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

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Title</th>
<th>How Participated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will Stelter</td>
<td>Engineering and Operations Manager</td>
<td>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.</td>
</tr>
<tr>
<td>Larry Marple</td>
<td>Chief Financial Officer</td>
<td>Provided input on past hazards.</td>
</tr>
</tbody>
</table>

M.3 District Profile

The North Tahoe PUD service area is illustrated in Figure M-1.
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

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

### 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 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 do not result in permanent disability

### 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

<table>
<thead>
<tr>
<th>Name of Asset</th>
<th>Facility Type</th>
<th>Address</th>
<th>Replacement Value</th>
<th>Hazard Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Administration Facilities</td>
<td>District Operations &amp; Emergency Generator</td>
<td>875 National Ave., Tahoe Vista, CA</td>
<td>$4,706,529</td>
<td></td>
</tr>
<tr>
<td>National Avenue Water Treatment Plant</td>
<td>Potable Water Intake &amp; Treatment Plant</td>
<td>7010 North Lake Blvd., Tahoe Vista, CA</td>
<td>$2,291,919</td>
<td>Seiche Drought</td>
</tr>
<tr>
<td>Park Well</td>
<td>Potable Water Well</td>
<td>6600 Donner Rd., Tahoe Vista, CA</td>
<td>$176,371</td>
<td>Wildfire Drought</td>
</tr>
<tr>
<td>Park Tank</td>
<td>Potable Water Tank</td>
<td>6600 Donner Rd., Tahoe Vista, CA</td>
<td>$175,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Carnelian Woods Well</td>
<td>Potable Water Well</td>
<td>Carnelian Woods Ave., Carnelian Bay, CA</td>
<td>$195,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Carnelian Woods Tank I</td>
<td>Potable Water Tank</td>
<td>End of Silver Pine Dr., Carnelian Bay, CA</td>
<td>$249,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Carnelian Woods Tank II</td>
<td>Potable Water Tank &amp; Booster Pump Station</td>
<td>End of Silver Pine Dr., Carnelian Bay, CA</td>
<td>$293,800</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Dollar Hill Tank</td>
<td>Potable Water Tank</td>
<td>Top of Dollar Hill, Tahoe City, CA</td>
<td>$276,500</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Dollar Cove Water Intake</td>
<td>Potable Water Intake &amp; Pump House</td>
<td>3600 North Lake Blvd., Carnelian Bay, CA</td>
<td>$85,800</td>
<td>Soil Bank Erosion Drought</td>
</tr>
<tr>
<td>Brockway Water Intake</td>
<td>Potable Water Intake &amp; Pump House</td>
<td>Brockway Rd., Kings Beach, CA</td>
<td>$75,000</td>
<td>Soil Bank Erosion Drought Seiche</td>
</tr>
<tr>
<td>Kings Beach Tank</td>
<td>Potable Water Tank</td>
<td>Beaver St., Kings Beach, CA</td>
<td>$749,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Zone 1 Tank</td>
<td>Potable Water Tank &amp; Booster Pump Station</td>
<td>1001 Canterbury Dr., Kings Beach, CA</td>
<td>$1,200,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Zone 2 Tank</td>
<td>Potable Water Tank</td>
<td>1050 Lake Vista Rd., Kings Beach, CA</td>
<td>$600,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Kingswood West Water Tank</td>
<td>Potable Water Tank</td>
<td>1392 Kings Vista Ct., Tahoe Vista, CA</td>
<td>$600,000</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Name of Asset</td>
<td>Facility Type</td>
<td>Address</td>
<td>Replacement Value</td>
<td>Hazard Info</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------------------------------</td>
<td>--------------------------------</td>
<td>-------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Kingswood West Booster Pump Station</td>
<td>Potable Water Booster Pump Station</td>
<td>9611 Regency Way, Tahoe Vista, CA</td>
<td>$180,600</td>
<td>Wildfire</td>
</tr>
<tr>
<td>Secline Sewer Pump Station</td>
<td>Sewer Pump Station</td>
<td>121 Secline St., Kings Beach, CA</td>
<td>$685,000</td>
<td>Severe Weather (Flood: Localized Stormwater Flooding Seiche)</td>
</tr>
<tr>
<td>National Sewer Pump Station</td>
<td>Sewer Pump Station</td>
<td>7010 North Lake Blvd., Tahoe Vista, CA</td>
<td>$650,600</td>
<td>Severe Weather (Flood: Localized Stormwater Flooding Seiche)</td>
</tr>
<tr>
<td>Carnelian Sewer Pump Station</td>
<td>Sewer Pump Station</td>
<td>255 Onyx St., Carnelian Bay, CA</td>
<td>$743,800</td>
<td>Severe Weather (Flood: Localized Stormwater Flooding)</td>
</tr>
<tr>
<td>Dollar Sewer Pump Station</td>
<td>Sewer Pump Station</td>
<td>3630 North Lake Blvd., Carnelian Bay, CA</td>
<td>$2,188,000</td>
<td>Severe Weather (Flood: Localized Stormwater Flooding)</td>
</tr>
<tr>
<td>S1, S2, N2, C1, D1, D2, D3, D4, D5, D6, D7 Satellite Sewer Pump Stations</td>
<td>Model 15 and Model 16 Satellite Sewer Pump Stations</td>
<td>Various locations from Stateline at Crystal Bay to Dollar Point</td>
<td>Model 15: $64,150/ea  Model 16: $101,350/ea</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>N1 Satellite Pump Station</td>
<td>Model 16 Satellite Sewer Pump Station with Backup Generator</td>
<td>Tahoe Vista, CA</td>
<td>$136,350</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>N3 Satellite Pump Station</td>
<td>Model 16 Satellite Sewer Pump Station with Backup Generator</td>
<td>Tahoe Vista, CA</td>
<td>$172,700</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>C2 Satellite Pump Station</td>
<td>Model 16 Satellite Sewer Pump Station with Backup Generator</td>
<td>5000 North Lake Blvd., Carnelian Bay, CA</td>
<td>$181,350</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>North Tahoe Event Center</td>
<td>Community Conference Center &amp; Emergency Evacuation Shelter</td>
<td>8318 North Lake Blvd., Kings Beach, CA</td>
<td>$2,405,000</td>
<td>Severe Weather (wind) Seiche Flood</td>
</tr>
<tr>
<td>Tahoe Vista Recreation Area</td>
<td>Beach &amp; Facilities, Boat Launch, &amp; Parking Areas</td>
<td>7010 North Lake Blvd., Tahoe Vista, CA</td>
<td>$3,264,703</td>
<td>Severe Weather (Seiche Flood)</td>
</tr>
<tr>
<td>Secline Beach Park</td>
<td>Park</td>
<td>South end of Secline St., Kings Beach, CA</td>
<td>$10,000</td>
<td></td>
</tr>
<tr>
<td>North Tahoe Regional Park</td>
<td>Park with numerous amenities</td>
<td>6600 Donner Rd., Tahoe Vista, CA</td>
<td>$1,119,859</td>
<td>Wildfire</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Plans</th>
<th>Y/N Year</th>
<th>Does the plan/program address hazards?</th>
<th>Does the plan identify projects to include in the mitigation strategy?</th>
<th>Can the plan be used to implement mitigation actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive/Master Plan</td>
<td>Sewer – 1991</td>
<td>Can be used to implement mitigation actions, but needs to be updated. These are more planning documents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water - 1999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Improvements Plan</td>
<td>2015</td>
<td>Five-year plan updated each fiscal year.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Development Plan</td>
<td>n/a County</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Emergency Operations Plan</td>
<td>2005</td>
<td>The ERP addresses hazards and risks. Never adopted; needs to be updated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity of Operations Plan</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation Plan</td>
<td>n/a County</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stormwater Management Plan/Program</td>
<td>n/a County</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Administration</th>
<th>Y/N</th>
<th>Describe capability</th>
<th>Is coordination effective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Commission</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigation Planning Committee</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance programs to reduce risk</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e.g., tree trimming, clearing drainage systems)</td>
<td>Yes</td>
<td>Mutual Aid agreement in place for Truckee-Tahoe area sewer and water agencies.</td>
<td></td>
</tr>
<tr>
<td>Mutual aid agreements</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Is staffing adequate to enforce regulations?
Is staff trained on hazards and mitigation?
Is coordination between agencies and staff effective?

<table>
<thead>
<tr>
<th>Staff</th>
<th>Y/N</th>
<th>FT/PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Building Official</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Floodplain Administrator</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Emergency Manager</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Community Planner</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>GIS Coordinator</td>
<td>Yes</td>
<td>n/a</td>
</tr>
<tr>
<td>Other</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Describe capability
Has capability been used to assess/mitigate risk in the past?

<table>
<thead>
<tr>
<th>Technical</th>
<th>Y/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning systems/services (Reverse 911, outdoor warning signals)</td>
<td>No</td>
<td>We are looking into the capability for reverse 911.</td>
</tr>
<tr>
<td>Hazard data and information</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Grant writing</td>
<td>Yes</td>
<td>We have limited staff and time to write grants; but take advantage of grant opportunities as they arise.</td>
</tr>
<tr>
<td>Hazus analysis</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Funding Resource</th>
<th>Access/ Eligibility (Y/N)</th>
<th>Has the funding resource been used in past and for what type of activities?</th>
<th>Could the resource be used to fund future mitigation actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital improvements project funding</td>
<td>Yes</td>
<td>Limited funding; grants help with being able to do more Capital projects.</td>
<td></td>
</tr>
<tr>
<td>Authority to levy taxes for specific purposes</td>
<td>Yes</td>
<td>Limited capability; mostly for sewer and recreation.</td>
<td></td>
</tr>
<tr>
<td>Fees for water, sewer, gas, or electric services</td>
<td>Yes</td>
<td>Water and sewer fees are currently used for Capital improvements as funding allows.</td>
<td></td>
</tr>
<tr>
<td>Funding Resource</td>
<td>Access/Eligibility (Y/N)</td>
<td>Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Impact fees for new development</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storm water utility fee</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incur debt through general obligation bonds and/or special tax bonds</td>
<td>Yes</td>
<td>We have incurred debt in the past with bonds and loans for Capital projects.</td>
<td></td>
</tr>
<tr>
<td>Incur debt through private activities</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Development Block Grant</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other federal funding programs</td>
<td>Yes</td>
<td>Have received funds through the Lake Tahoe Restoration Act for fire protection. Funds have been limited in recent years.</td>
<td></td>
</tr>
<tr>
<td>State funding programs</td>
<td>Yes</td>
<td>Have received funds for various recreation projects. Funds are limited for mitigation actions.</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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*

<table>
<thead>
<tr>
<th>Program/Organization</th>
<th>Yes/No</th>
<th>Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)</td>
<td>Yes</td>
<td>We have on-going public education and outreach programs in place for reducing water use (irrigation) due to current drought.</td>
</tr>
<tr>
<td>Natural disaster or safety related school programs</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>StormReady certification</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Firewise Communities certification</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>
### 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