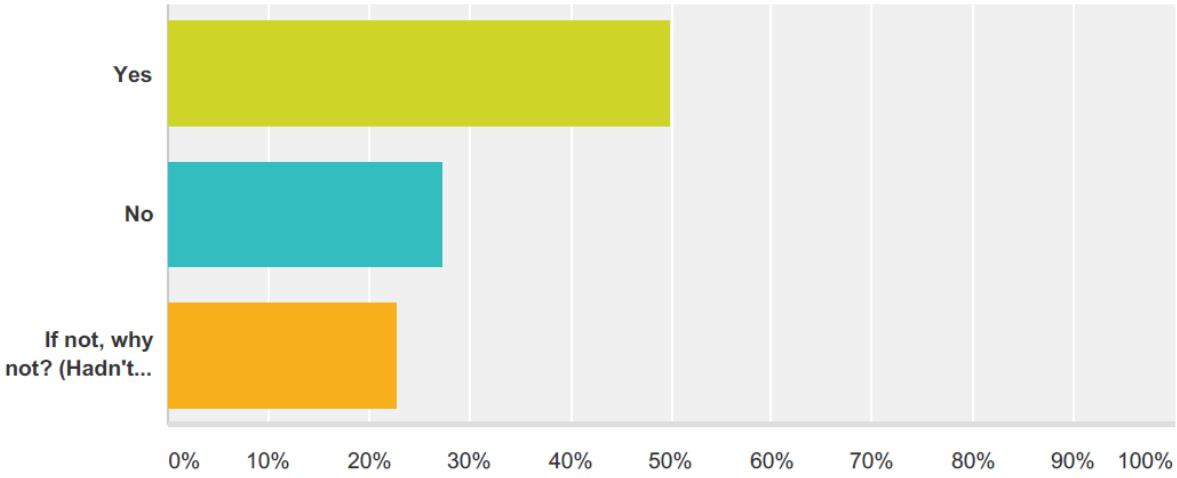
	Not Well Prepared	(no label)	Prepared	(no label)	Most Prepared	Total	Weighted Average
(no label)	**0.00%** 0	**22.73%** 5	**50.00%** 11	**13.64%** 3	**13.64%** 3	22	3.18

Are you familiar with the Placer Alert system, which enables us to provide you with critical information quickly via text, phone message or email, in a variety of significant emergency situations, such as catastrophic weather, unexpected major road closures, and evacuations of buildings or neighborhoods? (www.placer-alert.org)



Answer Choices	Responses	
Yes	77.27%	17
No	22.73%	5
Total		**22**

Have you registered for the alerts?



Answer Choices	Responses	
Yes	**50.00%**	11
No	**27.27%**	6
If not, why not? (Hadn't heard of it, not interested, other)	**22.73%**	5
Total		**22**