

4.9 HYDROLOGY AND WATER QUALITY

4.9.1 Introduction

This section addresses the potential impacts of the project on hydrology and water quality. It describes the existing water resources in the project area and identifies the applicable federal and state plans, policies, and laws and local plans, policies, and regulations. The analysis identifies the potential impacts of the project, including cumulative impacts, on hydrology and water quality and identifies mitigation measures, when available, to reduce the level of impact to less than significant.

Important terms for specific parts of the project are discussed in detail in Section 4.0, “Approach to the Environmental Analysis.” The following brief discussion is intended to remind the reader how those terms are defined and used in the EIR analysis, including this section. “SAP area” refers to the entire SAP area, which includes the PRSP area. “Net SAP area” refers to the portion of the SAP area outside the PRSP area. The “project” encompasses the entirety of the SAP, including the PRSP and all associated off-site improvements. “Project area” refers to the entire area covered by the project. Because the project area is composed of three pieces (the net SAP area, the PRSP area, and areas where other off-site infrastructure would support the project), the impact analysis typically is divided into three subsections: “Net SAP Area,” “PRSP Area,” and “Other Supporting Infrastructure.” (“Other Supporting Infrastructure” refers to improvements outside the SAP area and is divided into “Pleasant Grove Retention Facility” and “Off-Site Transportation and Utility Improvements.”) Some required infrastructure improvements are planned outside the PRSP area but still in the SAP area; those improvements are addressed in the “PRSP Area” sections.

Comments received in response to the NOP requested that the hydrology and water quality analysis evaluate potential effects on surface water quality, the potential for increased stormwater runoff, changes to 100-year flood flows on Pleasant Grove and University Creeks, and the project’s effect on the Natomas Cross Canal watershed. These issues are addressed in the analysis below.

Impacts related to potential inundation resulting from dam or levee failure are not discussed in this section because the SAP area is outside the inundation area of any nearby dam or levee. Also, because the SAP area is below the contributing watersheds of Lake Tahoe, Folsom Lake, Hell Hole Reservoir, Rock Creek Reservoir, Sugar Pine Reservoir, French Meadows Reservoir, Combie Lake, and Rollins Lake, impacts on these surface waters and their watersheds are dismissed from further consideration. Riparian and wetland habitats are discussed in Section 4.4, “Biological Resources,” and water supply is addressed in Section 4.15, “Utilities.”

As discussed in Chapter 1, “Introduction,” the PRSP land use plan has been slightly revised since circulation of the NOP. Changes primarily relate to increasing the distance between the landfill property and land designated for residential uses, modifying the density of proposed residential areas, reducing the proposed commercial intensity, slightly decreasing the amount of open space, and increasing the acreage of parks to meet the County’s parkland provision standard. The size of the PRSP area (2,213 acres) has not changed since release of the NOP, and the overall area of development would be nearly identical. Impacts on hydrology and water quality relate primarily to ground disturbance. Because the changes to the PRSP land use plan would be consistent with the overall level of ground disturbance associated with the previous PRSP land use plan, and because the changes to the PRSP land use plan would not substantially change the locations in which ground disturbance would occur, potential impacts on hydrology and water quality that would result under the land use plan identified in the NOP and those that would result under the current land use plan analyzed in this EIR are essentially the same. The changes to the land use plan would result in an overall reduction in impervious surfaces within the PRSP site, so the overall detention requirements would decrease slightly (MacKay & Soms 2018:4).

4.9.2 Environmental Setting

HYDROLOGY AND DRAINAGE

Surface Hydrology and Drainage

The SAP area is within the Sacramento River Basin, in the Auburn Ravine, Orchard Creek, and Pleasant Grove Creek watersheds. The watersheds of Auburn Ravine and its tributary Orchard Creek generally cover the northern half of the SAP area, and the Pleasant Grove Creek watershed and its tributary, University Creek, cover the southern half. Potential locations for off-site stormwater retention are located in the Pleasant Grove Creek watershed and the Coon Creek watershed. The PRSP is located almost entirely within the Pleasant Grove Creek Watershed. Exhibits 4.9-1 and 4.9-2 show the watersheds, major streams and flood zones within the vicinity of the SAP area.

Auburn Ravine Watershed

Auburn Ravine originates on the north side of the City of Auburn and flows west, joining North Canal in Sutter County. From there, it flows into Natomas Cross Canal and ultimately into the Sacramento River. Elevations within the Auburn Ravine watershed range from 30 to 1,600 feet above sea level. Under natural conditions, Auburn Ravine functions as an intermittent stream with high winter and spring flows that slow to a trickle or disappear entirely during summer and early fall. Over the past 150 years, the hydrology of Auburn Ravine has been modified and now includes year-round discharges from the City of Auburn's wastewater treatment plant and Pacific Gas and Electric Company's Wise Powerhouse and summer input from the Bear, Yuba, and American Rivers by the Nevada Irrigation District, Placer County Water Agency, and Pacific Gas and Electric Company (Placer County 2015). These discharges create abnormally high spring and summer flow conditions. Flows range from less than 3 cubic feet per second (cfs) during fall to an estimated 14,000 cfs during 100-year winter storm events (Placer County 2015). At the end of the irrigation season (October 15), the Wise Powerhouse is shut down for maintenance for 2–6 weeks. During this time, flow in Auburn Ravine above Orchard Creek depends almost entirely on discharge from the Auburn wastewater treatment plant (Placer County 2002).

Orchard Creek Watershed

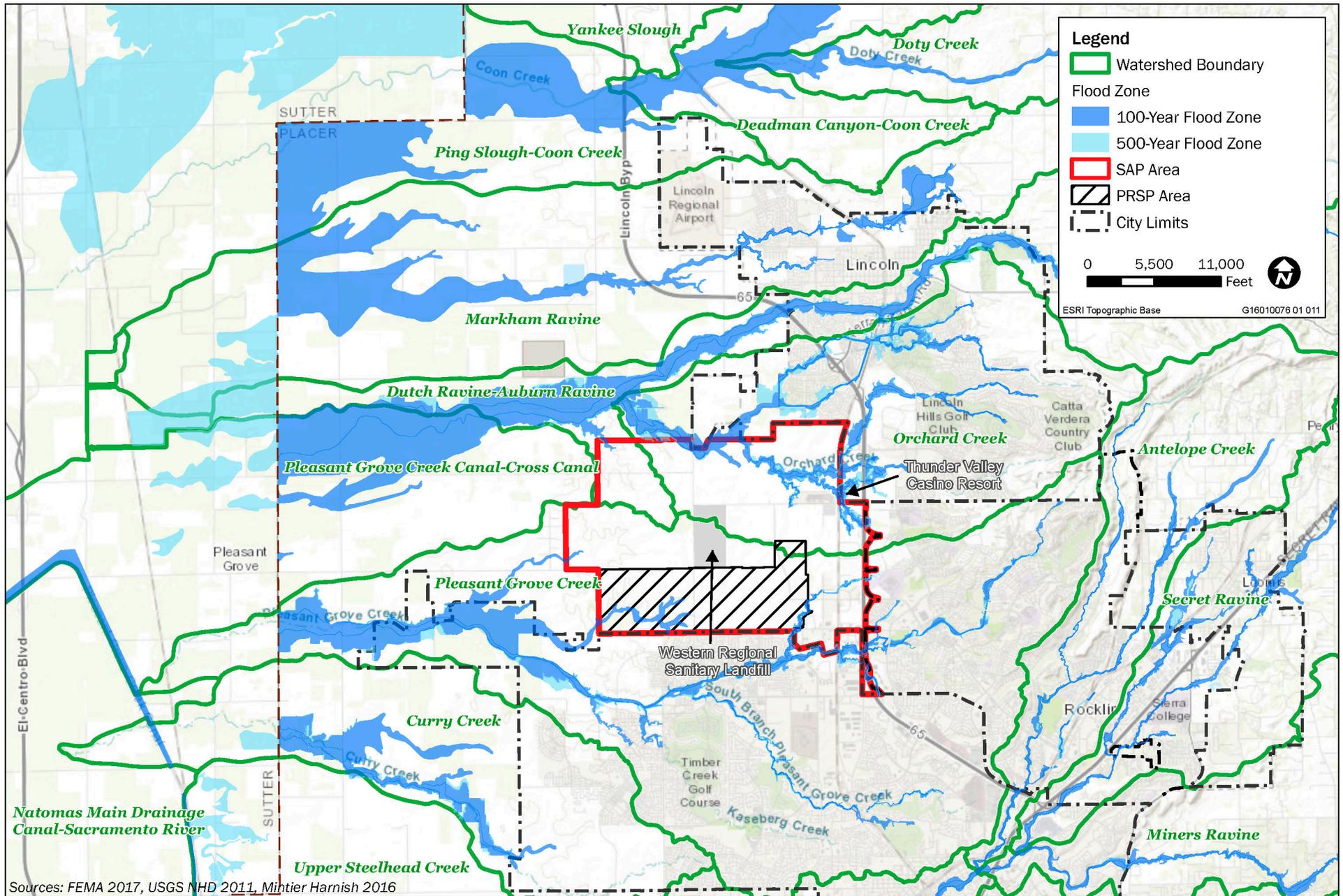
The Orchard Creek watershed is a large tributary watershed that begins 3 miles southeast of Lincoln and joins the Auburn Ravine watershed near the northwestern corner of the SAP area. Roughly 40 percent of the Orchard Creek watershed is covered by urban development. Although the creek would be intermittent under natural conditions, it now flows perennially because of discharges from urban runoff and contributions from the Thunder Valley Casino Resort wastewater treatment plant.

Pleasant Grove Creek Watershed

The Pleasant Grove Creek watershed begins approximately 4 miles east of the SAP area, near the Whitney Oaks Golf Club, roughly halfway between Rocklin and Lincoln. The creek flows into the Pleasant Grove Creek Canal, which empties into Cross Canal and ultimately into the Sacramento River. The upper (south and eastern) reaches of the watershed are heavily developed and include portions of the cities of Roseville and Rocklin. Pleasant Grove Creek and its tributary channels were historically intermittent streams that dried in summer; however, many of the channels now have perennial flows from urban runoff, agricultural irrigation return flows, and contributions from the Pleasant Grove Wastewater Treatment Plant. University Creek is the tributary of Pleasant Grove Creek that drains the PRSP area.

Coon Creek Watershed

Coon Creek originates between north Auburn and Lake of the Pines and flows west to join Bunkham Slough and East Side Canal, continuing into Cross Canal and ultimately into the Sacramento River. Coon Creek is similar to Auburn Ravine in that under natural conditions it would function as an intermittent stream. Streamflows in summer are supported by discharges from wastewater treatment facilities and irrigation discharges.

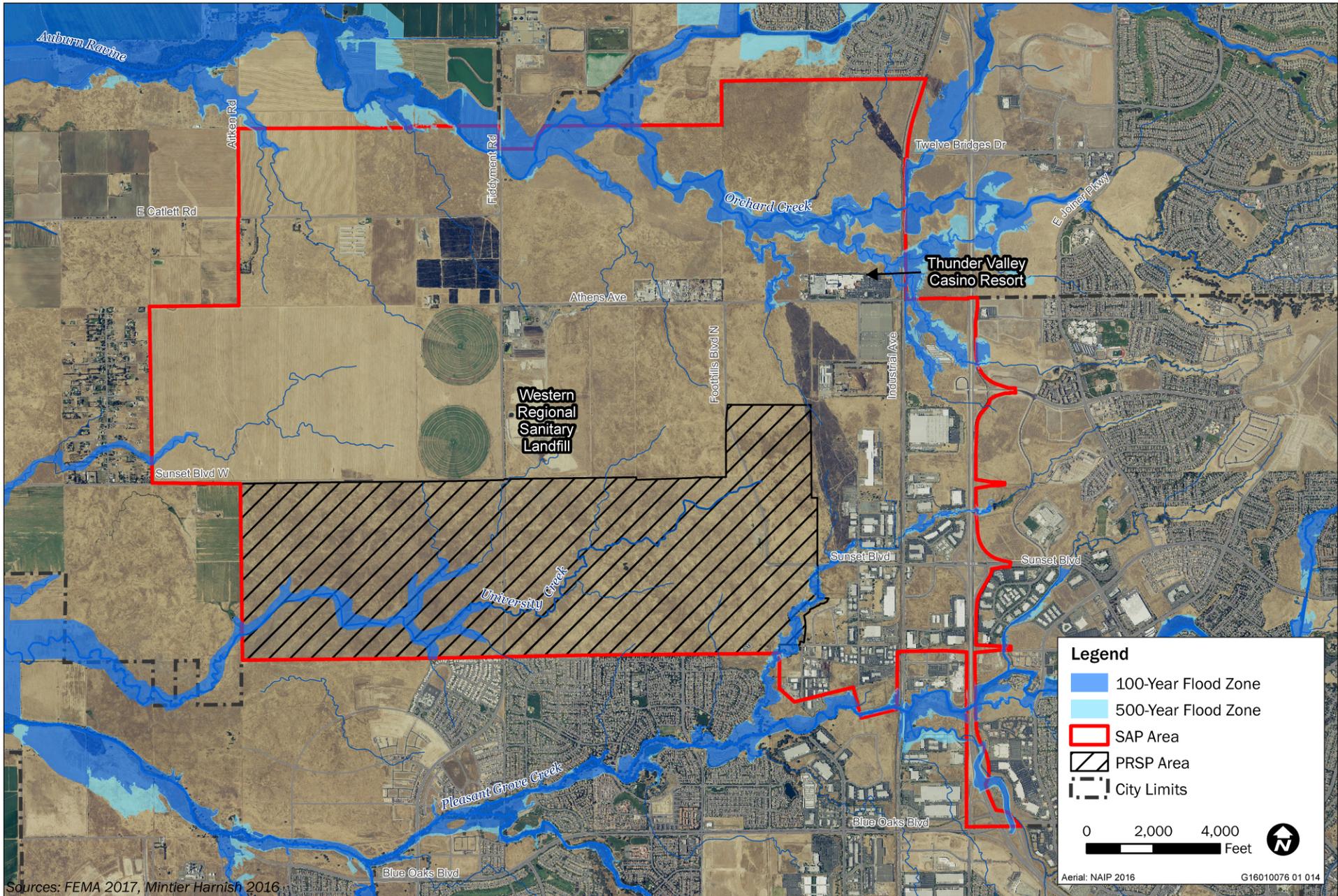


Sources: FEMA 2017, USGS NHD 2011, Mhtier Harnish 2016

Exhibit 4.9-1

Watershed and Flood Zone Map





Legend

- 100-Year Flood Zone
- 500-Year Flood Zone
- SAP Area
- PRSP Area
- City Limits

0 2,000 4,000
 Feet

Aerial: NAIP 2016 G16010076 01 014

Sources: FEMA 2017, Mintier Harnish 2016

Exhibit 4.9-2

Map of Flood Zones



Flood Hazards

The creeks within the SAP area historically drained along their natural courses to the Feather and Sacramento Rivers. Beginning in 1911, reclamation districts were formed to construct canal and levee systems as a means of controlling or preventing the natural flooding events in the low-lying areas east of the Feather River (PCFCWCD 1993). This land was later leveled and used for agriculture, and many of the natural stream channels were modified to conform to field boundaries, effectively eliminating the natural floodplain. Confining streams has decreased the natural water storage capacity of the system and increased flow velocities (PCFCWCD 1993). In more recent years, development has increased in the upper reaches of the watersheds. Development typically increases the extent of impervious surfaces within a watershed, such as roads, parking lots, and roofs, which leads to increased runoff volumes and rapid flooding during storm events.

This same type of development and stream modification has taken place throughout the Sacramento River Basin and has resulted in increased flood elevations on the Sacramento River. This is the largest contributing factor to flooding within the Auburn Ravine and Pleasant Grove Creek watersheds (Foothill Associates 2006). The increased flood heights on the Sacramento River restrict the amount of water that can drain from tributary watersheds, which causes water to back up through Cross Canal and Pleasant Grove Creek Canal and into Auburn Ravine and Pleasant Grove Creek.

The Federal Emergency Management Agency (FEMA) maintains maps of flood hazard zones for most developed areas. To minimize the risks to people and property, development typically is restricted or prohibited within the 100-year floodplain. The 100-year floodplain is the area with a 1-percent chance of being inundated in any given year. Although they are called “100-year floods,” these events can occur in consecutive years or multiple times in the same year.

Exhibit 4.9-2 shows the mapped 100-year flood zone within the SAP area and vicinity. Because FEMA maps only floodplains on stream reaches that are important for insurance purposes, 100-year flood zones are not shown for all streams. However, all streams have floodplains that should be taken into consideration during development activities.

In addition to 100-year floodplains, the Central Valley Flood Protection Act requires mapping of 200-year floodplains in urban areas that meet certain criteria per Senate Bill (SB) 5 (dated 2007). This additional layer of protection is referred to as the Urban Level of Flood Protection (ULOP). Within the 200-year floodplain, habitable structures must be elevated slightly higher than in surrounding areas. Because the SAP area is located at the upstream reaches of the Auburn Ravine, Orchard Creek, and Pleasant Grove Creek watersheds, the SAP area watershed is less than the required 10 square miles to meet Urban Level of Flood Protection criteria (MacKay and Soms 2017). Therefore, the 200-year floodplain is not discussed further in this analysis.

Surface Water Quality

Surface water quality is affected by land use, erosion, and stormwater runoff. Land use changes within the region have created increased stormwater runoff, loss of riparian vegetation, and increased streambank erosion. Discharge from irrigation systems and wastewater treatment facilities changes not only the amount of water in SAP area streams but also the quality of that water. Despite these changes, the limited monitoring data available indicate that Pleasant Grove Creek, Auburn Ravine, and Orchard Creek meet water quality standards for most parameters.

Five consecutive quarterly water quality samples were collected for the Pleasant Grove Creek watershed from spring 2004 through spring 2005. These samples found that summer temperature and dissolved oxygen levels did not meet beneficial use criteria (Foothill Associates 2006). Additionally, high incidents of total coliform and *E. coli* were found, which could present a health risk for recreational contact (not a typical use of Pleasant Grove Creek). Levels of other constituents (pH, nitrogen, phosphorus, turbidity, total dissolved solids, volatile organic compounds [VOCs], oil and grease, and metals) were not detected or were within tolerance limits (Foothill Associates 2006). Similar conditions have been reported in Auburn Ravine. Summer temperatures in Auburn Ravine do not meet beneficial use criteria for cold-water fisheries (Placer

County 2002) and total coliform bacterial levels exceed regulatory limits (BSK 2017). Lead and copper concentrations have been reported to exceed toxicity limits in Auburn Ravine during heavy storm runoff periods and during summer (Placer County 2002).

Groundwater Hydrology

The SAP area is in the Sacramento Valley Groundwater Basin, North American subbasin. The subbasin encompasses 548 square miles bounded on the west by the Feather and Sacramento Rivers, on the north by the Bear River, on the south by the American River, and on the east by the Sierra Nevada (PCWA 2007). The western portion of the subbasin is made of fine-textured (clay and silt) river deposits that are relatively impermeable. On the eastern side, closer to the Sierra Nevada foothills, the sediments are more coarse-grained and permeable. The depth to groundwater in the subbasin is between 70 and 100 feet below the ground surface; however, depths vary seasonally 10–20 feet (Placer County 2015). Groundwater flows primarily toward the southwest, generally following surface topography trends.

Groundwater reservoirs are recharged through inputs from surface water and are depleted through groundwater pumping at extraction wells. Recharge in the North American subbasin happens along active river and stream channels where deep deposits of sand and gravel allow surface water to percolate down into groundwater stores. To a lesser extent, groundwater recharge happens through irrigation and precipitation, depending on local soil and geologic conditions. Pumping groundwater for surface uses lowers the groundwater level in the area immediately surrounding the well in what is called the cone of depression. The shape and depth of the cone of depression depend on the rate of extraction, the presence of other nearby extraction or recharge points, and the rate of groundwater movement through the larger aquifer. Over time, extraction can dewater the aquifer surrounding a well. In most cases, given enough time, groundwater levels recover after extraction stops.

A regional cone of depression exists in the northern Sacramento and southern Placer-Sutter County area (PCWA 2007; SGA 2016). Intensive pumping to meet agricultural and urban demands decreased groundwater elevations by roughly 65 feet in the Roseville area. The decline of groundwater levels was halted in the early 1990s, when the Sacramento region's Water Forum Agreement placed restrictions on further increases in groundwater pumping. Groundwater elevations have stabilized since then but remain low in many areas.

Placer County Water Agency maintains two wells within the PRSP area, the Sunset Well and Tinker Well, each with a production capacity of 1,000 acre-feet per year (afy). These wells are reserved for backup and dry-year supply (PCWA 2016).

Groundwater Quality

Generally, groundwater quality in the portion of the aquifer within approximately 600 feet of ground surface is considered suitable for drinking. However, a comparison of groundwater quality data with applicable water quality standards and guidelines for drinking and irrigation found high levels of dissolved solids, salts, chloride, bicarbonate, boron, fluoride, nitrate, iron, manganese, and arsenic in some locations of the North American subbasin (PCWA 2007).

In addition to naturally occurring constituents, several known groundwater contamination sites exist in the subbasin. Three sites (Roseville Sanitary Landfill, Deluxe Cleaners, and Union Pacific Railroad yard) are located in the northwest Roseville area approximately 3 miles from the SAP area. In addition, the Alpha Explosives site is located approximately 6 miles north of the SAP area (PCWA 2007). The WRSL is a known groundwater contamination site within the SAP area.

The WRSL, an active landfill located at 3195 Athens Road, Lincoln, serves the cities of Lincoln, Roseville, and Rocklin. Discharges from the landfill are regulated pursuant to the discharge requirements in Order No. R5-2007-0047, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). Contamination of groundwater with VOCs was first identified at this site in 1995, and a corrective action plan was approved by CVRWQCB in 1997. The source of the VOCs appears to be landfill gas, a product of the

action of microorganisms within a landfill (Placer County 2015). The corrective action plan requires the installation of a final cover and a landfill gas extraction system on closed areas of the site. To monitor the effectiveness of the plan, specific corrective action wells are sampled quarterly and evaluated for inorganic and organic constituents (Placer County 2015).

Groundwater contamination is discussed further in Section 4.8, “Hazards and Hazardous Materials.”

4.9.3 Regulatory Setting

FEDERAL

Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Federal Water Pollution Control Act of 1977 (33 USC 1251 et seq.), commonly referred to as the Clean Water Act (CWA), is the primary federal law that governs and authorizes water quality control activities by EPA, as well as the states. Various elements of the CWA address water quality. They are discussed below.

CWA Water Quality Criteria/Standards

Under federal law, EPA has published water quality regulations under Title 40 of the CFR. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards describe designated beneficial uses of the water body in question and identify criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the State Water Resources Control Board (SWRCB) and its nine regional water quality control boards (RWQCBs) have designated authority in California to identify beneficial uses and adopt applicable water quality objectives. The CVRWQCB has jurisdiction over the SAP area.

CWA Section 404

In accordance with Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into waters of the United States. Waters of the United States and their lateral limits are defined in Title 33, Part 328.3(a) of the CFR to include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Waters of the United States are often categorized as “jurisdictional wetlands” (i.e., wetlands over which USACE exercises jurisdiction under Section 404) and “other waters of the United States” when habitat values and characteristics are being described. “Fill” is defined as any material that replaces any portion of a water of the United States with dry land or that changes the bottom elevation of any portion of a water of the United States. Any activity resulting in the placement of dredged or fill material within waters of the United States requires a permit from USACE. In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB indicating that the project would uphold state water quality standards. Wetland protection elements of the CWA administered by USACE are further discussed in Section 4.4, “Biological Resources,” of this Draft EIR.

CWA Section 401 and 402 National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges, including point source municipal waste discharges and nonpoint source stormwater runoff. Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general

requirements regarding NPDES permits. “Nonpoint source” pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

National Toxics Rule

In 1992, EPA issued the National Toxics Rule (40 CFR 131.36) under the CWA to establish numeric criteria for priority toxic pollutants in 14 states and jurisdictions, including California, to protect human health and aquatic life. The rule established water quality standards for 42 pollutants for which water quality criteria exist under CWA Section 304(a) but for which the respective states had not adopted adequate numeric criteria. EPA issued the California Toxics Rule in May 2000. This rule establishes numeric water quality criteria for 130 priority pollutants for which EPA has issued Section 304(a) numeric criteria that were not included in the National Toxics Rule.

Federal Antidegradation Policy

The federal antidegradation policy, established in 1968, is designed to protect existing uses and water quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- ▲ existing instream uses and the water quality necessary to protect those uses shall be maintained and protected;
- ▲ where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and
- ▲ where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Flood Insurance Act

Floodplain Management Executive Order 11988, adopted in May 1977, directs all federal agencies to evaluate potential effects of any actions they may take in the floodplain and to avoid all adverse impacts associated with modifications to floodplains. It also directs federal agencies to avoid encroachment into the 100-year floodplain whenever there is a practicable alternative and to restore and preserve the natural and beneficial values served by the floodplains (EPA 1977).

FEMA oversees floodplain management and runs the National Flood Insurance Program, adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps, which delineate the regulatory floodplain to assist local governments with land use and floodplain management decisions to meet the requirements of the National Flood Insurance Program. In general, the program mandates that development is not to proceed within the 100-year regulatory floodplain if the development is expected to increase flood elevation by 1 foot or more. Also, development is not allowed in designated 100-year floodways (i.e., flood flow channels and areas that experience flow velocity of 100-year floodwaters).

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated in the context of EPA primary and secondary maximum contaminant levels (MCLs). MCLs and the process for setting these standards are reviewed every 3 years. Amendments to the Safe Drinking Water Act

enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the SWRCB. SWRCB is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

STATE

Porter-Cologne Water Quality Control Act

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants SWRCB and each of the nine RWQCBs power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the CWA. The applicable RWQCB for the SAP is the CVRWQCB. SWRCB and CVRWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface water and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products.

Each RWQCB must formulate and adopt a water quality control plan for its region. The basin plans must conform to the policies set forth in the Porter-Cologne Act and established by SWRCB in its state water policy. The Porter-Cologne Act also provides that an RWQCB may include within its basin plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Water Quality Control Plan for the Sacramento River and San Joaquin River Basins

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) presents water quality standards and control measures for surface water and groundwater for a significant portion of the Central Valley Region, including the watersheds within the SAP area. The Basin Plan designated beneficial uses for water bodies and established water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses. The Basin Plan contains both narrative and numeric water quality objectives for the region. Ambient water quality standards are set as objectives for a body of water and effluent limits (or discharge standards) are conditions in state or federal wastewater discharge permits, such as the NPDES permits. Land uses and activities that could degrade water quality and best management practices (BMPs) that could be used to address various nonpoint sources of pollution are identified in the Basin Plan.

Beneficial Uses

Every water body within the jurisdiction of the CVRWQCB is designated a set of beneficial uses. Small tributary streams are designated with the same beneficial uses of the water body into which they drain. The SAP area is located within Hydrologic Unit 520.00, "Colusa Basin Drain to Eye ["I"] Street Bridge," and the SAP area streams are assigned the following beneficial uses (CVRWQCB 2016):

- ▲ **Municipal and Domestic Supply**—use of waters for community, military, or individual water supply systems, including, but not limited to, drinking water supply.
- ▲ **Agricultural Supply (Irrigation)**—use of waters for farming, horticulture, or ranching, including, but not limited to, irrigation and support of vegetation for range grazing.
- ▲ **Water Contact Recreation**—use of waters for recreational activities involving body contact with water where ingestion of water is reasonably possible, including, but not limited to, swimming, water-skiing, and fishing.
- ▲ **Noncontact Water Recreation**—use of waters for recreational activities involving proximity to water, but not normally involving body contact with water, including, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, and boating.

- ▲ **Warm Freshwater Habitat**—use of waters that support warm-water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including vertebrates.
- ▲ **Cold Freshwater Habitat**—use of waters that support cold-water ecosystems, including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- ▲ **Migration of Aquatic Organisms**—use of waters that support habitats necessary for migration, acclimatization between fresh and salt water, or temporary activities by aquatic organisms, such as anadromous fish (warm-water species include striped bass, sturgeon, and shad; cold-water species include salmon and steelhead).
- ▲ **Spawning, Reproduction, and/or Early Development**—use of waters that support high-quality aquatic habitats suitable for reproduction and early development of fish.
- ▲ **Wildlife Habitat**—use of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species, such as waterfowl.

Water Quality Objectives

The Porter-Cologne Act defines water quality objectives as “the limits or levels of water quality constituents or characteristics which are established for reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” There are two forms of water quality objectives:

- ▲ **Narrative** objectives present a general description of water quality that must be attained through pollutant control measures and watershed management. They also serve as the basis for the development of detailed numerical objectives.
- ▲ **Numerical** objectives typically describe pollutant concentrations, physical and chemical conditions of the water, and toxicity of the water to aquatic organisms. Places where numerical limits are specified represent the maximum levels that will allow the beneficial use to continue unimpaired. In other cases, an objective may prohibit the discharge of specific substances; tolerate natural or “background” levels of certain substances or characteristics (but not increases over those values); or express a limit, in terms of not affecting other beneficial uses. An adverse effect or impact on a beneficial use occurs where there is an actual or threatened loss or impairment of that beneficial use.

The Basin Plan established the water quality objectives listed in Table 4.9-1 in support of the beneficial uses within Hydrologic Unit 520.00 (including Auburn Ravine, Orchard Creek, and Pleasant Grove Creek).

Constituent/Parameter	Water Quality Objective
Arsenic, copper, cyanide, or silver	0.01 mg/l
Barium or zinc	0.1 mg/l
Iron	0.3 mg/l
Manganese	0.05 mg/l
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved oxygen (DO)	The monthly median of the mean daily DO concentration shall not fall below 85 percent of saturation in the main water mass, and the 95-percentile concentration shall not fall below 75 percent of saturation. The DO concentrations shall not be reduced below the following minimum levels at any time: Waters designated WARM: 5.0 mg/l Waters designated COLD: 7.0 mg/l Waters designated SPWN: 7.0 mg/l
Floating material	Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.

Table 4.9-1 Water Quality Objectives for Hydrologic Unit 520.00, Colusa Basin Drain to Eye ["I"] Street Bridge

Constituent/Parameter	Water Quality Objective
Oil and grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
pH	The pH shall not be depressed below 6.5 or raised above 8.5.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.
Radioactivity	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.
Salinity (electrical conductivity)	Shall not exceed 340 micromhos/cm (90 percentile)
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Settleable material	Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
Suspended material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Tastes and odors	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
Temperature	Not above 68 degrees Fahrenheit when detrimental to the fishery
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Turbidity	Where natural turbidity is less than 1 NTU, controllable factors shall not cause downstream turbidity to exceed 2 NTU.

Notes: mg/L = milligrams per liter; micromhos/cm = micromhos per centimeter; NTU = nephelometric turbidity units.

Source: CVRWQCB 2016

National Pollutant Discharge Elimination System Permits

SWRCB and CVRWQCB require specific NPDES permits for a variety of activities that have potential to discharge pollutants to waters of the state and adversely affect water quality. To receive an NPDES permit, a notice of intent to discharge must be submitted to CVRWQCB, and design and operational BMPs must be implemented to reduce the level of contaminated runoff. BMPs can include the development and implementation of regulatory measures (e.g., require local approval of drainage facility design), educational measures (e.g., implement public information campaigns about effects of discharge to storm drains), public policy measures (e.g., label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (e.g., filter strips, grass swales, and retention basins). All NPDES permits also have inspection, monitoring, and reporting requirements.

General Permit for Stormwater Discharges Associated with Construction Activity

SWRCB adopted the statewide NPDES Construction General Permit (CGP) in August 1999. The CGP was updated in 2009 with adopted order 2009-0009-DWQ and amended in 2010 and 2012. The current CGP is order 2012-0006-DWQ. The state requires that projects disturbing more than 1 acre of land during construction file a notice of intent with RWQCB to be covered under this permit. Construction activities subject to the CGP include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm drainage systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include BMPs designed to prevent construction pollutants from contacting stormwater and

to keep products of erosion from moving off-site into receiving waters throughout construction and the life of the project; the BMPs also must address source control and, if necessary, pollutant control.

State Nondegradation Policy

In 1968, as required under federal antidegradation policy, SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- a) Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
- b) Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

California Water Code, Water Supply Wells, and Groundwater Management

The California Water Code is enforced by DWR. The mission of DWR is “to manage the water resources of California in cooperation with other agencies, to benefit the State’s people, and to protect, restore, and enhance the natural and human environments.” DWR is responsible for promoting California’s general welfare by ensuring beneficial water use and development statewide. The laws regarding groundwater wells are addressed in the California Water Code: Division 1, Article 2, and Articles 4.300 to 4.311, and Division 7, Articles 1–4. The Water Code also includes provisions for water supply assessments; these are included in Water Code Sections 10910–10915 and State CEQA Guidelines Section 15155 and are further discussed in Section 4.15, “Utilities” (Section 4.15.3) of this Draft EIR. Further guidance is provided by bulletins published by DWR, such as Bulletins 74-81 and 74-90, related to groundwater well construction and abandonment standards.

Groundwater management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1–5, Sections 10750–10755.4. The Groundwater Management Act was first introduced in 1992 as Assembly Bill (AB) 3030 and has since been modified by SB 1938 in 2002, AB 359 in 2011, and the Sustainable Groundwater Management Act (SGMA) (SB 1168, SB 1319, and AB 1739) in 2014. The intent of the acts is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a groundwater management plan.

Sustainable Groundwater Management Act of 2014

The SGMA became law on January 1, 2015, and applies to all groundwater basins in the state (Water Code Section 10720.3). By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1).

Under the SGMA, any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a “groundwater sustainability agency” for that basin (Water Code Section 10723). Local agencies have until January 1, 2017, to elect to become or form a groundwater sustainability agency. If a basin is not within the management area of a groundwater sustainability agency, the county within which the basin is located will be presumed to be the groundwater sustainability agency for the basin. However, the county may decline to serve in this capacity (Water Code Section 19724).

The SGMA also requires DWR to categorize each groundwater basin in the state as high, medium, low, or very low priority (Water Code Sections 10720.7, 10722.4). All basins designated as high or medium priority must be managed by a groundwater sustainability agency under a groundwater sustainability plan that complies with Water Code Section 10727 et seq. If required to be prepared, groundwater sustainability

plans must be prepared by January 31, 2020, for all high- and medium-priority basins that are subject to critical conditions of overdraft, as determined by DWR, or by January 31, 2022, for all other high- and medium-priority basins. In lieu of preparation of a groundwater sustainability plan, a local agency may submit an alternative that complies with the SGMA no later than January 1, 2017, and every 5 years thereafter (Water Code Section 10733.6).

The SAP area is in the Sacramento Valley Groundwater Basin, North American subbasin. On December 15, 2014, DWR announced its official “initial prioritization” of the state’s groundwater basins for purposes of complying with the SGMA, and this priority list became effective on January 1, 2015 (DWR 2014). DWR has ranked the subbasin as “high priority” because of its increasing population. However, the portion of the subbasin within Placer County has been managed for long-term resilience and has incorporated groundwater management policy and monitoring because of previous groundwater management legislation was implemented in 1992. In response to the SGMA, the West Placer Groundwater Sustainability Agency was formed in 2017. This agency is responsible for the production of a groundwater sustainability plan by early 2022.

Low-Impact Development

On January 20, 2005, SWRCB adopted sustainability as a core value for all activities and programs of the RWQCBs, and it directed RWQCB staff to consider sustainability in all future policies, guidelines, and regulatory actions. As part of the effort to promote sustainability, the RWQCBs are advancing low-impact development (LID) principles in California in various ways. LID is a sustainability-promoting practice that benefits water supply and contributes to water quality protection by mimicking a site’s predevelopment runoff rates and volumes. Rather than discharging stormwater runoff as a waste product, LID projects are designed to include a diverse set of postconstruction stormwater BMPs that infiltrate, evapotranspire (use plants to uptake water), or use biological processes to remove contaminants from runoff. By retaining stormwater runoff on-site, downstream waters are provided with protection from increased pollutant loads and hydrologic changes caused by development and human activities (Placer County 2016). For example, one common LID measure is disconnection of impervious surfaces. This means that rather than collecting runoff from rooftops and driveways and directing it to gutters and centralized stormdrains, runoff is directed to appropriate natural areas or small infiltration systems directly adjacent to the impervious surface. This LID measure reduces the total volume of runoff that must be accommodated by the municipal stormdrain system. Additionally, contaminated runoff from a spill of a water quality contaminant or hazardous material on a disconnected impervious area will not be comingled with runoff in the municipal storm drain and discharge to a downstream surface water. LID has been shown to be an effective substitute and can greatly reduce stormwater pollutant loading when compared to conventional stormwater management systems (EPA 2012; Ahiablame et al. 2012).

LOCAL

Placer County General Plan

The “Public Facilities and Services,” “Natural Resources,” and “Health and Safety” sections of the *Placer County General Plan* include goals and policies intended to provide flood protection and minimize impacts on property and hydrologic resources from stormwater runoff. Specific policies require new storm drainage systems to conform to the Placer County Flood Control and Water Conservation District (PCFCWCD) *Stormwater Management Manual* and the *County Land Development Manual* (Policy 4.E.4), require implementation of stormwater BMPs on construction sites (Policy 6.A.5), and discourage grading during the rainy season (Policy 6.A.7).

The *Placer County General Plan* includes the following goals and policies related to water resources and flooding:

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.
- ▲ **Policy 4.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.
- ▲ **Policy 4.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 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, minimize increases in runoff, promote infiltration, and maintain, to the extent feasible, natural site drainage conditions.
- ▲ **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.F.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.F.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, 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.
- ▲ **Policy 4.E.21:** The County shall ensure that all new development comply with water quality protection provisions of applicable storm water discharge permits issued pursuant to the National Pollutant Discharge Elimination System (NPDES) program.

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 floodplain boundaries under fully developed, unmitigated runoff conditions.
- ▲ **Policy 4.F.5:** The County shall attempt to maintain The County shall attempt to maintain natural conditions within the County's Regulatory Floodplain of all rivers and streams except 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.

- ▲ **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 objectives.
- ▲ **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 Federal floodplain requirements, and to maintain the County's eligibility under the Community Rating System of the National 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, Stormwater Quality 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, the West Placer Stormwater Quality Design Manual, and requirements of applicable storm water discharge permits issued pursuant to the National Pollutant Discharge Elimination System (NPDES) program.

GOAL 6.A: To protect and enhance the natural qualities of Placer County's rivers, streams, creeks and groundwater.

- ▲ **Policy 6.A.1:** The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from the centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected, including riparian zones, wetlands, old growth woodlands, and the habitat of special status, threatened or endangered species. Based on more detailed information supplied as a part of the review for a specific project or input from state or federal regulatory agency, the County may determine that such setback is not applicable in a particular instance or should be modified based on the new information provided. The County may, however, allow exceptions, such as in the following cases:
 - a) Reasonable use of the property would otherwise be denied;
 - b) The location is necessary to avoid or mitigate hazards to the public;
 - c) The location is necessary for the repair of roads, bridges, trails, or similar infrastructure; or
 - d) The location is necessary for the construction of new roads, bridges, trails, or similar infrastructure where the County determines there is no feasible alternative and the project has minimized environmental impacts through project design and infrastructure placement.

- ▲ **Policy 6.A.2:** The County shall require all development in the FEMA 100-year floodplain to comply with the provisions of the Placer County Flood Damage Prevention Ordinance.
- ▲ **Policy 6.A.3:** The County shall require development projects proposing to encroach into a stream zone or stream setback to do one or more of the following, in descending order of desirability:
 - a) Avoid the disturbance of riparian vegetation;
 - b) Replace all functions of the existing riparian vegetation (on-site, in-kind);
 - c) Restore another section of creek (in-kind); and/or
 - d) Pay a mitigation fee for in-kind restoration elsewhere (e.g., wetland mitigation banking program).
- ▲ **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; and
 - f) Provide for long-term creek corridor maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.
- ▲ **Policy 6.A.5:** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.
- ▲ **Policy 6.A.6:** The County shall require development projects to comply with the municipal and construction stormwater permit requirements of the Federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) Phase I and II programs and the State General Municipal and Construction permits. Municipal requirements affecting project design and construction practices are enacted through the County's Stormwater Quality Ordinance. Separate construction permits may be required by and obtained through the State Water Resources Control Board.

- ▲ **Policy 6.A.7:** All new development and redevelopment projects shall be designed so as to minimize the introduction of pollutants into stormwater runoff, to the maximum extent practicable, as well as minimize the amount of runoff through the incorporation of appropriate Best Management Practices.
- ▲ **Policy 6.A.8:** The County shall support implementation of Low Impact Development site design and Watershed Process Management requirements for new and redevelopment projects in accordance with the NPDES Phase I and II programs, and applicable NPDES permits.
- ▲ **Policy 6.A.9:** The County shall require that natural watercourses be integrated into new development in such a way that they are accessible to the public and provide a positive visual element.
- ▲ **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.12:** The County shall require that newly-created parcels include adequate space outside of watercourses' setback areas to ensure that property owners will not place improvements (e.g., pools, patios, and appurtenant structures), within areas that require protection.
- ▲ **Policy 6.A.13:** The County shall protect groundwater resources from contamination and further overdraft by pursuing the following efforts:
 - a) Identifying and controlling sources of potential contamination;
 - b) Protecting important groundwater recharge areas;
 - c) Encouraging the use of surface water to supply major municipal and industrial consumptive demands;
 - d) Encouraging the use of treated wastewater for groundwater recharge; and
 - e) Supporting major consumptive use of groundwater aquifer(s) in the western part of the County only where it can be demonstrated that this use does not exceed safe yield.
- ▲ **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.
- ▲ **Policy 6.A.16:** The County shall retain and preserve connectivity between rivers or streams and their floodplains to preserve floodplain function and natural processes.

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 County's Regulatory Floodplain of rivers and streams.
- ▲ **Policy 8.B.2:** The County shall continue to participate in the National Flood Insurance Program.
- ▲ **Policy 8.B.3:** The County shall require flood proofing of new and substantially improved structures in areas subject to flooding to be built in accordance with the Flood Damage Prevention Ordinance (Placer County Code Chapter 15, Article 15.52).

- ▲ **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 County's Regulatory 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.
- ▲ **Policy 8.B.9:** The County shall require evaluation of potential flood hazards prior to approval of a discretionary or ministerial permit that would result in the construction, or modification of structures, to determine whether the proposed project is consistent with the protection standards for the County Regulatory Floodplain. The County will not approve any discretionary project or any ministerial permit that would result in the construction, or modification of structures for any property within the County Regulatory Floodplain, unless the required flood protection specific to that area has been demonstrated in accordance with County ordinances and guidelines.
- ▲ **Policy 8.B.10:** The County shall coordinate with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife, the Resource Conservation District, the Federal Emergency Management Agency, the State Department of Water Resources, the Central Valley Flood Protection Board (CVFPB), and the Placer County Flood Control and Water Conservation District, in defining existing and potential flood problem areas.
- ▲ **Policy 8.B.11:** If any project, including the modification of an existing project, falls within the jurisdiction regulated by the CVFPB (e.g., levees, regulated streams, and designated floodways), an encroachment permit must be obtained from the CVFPB by the project applicant.

Placer County Code

The Placer County Code is the implementing mechanism for the goals and policies of the General Plan. Specific ordinances relevant to Hydrology and Water Quality include the Stormwater Ordinance (Section 8.28 of the Placer County Code), Grading, Erosion and Sediment Control Ordinance (Section 15.48 of the Placer County Code), and the Flood Damage and Prevention Ordinance (Section 15.52 of the Placer County Code). The Stormwater Ordinance includes discharge prohibitions, requirements for BMP installation and reduction of stormwater flows, and enforcement mechanisms. The Grading, Erosion and Sediment Control Ordinance includes regulating grading to safeguard life, limb, health, property and public welfare and to avoid pollution to watercourses with hazardous materials, nutrients, sediment, or other earthen materials generated on or caused by surface runoff on or across the permit area. The Flood Damage and Prevention Ordinance includes standards for construction in or near flood areas and prohibits actions that would raise flood elevations or increase the risk of flood damage to existing structures.

Placer County Land Development Manual

The Placer County Land Development Manual establishes minimum standards for the design and construction of development improvements. These requirements apply to the design and construction of development improvements to be dedicated to the public and/or accepted by the County for operation and

maintenance, as well as improvements constructed in accordance with an agreement entered into between the County and a developer.

Placer County Flood Control and Water Conservation District

PCFCWCD was formed by legislative resolution on SB 1312 and made effective on August 23, 1984. Formulation and guidance of the PCFCWCD was made by consensus of other participating local government agencies, including the Placer Resource Conservation District and U.S. Soil Conservation Service. The objective of PCFCWCD is to reduce the effects of flooding by maintenance of drainage basins and the use of detention/retention basins; offer technical support; perform studies, advise, and collect data; and coordinate with adjacent jurisdictions. The PCFCWCD's *Stormwater Management Manual* (1990) includes standards and methods for the planning and design of drainage and flood control infrastructure.

Placer County NPDES Municipal Stormwater Permit

Placer County is a designated municipal permittee under EPA's NPDES Phase II ("Small MS4") program, which regulates stormwater flows into natural water bodies. Implemented by the State of California in 2013, the NPDES Phase II Permit implements a stormwater management plan that is intended to improve waterways by reducing the quantity of pollutants that stormwater picks up and carries in the storm sewer system during storm events. Requirements of the municipal stormwater permit (SWRCB NPDES General Permit No. CAS000004, Board Order 2003-0005-DWQ) are implemented through the County's Stormwater Quality Program, and all development projects in the county must comply with the provisions of the program. NPDES Phase II, adopted by SWRCB in February 2013 (2013-0001-DWQ), requires postconstruction stormwater management criteria, including source control, site design, and LID measures, for new development and redevelopment. Among other requirements, regulated projects are required to perform site assessments as part of the early stages of project design. Site design measures and source control measures must be implemented. LID measures must be incorporated into the design to disconnect runoff from impervious surfaces and allow infiltration of runoff to the extent possible, before installation of bioretention BMPs for water quality control for long-term (i.e., postconstruction) water quality improvement. In addition, regulated projects that create or replace more than 1 acre of impervious surface must maintain postproject runoff equal to or below preproject flow rates for the 2-year, 24-hour storm event.

West Placer County Storm Water Quality Design Manual

The *West Placer County Storm Water Quality Design Manual* (LID Manual) was developed cooperatively by Placer County, the City of Roseville, the City of Lincoln, the City of Auburn, and the Town of Loomis to provide a consistent approach to addressing stormwater management within the west Placer region. The LID Manual contains strategies for LID and BMPs for protecting water quality and hydrologic functions. It is a regulatory compliance tool that assists jurisdictions with meeting the requirements of the Phase II Small MS4 Stormwater NPDES permit. On regulated projects, site design measures and BMPs must be implemented, to the extent technically feasible, to allow infiltration, harvest, or use the postconstruction runoff generated by the 85th percentile 24-hour storm event. The SAP area is subject to the Phase II permit requirements; therefore, the *West Placer County Storm Water Quality Design Manual* applies to all development projects in the SAP area.

Western Placer County Groundwater Management Plan

In 2007 the City of Roseville, the City of Lincoln, Placer County Water Agency (PCWA), and the California American Water Company adopted the *Western Placer County Groundwater Management Plan* (WPCGMP). The PCWA service area, including the SIA, is included in the WPCGMP area. The WPCGMP is designed to assist users in maintaining a safe, sustainable, and high-quality groundwater resource within a zone of the North American subbasin. The overarching goal of the WPCGMP is the maintenance of groundwater resources to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area. To meet this goal, the WPCGMP identifies the following five basin management objectives:

- ▲ Management of the groundwater basin shall not have a significant adverse effect on groundwater quality.

- ▲ Manage groundwater elevations to ensure an adequate groundwater supply for backup, emergency, and peak demands without adversely impacting adjacent areas.
- ▲ Participate in State and Federal land surface subsidence monitoring programs.
- ▲ Protect against adverse impacts to surface water flows in creeks and rivers because of groundwater pumping.
- ▲ Ensure groundwater recharge projects comply with State and Federal regulations and protect beneficial uses of groundwater (PCWA 2007).

In November 2013, the *Western Placer County Sustainable Yield Report* (PCWA 2013) was prepared for the WPCGMP. The study was designed to understand the usage, storage capacity, and sustainable yield of the aquifers within the west Placer County portion of the North American subbasin and to develop management strategies to protect and enhance this valuable water resource. The sustainable yield is defined as the amount of groundwater that can safely be extracted in any year or as a long-term average without creating adverse effects. The sustainable yield report indicates that in 2011, 28,455 afy of agricultural groundwater was extracted within the PCWA service area. This is slightly less than the 28,940 afy extracted in both 1998 and 1999 and substantially less than the 34,066 afy extracted in 2001 and 2002. The report indicates a steady increase in rural urban groundwater extraction, from 557 afy in 1998 to 899 afy in 2012.

4.9.4 Environmental Impacts and Mitigation Measures

STANDARDS OF SIGNIFICANCE

Based on the Placer County CEQA checklist and Appendix G of the State CEQA Guidelines, implementing the project would result in a potentially significant impact on hydrology and water quality if it would:

- ▲ violate any federal, state, or county potable water quality standards;
- ▲ violate any water quality standards or waste discharge requirements or contaminate a public water supply;
- ▲ substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- ▲ alter the direction or rate of flow of groundwater;
- ▲ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- ▲ increase the rate or amount of surface runoff;
- ▲ create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or include substantial additional sources of polluted runoff;
- ▲ otherwise substantially degrade water quality;
- ▲ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or
- ▲ place improvements in a 100-year flood hazard area that would impede or redirect flood flows.

METHODS AND APPROACH

Evaluation of potential hydrologic and water quality impacts is based on a review of existing information from documents and studies that address water resources in the vicinity of the project area. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental impacts, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the SAP, including PRSP, and future developments implemented through these planning documents would comply with relevant federal, state, and local ordinances and regulations.

PROPOSED SUNSET AREA PLAN GOALS AND POLICIES

The proposed SAP includes the following goals and policies relative to water quality, stormwater runoff, and flooding:

GOAL LU/ED-3: Design and Land Development Practices. To promote high-quality design and land development practices in the Sunset Area.

- ▲ **Policy LU/ED-3.2: Environmentally Responsive Design.** The County shall require that buildings and sites be designed in a manner that blends with existing natural conditions, including site topography, existing woodland vegetation, wetlands, stream channels, and other natural features. Where existing resources are preserved by other policies and programs, adjacent buildings and other improved areas shall be designed in harmony with the preserved area and shall not seek to replace or dominate those resources.
- ▲ **Policy LU/ED-3.12: Impervious Surfaces/Low Impact Development.** The County shall require that all new discretionary development be designed in accordance with the *West Placer Storm Water Quality Design Manual* to incorporate Site Design Measures and Low Impact Development features to infiltrate runoff from impervious surfaces.

GOAL PFS-5: Stormwater Drainage. To manage stormwater as a valuable resource that can recharge groundwater supplies, protect and enhance natural habitat and biodiversity, add value to new development or redevelopment projects, as well as reduce potential for flood water-related damage to structures or infrastructure.

- ▲ **Policy PFS-5.1: Natural Stormwater Drainage Systems.** The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features. At the earliest planning stages, applicants for new development shall assess and evaluate how site conditions such as soils, vegetation, and flow paths will influence the placement of buildings and paved surfaces with a goal of incorporating the capture and treatment of runoff as part of the project design.
- ▲ **Policy PFS-5.2: Public Uses of Floodplains.** The County shall support efforts to set aside land for drainage or other public uses of floodplains using setbacks and common area lots, or by obtaining easements for drainage and other public uses of floodplains.
- ▲ **Policy PFS-5.3: Floodplain and Stream Channel Protection.** The County shall protect floodplains and stream channels (as defined in the PCCP [Placer County Conservation Plan]) as critical recharge areas to replenish local groundwater basins, protect and/or restore wetlands and riparian habitats, and irrigate agricultural lands.
- ▲ **Policy PFS-5.4: Storm Drainage System Design.** The County shall ensure that storm drainage systems in new development are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual. County shall require submission of a preliminary drainage report, prepared by a professional civil engineer registered in the State of California, as part of the discretionary development project review.

The County shall further require that new development conforms with the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District.

- ▲ **Policy PFS-5.5: Stormwater Detention.** The County shall require that new development mitigate increases in stormwater peak flows to obtain an objective post-project mitigated peak flow that is equal to the estimated pre-project peak flow less 10 percent of the difference between the pre-project and unmitigated post-project peak flows. Projects that have significant impacts on the quantity of surface water runoff shall allocate land on-site as necessary for detaining post-project flows to meet this requirement. Detention facilities shall be constructed on the project site or within a larger project development area where joint facilities are warranted and approved by the County.
- ▲ **Policy PFS-5.6: Stormwater Retention.** The County shall require that new development mitigate increases in stormwater volume to retain the 100-year, 8-day design storm depth of 10.75 inches for the 200-foot elevation, unless another methodology has been agreed upon by Placer County. 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. New development may incorporate retention onsite, or at such time that a regional stormwater retention program is developed, participate in the implementation of the regional program by paying regional retention mitigation fees, as deemed appropriate.
- ▲ **Policy PFS-5.7: Low-Impact Development.** The County shall require that new development comply with the West Placer Storm Water Quality Design Manual to manage urban development runoff through the use of low impact development (LID) features, site design measures, and water quality best management practices. These may include, but are not limited to, a combination of features such as pretreatment water quality vaults, vegetated swales, infiltration/sedimentation basins, riparian and stream setbacks, oil/grit separators, porous pavement, rooftop and impervious surface area disconnection, soil quality improvement and maintenance, and tree planting and preservation.
- ▲ **Policy PFS-5.8: Stormwater Mitigation Coordination.** The County shall identify and coordinate mitigation measures with responsible agencies (e.g., California Regional Water Quality Control Board, Placer County Department of Health and Human Services - Division of Environmental Health, Placer County Department of Public Works and Facilities, CDRA [Community Development Resource Agency]- Engineering and Surveying Division, Placer County Flood Control and Water Conservation District) for the control of stormwater runoff, monitoring of stormwater discharges, and implementation of measures to control pollutant loads in urban stormwater runoff.
- ▲ **Policy PFS-5.9: Regional Flood Control Improvement Planning.** 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.

GOAL NR-1: Balanced Growth/Conversion of Natural Areas. To provide balanced growth within the Area Plan where the conversion of portions of the natural environment to urban uses is allowed where consistent with the PCCP conservation strategy.

- ▲ **Policy NR-1.2: Stream System Protection.** The County shall require the protection and enhancement of the Stream System and other areas capable of meeting the PCCP Reserve Acquisition and avoidance criteria (e.g. Stream System, avoided areas 200 acres or greater, habitat and wetlands adjacent or connected to the Stream System or existing/future Reserves, Valley Oak Woodlands one acre or greater).
- ▲ **Policy NR-1.3: Natural Resource Preservation.** 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 values, including wetlands, riparian corridors, woodlands and both FEMA and calculated 100-year floodplains.

GOAL NR-3: Streams and Floodplains. To protect and enhance the natural qualities of the Sunset Area perennial and ephemeral streams and floodplains.

- ▲ **Policy NR-3.1: Sensitive Habitat Buffers.** The County shall require new development to provide sensitive habitat buffers as specified in the Placer County Conservation Plan and County Aquatic Resource Program.
- ▲ **Policy NR-3.2: Floodplain Compliance.** The County shall require all development in the FEMA or calculated 100-year floodplain to comply with the provisions of the Placer County Flood Damage Prevention Ordinance.
- ▲ **Policy NR-3.4: Stream Corridor Natural Conditions.** Where practical, the County shall require that stream corridors be preserved in open, natural conditions. The County considers uses such as road crossings, recreation trails, foot bridges, and passive parks to be compatible uses within open space areas.
- ▲ **Policy NR-3.5: Stream Protection Best Management Practices.** The County shall continue to require the use of feasible and practical best management practices (BMPs) and Low Impact Development (LID) strategies to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities. The County shall require that LID strategies be incorporated into project design. These LID strategies will be focused on minimizing adverse effects on water quality and surface water runoff.
- ▲ **Policy NR-3.7: Grading After October 15th.** The County shall discourage grading activities between October 15th and April 30th, unless such activities are adequately mitigated to avoid impacts during the rainy season, including but not limited to stream sedimentation and riparian habitat damage.
- ▲ **Policy NR-3.8: Floodplain Protection.** The County shall require 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.
- ▲ **Policy NR-3.19: NPDES Compliance.** The County shall require that new development applicants demonstrate to both the County and the CVRWQCB complete compliance with the provisions of a General Construction Stormwater Discharge NPDES permit authorized and approved by the CVRWQCB, if required for development. Compliance may include a written detailed Stormwater Pollution Prevention Plan (SWPPP) and Monitoring Program (required by the NPDES permit). If appropriate to the individual project, the applicant shall demonstrate to the County and the CVRWQCB that the required Water Quality Certification has been approved by the CVRWQCB and that the appropriate Best Management Practices for control of erosion and sedimentation will be incorporated into construction activities.
- ▲ **Policy NR-3.10: Construction-Related Wastewater.** The County shall require new development to demonstrate to the satisfaction of the County and the CVRWQCB their complete compliance with the provisions of a General Permit for Dewatering and Other Low Threat Discharges to Surface Waters (Dewatering General NPDES permit) authorized and approved by the CVRWQCB. Compliance shall include a monitoring and reporting program, and shall include Best Management Practices capable of achieving the effluent limitations described in the permit.
- ▲ **Policy NR-3.11: Industrial Stormwater Permits.** The County shall require that new industrial development project applicants apply for a General Industrial Stormwater Permit from the CVRWQCB for any discharges into area surface waters.
- ▲ **Policy NR-3.12: CVRWQCB Consultation.** The County shall require that new development project applicants consult with the CVRWQCB to determine specific Waste Discharge Requirements for each facility.

GOAL HS-2: Flooding. To protect the lives and property of the workers, residents, visitors, and property owners in Sunset Area from hazards associated with development in floodplains and manage floodplains for their natural resource values.

- ▲ **Policy HS-2.1: Protected Roadways.** The County shall require that arterial roadways and expressways, commercial and industrial uses and emergency facilities be protected, at a minimum, from a 100-year storm event in accordance with the design parameters in the Placer County Flood Control and Water Conservation District Storm Water Management Manual.
- ▲ **Policy HS-2.2: Flood Hazard Evaluation and Mitigation.** The County shall require new discretionary development project applicants to evaluate and mitigate potential flood hazards prior to project approval. The County shall require applicants to submit accurate topographic and flow characteristics information and depict the 100-year floodplain limits under fully-developed, unmitigated runoff conditions. Where public facilities have been constructed or lands have been acquired, with the specific intent of mitigating stormwater runoff, such facilities or lands may be taken into consideration when determining the extent of the 100-year floodplain.
- ▲ **Policy HS-2.3: Maintain Natural Floodplains.** The County shall require the maintenance of natural conditions within the 100-year floodplain of all streams and drainage-ways 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; or
 - b) When facilities for the treatment of stormwater runoff are best located in the floodplain, and where the disturbance of riparian vegetation is minimized.
- ▲ **Policy HS-2.4: Floodplain Development.** The County shall prohibit or minimize development within the 100-year floodplain consistent with the policies of this Plan and the *Placer County General Plan*.
- ▲ **Policy HS-2.5: Local Stormwater Runoff Coordination.** The County shall coordinate with the City of Roseville, the City of Lincoln, and Sutter County to mitigate the impacts of new development in the Sunset Area that have the potential to increase stormwater runoff onto downstream parcels.

PROPOSED PLACER RANCH SPECIFIC PLAN DEVELOPMENT STANDARDS

The PRSP Development Standards require the following protective measures related to water quality, stormwater runoff, and flooding:

- ▲ **Active Construction Stormwater Management.** For active construction projects, a Storm Water Pollution Prevention Plan (SWPPP) is required to manage the release of on-site stormwater runoff. It addresses how stormwater from a construction site is managed and treated prior to being discharged from the site.
- ▲ **Post Construction Stormwater Management.** To manage stormwater quality and reduce post-development stormwater flows, development in the PRSP is required to utilize various Low Impact Development (LID) strategies, consistent with the West Placer Storm Water Quality Design Manual.

IMPACTS AND MITIGATION MEASURES

Impact 4.9-1: Increased stormwater runoff and potential for downstream flooding

Implementation of the project would increase impervious surfaces in the project area, which could subsequently increase stormwater runoff volumes and velocities, exceed capacity of existing drainageways, and create downstream flooding. The protective SAP policies and Placer County permit conditions would require any future development within the SAP area to implement LID and stormwater management measures to reduce stormwater runoff such that peak runoff flow rates are reduced to less than their predevelopment levels for the 2-year through 100-year storm events; stormwater runoff is infiltrated, evapotranspired, and/or captured and used on-site in accordance with LID designs standards to reduce site runoff for smaller storm events into municipal systems; and increases in volumetric runoff would be retained to prevent increased downstream flooding. Additionally, the SAP storm drain system would be designed to accommodate buildout stormwater conveyance, so that new development within the SAP area would not generate runoff that exceeds the capacity of the system's ability to handle. Modeling and analysis indicate that compliance with these policies is achievable and feasible. However, either the City of Roseville or a City of Roseville/Placer County JPA would be the project proponent and CEQA lead agency for implementation of the Pleasant Grove Retention Facility. Because the County could not enforce implementation of this off-site retention project, this impact would be **significant**.

Net SAP Area

The volume and rate of stormwater runoff generated from an area are affected by development through conversion of vegetated or pervious surfaces to impervious surfaces and by the development of drainage systems that connect these impervious surfaces to streams or other water bodies. In this way, development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. As water runs off the land surface, it collects and carries materials and sediment, which can be potentially harmful to downstream receiving waters. Additionally, runoff from impervious surfaces can become concentrated, overwhelming existing storm drain systems, causing erosion and increasing sediment transport and downstream deposition. The increased extent of impervious surfaces in upper watershed areas may also create flooding concerns for lower watershed areas.

Development under the SAP would create impervious surfaces, such as roadways, trails, driveways, and roofs, and would increase stormwater runoff within the Auburn Ravine, Orchard Creek, and Pleasant Grove Creek watersheds. At buildout, a total of approximately 3,616 acres of different land uses in watersheds in the net SAP area would experience changes in imperviousness when compared to existing conditions (Psomas 2017).

The potential for development within the net SAP area to substantially increase stormwater runoff and create on or off-site flooding would be reduced through implementation of protective Placer County and SAP policies.

As described in SAP Policy PFS-5.5, future development would be required to mitigate increases in stormwater peak flows to below preproject levels through stormwater detention (holding and slowing stormwater to allow infiltration and reduction of peak flow rates). This means that peak stormwater runoff from the developed net SAP area would be below the peak flow rate of stormwater runoff under existing conditions by 10 percent of the difference between existing and unmitigated proposed peak flows. Additionally, as required by the SWRCB Phase II MS4NPDES permit, any project developed through the SAP that creates or replaces more than 1 acre of impervious surface would be required to maintain post-project runoff flow rates to at or below pre-project flow rates for the 2-year, 24-hour storm event. LID measures would be used in the net SAP area to reduce the volume of urban runoff and help prevent contamination of surface waters (as required by SAP Policy PFS-5.7). Examples of LID design measures include disconnecting impervious surfaces from storm drains, vegetated swales and infiltration basins, riparian and stream setbacks, and permeable pavement and preserving natural areas. These measures would help reduce the peak flows and volume of stormwater that is directed to storm sewers and streams during smaller storm events.

The Natomas Cross Canal carries the combined flows of Coon Creek, Auburn Ravine, and Pleasant Grove Creek. Because of potential flooding in the lower portion of the Natomas Cross Canal watershed, retention of any increase in runoff from the 100-year, 8-day event is required for all upstream development. This requirement is included in the SAP as Policy PFS-5.6. Future net SAP area development projects as applicable would be required to demonstrate compliance with this policy by retaining on-site, retaining off-site but within the SAP area, or retaining off-site and outside of the SAP area at a regional stormwater retention facility. Although the County has not yet established a regional retention mitigation fee program or agreement with the City of Roseville for this retention option. However, communications to date with the City of Roseville appear to indicate that creation of such a fee-based program to which Placer County would contribute is probable, which would assist financially in expanding the regional retention facility (Pleasant Grove Retention Facility). If interim retention facilities are constructed within the PRSP and net SAP areas, the development project would also be subject to payment of the regional retention fee, in order to fund construction of the ultimate regional retention facility. Due to the projected increase in impervious surface area, buildout of the net SAP area would increase stormwater runoff from the 100-year, 8-day storm by approximately 1,030 acre-feet (Psomas 2017). Table 4.9-2 provides the increased 100-year, 8-day runoff volumes for proposed land use types within the SAP.

Table 4.9-2 Net SAP Area Impervious Surfaces and Runoff Increase from the 100-Year, 8-Day Runoff/Retention Volume

Land Use Designation	Auburn Ravine/Orchard Creek Watershed			Pleasant Grove Creek Watershed			Total Increase in Runoff (acre-feet)
	% Impervious	Impervious Acres	Increased Runoff (acre-feet)	% Impervious	Impervious Acres	Increased Runoff (acre-feet)	
Business Park	80	98	34.3	80	23	7.8	42.1
Eco-Industrial/Landfill Ops	0	243	0	0	328	0	0
Eco-Industrial/Commercial	80	153	49.7	80	201	69.1	118.8
Entertainment Mixed-Use	80	405	145.1	80	26	8.7	153.8
Entertainment Mixed-Use/Reserve	50	49	8.5	50	3	0.5	9
General Commercial	-	-	-	80	38	13.7	13.7
Innovation Center	80	223	72.6	80	815	289.1	361.7
Innovation Center/Reserve	50	40	6.2	50	147	25.5	31.7
Light Industrial	80	106	38.7	80	631	225.7	264.4
Public Facility	-	-	-	80	2	0.9	0.9
Placer Parkway	85	51	19.7	85	34	12.6	32.3
Total		1,368	374.8		2,248	653.6	1,028.4

Note: Totals may not sum precisely because of Excel rounding.

Source: Psomas 2017

Runoff from the 100-year, 8-day storm would most likely be retained at a regional stormwater retention facility within the Natomas Cross Canal watershed. The City of Roseville's Pleasant Grove Retention Facility is approved for retention of runoff from the Pleasant Grove Creek watershed (approximately 654 acre-feet), and the City of Lincoln's Lakeview Farms Retention Basin (for which CEQA clearance has already been obtained) is under consideration to accept project-generated runoff from the Auburn Ravine and Orchard Creek watersheds (approximately 375 acre-feet) (Psomas 2017). (As mentioned in Chapter 3, "Project Description," the Scilacci Farms Retention Basin in the City of Lincoln could one day be considered as an alternative to Lakeview Farms for accommodating the net SAP area stormwater retention needs. However, the use of Scilacci Farms for stormwater retention is in the very early planning stages; therefore, it is speculative at this time to assume it could accommodate the SAP's retention needs and is not evaluated in this EIR. Use of any future facility at Scilacci Farms would require additional environmental review and analysis.) Chapter 3, "Project Description" also describes the current status of the Pleasant Grove Retention

Facility—that it was approved by the City of Roseville with a program-level certified EIR—and that the proposed project anticipates meeting its volumetric retention capacity need, at least in part if not wholly, at the facility, which is why the potential environmental impacts associated with development of a larger Pleasant Grove Retention Facility are evaluated in this EIR.

The Pleasant Grove Retention Facility would function by diverting water from Pleasant Grove Creek and University Creek into adjacent retention basins during storm events. Stormwater would be retained in these basins until downstream flood events end, after which the stored water would be discharged into Pleasant Grove Creek (CES 2017a). The Lakeview Farms Retention Facility would accept stormwater runoff during high flows and allow infiltration in large, constructed wetlands. The Pleasant Grove Retention Facility is currently proposed as two large basins with a combined capacity of 3,461 acre-feet (CES 2017a). The Lakeview Farms Retention Basin would be a single large basin and would be expanded in phases. The first phase (currently planned for construction in 2018) would hold 1,080 acre-feet of stormwater. The second phase would expand the facility to hold 2,800 acre-feet of stormwater, which would meet the projected needs of the City of Lincoln at buildout. The third and final phase could expand the facility to hold as much as 4,000 acre-feet of stormwater (CES 2017b). Both facilities would require expansion of their planned retention basins to accommodate future projected municipal flows and flows from the net SAP area. Technical studies prepared for the SAP found that both the Pleasant Grove and Lakeview Farms Retention Basins can be expanded to meet the stormwater retention needs of the SAP (CES 2017a, 2017b). Exhibit 3-23 shows the location of the potential regional stormwater retention facilities. Any changes to the Pleasant Grove or Lakeview Farms Retention Facility would occur only through the review and planning process of the appropriate jurisdictions (City of Roseville for the Pleasant Grove Retention Facility and the City of Lincoln for the Lakeview Farms Retention Facility). (It should be noted that, as part of these review and planning processes, the retention facilities would all be designed and engineered according to applicable federal, state, and city standards, which would minimize potential for failure of a levee wall or other facility that could cause flooding of downstream properties.)

Existing stormwater infrastructure within the net SAP area is minimal, and most of the runoff and drainage in the net SAP area sheet-flows to natural swales before dissipating or draining into surface waters. Conceptual stormwater infrastructure trunk lines were developed based on proposed buildout conditions. These trunk lines would be sized per the SWMM to accommodate runoff from the 100-year, 24-hour storm and would range from 36 inches in diameter to 144 inches in diameter depending on the contributing drainage area. The proposed stormwater infrastructure in the net SAP area would be sized to accommodate proposed buildout conditions. Therefore, individual development projects that comply with SAP and Placer County stormwater management policies would not generate runoff that exceeds the capacity of the planned system.

If properly implemented, the protective SAP and Placer County policies would reduce the potential for increased stormwater runoff and downstream flooding. Without these protections, downstream flooding and water quality degradation could occur. Additionally, since the County cannot enforce the development of off-site retention within other jurisdictions and has not yet established a regional retention mitigation fee program or agreement with the City of Roseville or City of Lincoln, if necessary, for the proposed off-site retention options, this impact would be significant.

PRSP Area

Impacts in the PRSP area would be similar to those discussed above for the net SAP area. New urban development would generate increased runoff which could result in downstream flooding. As in the net SAP area, the potential for development within the PRSP area to substantially increase stormwater runoff and create on- or off-site flooding would be reduced through implementation of protective Placer County and SAP policies, as follows. To manage stormwater quality and reduce runoff from developed areas, development in the PRSP area would make extensive use of the following LID measures:

- ▲ **Impervious Area Disconnection:** Disconnected impervious areas are surfaces such as streets or sidewalks that drain directly to pervious areas, such as landscaping. Disconnected impervious areas decrease runoff volume, reduce peak flow rates, and encourage groundwater recharge. For this design parameter, a ratio of 2:1 of impervious to pervious areas was used.

- ▲ **Tree Planting:** A mix of evergreen and deciduous trees is proposed to decrease stormwater runoff volume and reduce the amount of pollutants that reach stream courses. One tree per lot is proposed for low- and medium-density residential, five trees per pervious acre are proposed for high-density residential and other commercial and mixed-use areas, and 10 trees per acre are proposed for parks and recreation areas (MacKay & Soms 2017).
- ▲ **Vegetated Swales:** Vegetated swales are included at each drainage outfall to provide a final area of infiltration before stormwater is released to natural drainage areas. Vegetated swales are known to reduce peak flows, decrease total runoff volume, trap and filter sediment and pollutants, and allow infiltration (MacKay & Soms 2017). Swales in the PRSP area are proposed with a minimum length of 100 feet and a longitudinal slope of 0.5 to 2.5 percent to keep stormwater flows within the swale for 10 minutes.

The PRSP Storm Drainage Master Plan determined that the proposed use of the LID measures described above would be sufficient to reduce the effects of increased impervious surfaces such that there would be no increase in peak stormwater runoff from the 2-year, 24-hour storm (MacKay & Soms 2017).

For larger storms, the PRSP would comply with SAP Policy PFS-5.5, which requires future development to mitigate increases in stormwater peak flows to below preproject levels through stormwater detention. To meet this requirement, the PRSP would create stormwater storage areas in University Creek to detain flows from the 2-year, 24 hour through the 100-year, 24-hour storm events. University Creek has significant naturally occurring instream and overbank storage capacity. The PRSP would locate culverted road crossings below natural storage areas in the University Creek floodplain and would utilize the crossings to detain flows as needed for flood control. These crossings could be sized to allow the 200-year, 24-hour storm event to be conveyed without overtopping the roadway or flooding adjacent developed areas (MacKay & Soms 2017).

To meet the Natomas Cross Canal watershed mitigation standards for retention of stormwater volumetric increases, the PRSP would be required to comply with SAP Policy PFS-5.6 which requires development projects to retain all increased runoff from the 100-year, 8-day storm. For this storm, the Storm Drainage Master Plan calculated that the total volume required to be retained would be 375.8 acre-feet (MacKay & Soms 2017), although this number is likely to be slightly lower as a result of changes to the PRSP land use plan (MacKay & Soms 2018:4). Table 4.9-3 identifies the estimated volume of runoff generated by each proposed land use type within the PRSP area. In addition to incorporation of LID measures, these volumes are based on many modeling parameters, including climate data, existing drainage conditions, vegetation types, and the infiltration capabilities of the soil within the PRSP area.

Table 4.9-3 Impervious Surfaces and 100-Year, 8-Day Runoff/Retention Volume in the PRSP Area

Land Use Designation	Percent Impervious	Total Area Acres	Watershed			Total Volume (acre-feet)
			University Creek (acre-feet)	Pleasant Grove Creek (acre-feet)	Orchard Creek (acre-feet)	
Low Density Residential (LDR and LDR-A)	40	539	49.0	0.9	-	49.9
Medium Density Residential (MDR)	50	131	9.2	11.2	-	20.4
High Density Residential (HDR)	65	93	15.6	8.2	-	23.8
General Commercial (GC)	80	26	8.3	-	-	8.3
Commercial Mixed Use (CMU)	80	49	13.5	2.6	-	16.1
Campus Park (CP)	70	396	54.8	36.3	16.3	107.4
University (UZ)	50	301	44.0	-	-	44.0
Public Facilities - Schools and County Facilities (PF)	50	37	5.3	0.7	-	6.0
Parks and Recreation (PR)	5	100	-8.5	-1.8	-	-10.3
Open Space Preserves (OS)	2	256	-	-	-	-

Table 4.9-3 Impervious Surfaces and 100-Year, 8-Day Runoff/Retention Volume in the PRSP Area

Land Use Designation	Percent Impervious	Total Area Acres	Watershed			Total Volume (acre-feet)
			University Creek (acre-feet)	Pleasant Grove Creek (acre-feet)	Orchard Creek (acre-feet)	
Placer Parkway	85	174	50.7	12.2	-	62.9
Major Roads	85	134	34.8	11.4	1.1	47.3
Total		2,236	276.7	81.6	17.4	375.8

Source: MacKay & Soms 2017

As described in SAP Policy PFC-5.6, the County would require future development implemented through the PRSP to demonstrate that it can accommodate stormwater volumetric increases for the 100-year, 8-day storm as a condition of permit approval. In addition to the PRSP's retention requirements noted above, an existing retention basin in the future PRSP Town Center currently retains 10.9 acre-feet of stormwater for the benefit of the Nichols Drive Industrial Park project, which is located within the SAP area. The stormwater retention capacity of this basin would need to be accommodated elsewhere on a 1:1 basis, either within the PRSP or net SAP area or at an off-site regional retention facility.

The City of Roseville's Pleasant Grove Retention Facility is proposed for retention of stormwater volumetric increases generated within the Pleasant Grove Creek watershed, which includes the University Creek drainage (for a total of 358.4 acre-feet), while the City of Lincoln Lakeview Farms is under consideration to retain stormwater volumetric increases generated in the Orchard Creek watershed (approximately 17.4 acre-feet) (MacKay & Soms 2017). As described for the net SAP area, use of the off-site Pleasant Grove Retention Facility or Lakeview Farms Retention Basin cannot be ensured by the County. Although interim volumetric retention could be provided within the SAP area, including PRSP area, during initial phases of PRSP development, until the Pleasant Grove Retention Facility is functional, full buildout of the PRSP is not feasible using onsite retention.

The backbone stormwater infrastructure for the PRSP was modeled using criteria from the *Placer County Flood and Water Conservation District Stormwater Management Manual* (see Exhibit 3-20, "PRSP Stormwater Drainage Infrastructure") and was sized to accommodate proposed buildout conditions. Because future development in the PRSP area would undergo Placer County permit review to ensure compliance with SAP and Placer County stormwater management policies as applicable, it would not generate runoff that exceeds the capacity of the planned PRSP stormwater drainage system.

The PRSP would reduce the potential for increased stormwater flows and off-site flooding through implementation of LID measures, onsite detention of peak flows to less than preproject conditions, and by volumetric retention of increases resulting from the 100-year, 8-day storm. Interim on-site retention facilities are a possible stormwater retention solution for phased build-out until the off-site regional facilities are built and a County retention mitigation fee program is established. However, if interim retention facilities are constructed within the PRSP and net SAP areas on parcels zoned for development, the development project would also be subject to payment of the regional retention fee, in order to fund construction of the ultimate regional retention facility.) Without construction of appropriately designed drainage facilities, this impact would be significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The Pleasant Grove Retention Facility would be designed and constructed under the jurisdiction of the City of Roseville, or City/County Joint Powers Authority, to accommodate stormwater volumetric increases generated by future development, both in the City of Roseville and SAP area. The Pleasant Grove Retention Facility would be designed specifically to capture and retain stormwater runoff and would not, itself,

generate stormwater runoff or contribute to downstream flooding. Therefore, this impact would be less than significant.

Off-Site Transportation and Utility Improvements

Development of the project would require connection to existing off-site utility infrastructure for potable water, recycled water, wastewater, electrical service, and gas service. These utilities generally consist of linear underground or aboveground utilities with small (less than 100 square feet), isolated, aboveground structures. In these cases, any stormwater generated by aboveground utility components would be infiltrated in the surrounding area without generating runoff.

Larger impervious off-site improvements would include roadway expansions and extensions and the potential water tank and pump station at the Lincoln Wastewater Treatment Plant Site. These would be regulated under the facilities General Industrial Stormwater NPDES permit (Order CAS000001, WID 5S31S016850). This permit sets minimum stormwater BMP requirements, requires stormwater quality monitoring and reporting, and the development and maintenance of a SWPPP. Also, depending on the specific roadway improvement, municipal stormwater drainage facilities either already exist, or would be developed consistent with county or city standards such that any increased stormwater runoff would be appropriately conveyed to minimize flood potential. Therefore, the construction of other supporting infrastructure would have a p impact on increased stormwater runoff and the potential for downstream flooding.

Conclusion

Implementation of the project would increase the extent of impervious surfaces in the project area, which could increase stormwater runoff peak flows, including increased volumes and velocities, and exceed capacities of existing drainageways and create downstream flooding. However, protective SAP policies and Placer County permit conditions would require any future development within the project area to implement LID for the 2-year storm event and implement stormwater management measures to reduce stormwater peak flows to below predevelopment levels. Further, in accordance with SAP Policy PFS-5.6, Placer County would not issue a development permit for construction within the SAP area unless the project proponent can demonstrate that stormwater volumetric increases from the 100-year, 8-day storm would be retained either on-site or in an off-site regional facility, to prevent downstream flooding. If interim retention facilities are constructed within the PRSP and net SAP areas on parcels zoned for development, the development project would also be subject to payment of the regional retention fee, in order to fund construction of the ultimate regional retention facility. Additionally, because the SAP storm drain system would be designed to accommodate buildout stormwater flows, new development within the SAP area would not generate runoff that exceeds the capacity of the system. Without construction of appropriately designed drainage facilities, implementation of the project would have a **significant** impact on stormwater runoff and flooding.

Mitigation Measures

Implement Mitigation Measures 4.6-1a, 4.6-1b, and 4.6-1c, identified in Section 4.6, "Geology and Soils."

Mitigation Measure 4.9-1a: Submit final drainage report (Net SAP Area and PRSP Areas)

As part of the improvement plan submittal process, the preliminary drainage report provided during environmental review shall be submitted in final format. The final drainage report may require more detail than that provided in the preliminary report and will be reviewed in concert with the improvement plans to confirm conformity between the two. The report shall be prepared by a Registered Civil Engineer and shall, at a minimum, include text addressing existing conditions, the effects of the proposed improvements, all appropriate calculations, changes in flows and patterns, and proposed on- and off-site improvements and drainage easements to accommodate flows from this project, as well as watershed maps. The report shall identify permanent water quality protection features and methods to be used during construction as well as long-term postconstruction water quality measures. The final drainage report shall be prepared in conformance with the requirements of Section 5 of the Land Development Manual and the Placer County Storm Water Management Manual that are in effect when the report is submitted.

Mitigation Measure 4.9-1b: Design, construct, and maintain retention and detention facilities or pay retention mitigation fees (Net SAP Area and PRSP Areas)

The improvement plan submittal and final drainage report shall provide details on how to achieve the following requirements:

1. Stormwater run-off peak flows shall be reduced to obtain an objective post-project mitigated peak flow that is equal to the estimated preproject peak flow, less 10 percent of the difference, through the installation of detention facilities.

and,

2. Stormwater volumetric increases shall be mitigated to retain the increase for the 100-year, 8-day design storm, depth of 10.75 inches at elevation of 200- feet, unless another methodology has been agreed upon by Placer County. The project proponent shall either provide permanent on-site retention or participate in a regional stormwater retention program, if established by the County, by paying retention mitigation fees, as deemed appropriate, to mitigate the project's increases to stormwater volume. If interim retention facilities are constructed within the PRSP and net SAP areas on parcels zoned for development, the development project would also be subject to payment of the retention fee, in order to fund construction of the ultimate regional retention facility.

Retention and detention facilities shall be designed in accordance with the requirements of the Placer County Storm Water Management Manual and/or City of Roseville standards that are in effect at the time of submittal, and to the satisfaction of the Engineering and Surveying Division, and shall be shown in the improvement plans. No retention/detention facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.

Significance after Mitigation

Implementation of Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.9-1a, 4.9-1a, and 4.9-1b would minimize the significant impacts of increased impervious surfaces in the project area, which could subsequently increase stormwater runoff volumes and velocities, exceed capacity of existing drainageways, and create downstream flooding through compliance with Placer County construction standards and storm drainage design requirements for development within the net SAP and PRSP areas. The measures would reduce potential impacts related to increased stormwater runoff and potential for downstream flooding to less than significant. However, because the Pleasant Grove Retention Facility is located outside Placer County's jurisdiction, the County cannot ensure that this facility, which would provide offsite volumetric retention for a large portion of the project, will be implemented. If the Pleasant Grove Retention Facility was not designed and constructed to accommodate the project's volumetric retention needs, this impact would be **significant and unavoidable**.

Impact 4.9-2: Groundwater depletion and recharge

The project would be served predominantly by surface water resources. Groundwater wells within the SAP area would be used only during emergency and single dry-year situations, and their operation would meet the management objectives of the WPCGMP, including monitoring to ensure that water levels in adjacent wells are not affected. Additionally, the potential impact on groundwater recharge resulting from the increase in the extent of impervious surfaces would be minimized by the incorporation of LID measures that allow infiltration of stormwater on-site. For these reasons, implementing the project would have a **less-than-significant** impact with regard to groundwater depletion and recharge.

Net SAP Area and PRSP Area

The SAP area would receive its potable and nonpotable water from PCWA. Surface water is the primary source used by PCWA to meet water supply demands; however, groundwater sources are maintained for emergency use, and recycled water may be used in the future for some nonpotable water uses (PCWA 2016). Two groundwater wells are planned within the PRSP area at parcels PR-93 and PR-98 (see Exhibit 3-

9, “PRSP Land Use Plan”). Estimated yield of each well is 1,000 afy. These wells would be used only for backup and emergency dry-year supplies. If needed, these wells are expected to be used for a single dry year only (PCWA 2016). PCWA does not include groundwater use in its water supply planning for average years or for multiple dry years and instead relies on surface water sources (PCWA 2016).

The majority (98 percent) of PCWA yearly surface water supplies come from high-elevation snow-fed rivers with reservoir storage, which are more reliable than runoff-fed streams in dry years (PCWA 2016). An example of water supply during a single dry-year scenario would be the 2015 water year. Despite being one of the driest years in California history, PCWA received 68 percent of its anticipated supply from the Yuba and Bear Rivers (PCWA 2016). For conservative planning purposes, PCWA anticipates that some surface water allocations could be reduced up to 50 percent in single dry years, necessitating transfers of water from the Central Valley Project (Sacramento River flows) with up to 2,000 acre-feet of the groundwater supply as a backup water source. In multiple dry years, PCWA anticipates that its contracted supply from some reservoir-controlled rivers could be reduced by 25 percent. This reduction can be dealt with by using efficiency enforcement at the consumer level and would not require the use of groundwater as a backup resource (PCWA 2016). For further discussion of water supply, see Section 4.15, “Utilities.”

Groundwater recharge and loss are generally balanced in western Placer County during a normal year. In 2004, groundwater inflows were approximately 129,000 acre-feet and total outflows were approximately 127,700 acre-feet (PCWA 2013). Groundwater losses include both natural subsurface outflows (approximately 28,000 acre-feet) and groundwater extraction through pumping (85,000 to 99,000 acre-feet) (PCWA 2013). The WPGMP estimates the sustainable yield for the western Placer County portion of the North American Groundwater Subbasin to be approximately 100,000 afy (PCWA 2013). “Sustainable yield” is defined as the amount of groundwater that can be safely extracted while maintaining groundwater elevations and quality at target levels. Sustainable yield is based on normal year water demand; however, the buffer between actual pumping levels in a normal year and the projected sustainable yield level provides latitude for emergency pumping requirements. Although the single-dry-year emergency use of the two groundwater wells within the SAP area could draw down water levels in the immediate area around the wells over the short term, these wells would be only used during individual dry years, and water levels would rebound when pumping ceases (PCWA 2007). Any use of these groundwater wells must meet the basin management objectives of the WPCGMP (described above in Section 4.9.3). These objectives require groundwater monitoring to ensure that groundwater levels remain at a level that does not adversely affect adjacent wells or groundwater uses (PCWA 2007).

The increase in the extent of impervious surfaces created by implementing the SAP could reduce the amount of precipitation that is able to infiltrate the soil and recharge groundwater reserves. The implementation of LID measures described for Impact 4.9-1 would allow precipitation from the 2-year, 24-hour storm event and below to infiltrate the soil in on-site pervious areas. Additionally, the SAP requires that stormwater be reduced to obtain an objective post-project mitigated peak flow that is equal to the estimated pre-project peak flow less 10 percent of the difference between the pre-project and unmitigated post-project peak flows through the installation of detention facilities. This detention would slow stormwater runoff and allow more precipitation to infiltrate soils when compared to existing conditions. This impact would be less than significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The construction of the Pleasant Grove Retention Facility would not require the use of groundwater resources. In fact, retention of stormwater would facilitate groundwater recharge. The stormwater retention at Pleasant Grove Retention Facility reflects the increased 100-year, 8-day stormwater runoff from the SAP area. For these reasons, the proposed expansion of the Pleasant Grove Retention Facility would have a positive impact on groundwater recharge.

Off-Site Transportation and Utility Improvements

The off-site transportation and utility connections required for the development of the project would not use groundwater resources or create large areas of impervious surfaces that could interfere with groundwater recharge. Runoff from new roadway surfaces during major storm events would, like other project runoff, be conveyed to stormwater retention/detention facilities that would facilitate infiltration to groundwater. Therefore, this impact would be less than significant.

Conclusion

Water for the SAP area would be supplied by PCWA, which uses primarily surface water, but PCWA would maintain two groundwater wells within the SAP area. These wells would be used only during emergency and single dry-year situations, and their operation would meet the management objectives of the WPCGMP, including monitoring to ensure that water levels in adjacent wells are not adversely affected. Additionally, the potential impact on groundwater recharge resulting from the increase in the extent of impervious surfaces would be minimized by the incorporation of LID measures that allow infiltration of stormwater on-site. For these reasons, implementing the project would have a **less-than-significant** impact on groundwater depletion and recharge.

Mitigation Measures

No mitigation is required.

Impact 4.9-3: Construction-related water quality impacts

Construction activities required to implement the project could degrade the quality of stormwater flows and potentially degrade downstream surface water quality. Grading, excavation, and accidental spills of construction-related hazardous substances could degrade surface water quality downstream of the project area. However, the SAP would protect water quality by establishing preserve and open space areas around streams and sensitive habitats. In addition, all future projects constructed through the project would be required to install erosion and sediment controls; implement and maintain temporary construction BMPs to control and properly manage site runoff; and waste control measures to prevent leakage or spill of hazardous materials into soils and surface waters. If properly implemented, these existing protective policies and regulations would reduce the potential for construction activities to adversely affect water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be **potentially significant**.

Net SAP Area

Implementation of the SAP and expansion of the regional stormwater retention basins would require multiple phases and seasons of construction activities that involve vegetation removal, grading, earth moving, excavation, temporary stockpiling of soils, infrastructure installation, and building construction. These activities could expose soils to wind and water erosion and potentially transport pollutants to surface water bodies, particularly during storm events. Furthermore, accidental spills of construction-related fuels, oils, hydraulic fluid, and other hazardous substances could contaminate stormwater flows, resulting in the potential degradation of surface water quality downstream of the disturbance area. Construction activities have the potential to adversely affect the water quality of Pleasant Grove Creek, Auburn Ravine, Orchard Creek, Coon Creek, and groundwater beneath the construction sites.

The SAP contains policies designed to safeguard water quality during construction and operation, and individual developments would be required to comply with state and local water quality laws and regulations implemented to protect surface water and groundwater resources. Under the SAP, the potential adverse impacts on water quality would be reduced by minimizing ground disturbance and development within and immediately adjacent to sensitive habitats. SAP Policy NR-3.1, "Sensitive Habitat Buffers," (which mirrors *Placer County General Plan Policy 6.A.1*) requires sensitive habitat buffers of 100 feet from perennial streams and 50 feet from intermittent streams, riparian zones, wetlands, and other sensitive habitats. Exceptions are provided for necessary road or trail crossings and for hazard mitigation. Additionally, the Western Placer County Aquatic Resources Program requires a 50-foot buffer from all streams mapped in the

National Hydrography Dataset (Placer County 2018). Under the SAP, a Preserve/Mitigation Reserve District would be created in the northernmost portion of the net SAP area (see Exhibit 3-3), where Orchard Creek, numerous tributary channels to Orchard Creek and Auburn Ravine, and several wetlands are located.

During construction, water quality would be protected through compliance with the discrete permits and stormwater management requirements consistent with all federal, state, and local laws applicable at the time. Improvement plans provided to Placer County prior to authorization for each construction phase would be required to conform to provisions of the Placer County Grading Ordinance (Article 15.48, *Placer County Code*) and the Stormwater Quality Ordinance (Article 8.38, *Placer County Code*) that are in effect at the time of submittal. Because development phases implemented through the SAP would disturb more than 1 acre of soil, each construction phase would be subject to the Statewide NPDES CGP from CVRWQCB.

One condition of the NPDES permits would be the preparation of a SWPPP. A SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges. The SWPPP would be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer and would identify water quality controls consistent with CVRWQCB requirements and would ensure that runoff quality meets water quality objectives and maintains the beneficial uses of the SAP area streams. The SWPPP would describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of postconstruction sediment and erosion control measures, and management controls unrelated to stormwater. The BMPs identified in the SWPPP would be implemented during all site development activities. The SWPPP would have the following required elements:

- ▲ Temporary BMPs would be identified to prevent the transport of earthen materials and other construction waste materials from disturbed land areas, stockpiles, and staging areas during periods of precipitation or runoff. BMPs could include using filter fences, fiber rolls, erosion control blankets, mulch (such as wood chips), temporary drainage swales, settling basins, and other erosion-control methods.
- ▲ Temporary BMPs would be identified to prevent the tracking of earthen materials and other waste materials from the project site to off-site locations. BMPs could include using stabilized points of entry/exit for construction vehicles/equipment and designated vehicle/equipment rinse stations, and sweeping.
- ▲ Temporary BMPs would be identified to prevent wind erosion of earthen materials and other waste materials from the project site. BMPs could include routine application of water to disturbed land areas and covering of stockpiles with plastic or fabric sheeting.
- ▲ A spill prevention and containment plan would be prepared and implemented. Project contractors would be responsible for storing on-site materials and implementing temporary BMPs capable of capturing and containing pollutants from fueling operations, fuel storage areas, and other areas used for the storage of hydrocarbon-based materials. This would include maintaining materials on-site (such as oil absorbent booms and sheets) for the cleanup of accidental spills, using drip pans beneath construction equipment, training site workers in spill response measures, immediately cleaning up spilled materials in accordance with directives from CVRWQCB, and properly disposing of waste materials at an approved off-site location that is licensed to receive such wastes.
- ▲ Temporary BMPs would be identified to capture and contain pollutants generated by concrete construction, including using lined containment for rinse water to collect runoff from washing of concrete delivery trucks and equipment.
- ▲ Protective fencing would be used to prevent damage to trees and other vegetation that would remain after construction, including tree protection fencing and individual tree protection, such as wood slats strapped along the circumference of trees.

- ▲ Temporary BMPs would be identified for the containment and removal of drilling spoils generated from construction of bridge foundations and abutments.
- ▲ Daily inspection and maintenance of temporary BMPs would be required. The prime contractor would be required to maintain a daily log of temporary construction BMP inspections and keep the log on-site during project construction for review by CVRWQCB.
- ▲ Tree removal activities, including the dropping of trees, would be confined to the construction limit boundaries.
- ▲ Construction boundary fencing would be required to limit disturbance and prevent access to areas not under active construction.
- ▲ Postconstruction BMPs and the BMP maintenance schedule would be identified. Postconstruction BMPs must address water quality, channel protection, overbank flood protection, and extreme flood protection.
- ▲ Disturbed areas would be revegetated with approved native seed mixes.

The SWPPP described above would be submitted to Placer County and CVRWQCB in conjunction with submission of the improvement and grading plans and NPDES permit. County staff would review the SWPPP against the requirements of the County municipal stormwater permit and the County Stormwater Quality Ordinance. During construction, County staff would conduct regular inspections of the site to verify that effective stormwater BMPs are implemented and maintained.

If properly implemented, the protective stream buffers included in the SAP and the water quality protections built into NPDES permitting would reduce the potential for construction activities within the net SAP area to adversely affect water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be potentially significant.

PRSP Area

The construction-related water quality effects of implementing the PRSP would be similar to those identified for the SAP above. All the protective SAP and Placer County policies discussed above would apply, and all construction activities would be required to meet the Statewide NPDES CGP conditions. Within the PRSP, protective buffers and open space areas have been designated around University Creek and its tributaries. See Exhibit 3-11, "PRSP Parks and Open Space Plan." These corridors are based on Placer County buffer requirements and were established to protect the stream and associated sensitive habitats. In many areas, total width of these open space corridors exceeds 800 feet. If properly implemented, the protective stream buffers included in the SAP and the water quality protections built into Statewide NPDES CGP (including preparation of a SWPPP) would reduce the potential for construction activities within the PRSP to adversely affect water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be potentially significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The construction of the Pleasant Grove Retention Facility would require extensive grading in the floodplain adjacent to Pleasant Grove Creek. Scrapers and excavators would remove surface soils from the basin footprints and use this material to form an embankment with a minimum height of 0 feet where the embankment ties into the ground surface and a maximum height of 20 feet near the basin outlet structure. Soil disturbed during basin construction could easily be carried by stormwater runoff into the adjacent creeks. Soils used for construction of the embankments would be especially vulnerable to erosion because of the side slope of the embankments. Stormwater runoff from the compacted embankments could become concentrated, accelerating erosion and carrying sediment into the creeks.

The embankments of both the north and south basins would be set back more than 100 feet from the high-water mark of Pleasant Grove and University Creeks (City of Roseville 2002). However, the portion of the south basin bypass channel that connects to Pleasant Grove Creek and the inlet and outlet structures for both basins would require excavation within the Pleasant Grove Creek and University Creek channels. In-channel construction would occur during the summer months when water levels are low in Pleasant Grove Creek and when University Creek is dry. Construction activities in the stream bed of Pleasant Grove Creek could still result in a plume of sediment becoming suspended in the water. Suspended sediments could generate turbidity levels that exceed the water quality objectives of the Basin Plan and adversely affect the beneficial uses of Pleasant Grove Creek. Depending on water levels, in-channel construction could require dewatering or stream diversion; however, in-channel construction details have not yet been defined.

During the height of construction, up to 35 pieces of heavy equipment could be operating on the site at one time and could include 10–15 scrapers, four compactors, six bulldozers, two excavators, two graders, and four water trucks (City of Roseville 2002). Leaking equipment or accidental spills of fuels, oils, hydraulic fluid, and other hazardous substances could migrate through groundwater or surface runoff into the creeks, resulting in the potential degradation of surface water quality downstream of the disturbance area.

Because construction of the Pleasant Grove Retention Facility would disturb more than 1 acre of soil, the project would be subject to the Statewide NPDES CGP and the SWPPP for the SAP construction activities. The SWPPP would be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer and would identify water quality controls consistent with CVRWQCB requirements and would ensure that runoff quality meets water quality objectives and maintains the beneficial uses of the SAP area streams. The SWPPP would describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of postconstruction sediment and erosion control measures, and management controls unrelated to stormwater. The SWPPP also requires the preparation of a spill prevention and containment plan.

Dewatering: Dewatering (removal of groundwater from an excavation) may be required for construction of inlet and outlet structures within the Pleasant Grove Creek streambed. The estimated volume of dewatering waste produced and the design of infiltration basins, filtration systems, and other BMPs would be developed prior to the final design phase of the project. The potential effects of dewatering discharge would be reduced through compliance with existing CVRWQCB regulation. The NPDES CGP covers incidental removal of water from excavations during construction; however, if groundwater must be continually removed from a construction site, the project would need additional coverage under the CVRWQCB NPDES permit for Limited Threat Discharges to Surface Water (Order No. R5-2016-0076, NPDES No. CAG995002). This permit encourages disposal of wastewater on land where possible and requires project proponents to evaluate land disposal as a first alternative. The Limited Threat Discharges Permit contains a comprehensive set of effluent limitations that must be met by all discharges to surface water through the implementation of site specific BMPs. These include:

- ▲ limitations on the amount of heavy metals, fertilizers, pesticides, hydrocarbons, VOCs, and industrial contaminants;
- ▲ protections against negative physiological responses in human, plant, animal, or aquatic life;
- ▲ limitations on temperature, salinity, and pH;
- ▲ protections for color, taste, and odor;
- ▲ restrictions on oil and grease content;
- ▲ protection of dissolved oxygen levels,
- ▲ limitations on suspended sediments and other suspended and settleable materials; and

- ▲ restrictions on turbidity so that the discharge shall not exceed:
 - more than 1 nephelometric turbidity unit (NTU) where natural turbidity is between 1 and 5 NTUs;
 - more than 20 percent where natural turbidity is between 50 and 100 NTUs; and
 - more than 10 percent where natural turbidity is greater than 100 NTUs.

If information becomes available that shows there is a reasonable potential for a project's dewatering discharge to exceed these limits or any other water quality objectives, the discharge must be immediately stopped. As required by both the NPDES California general construction and General Dewatering permits, filtration devices and systems would be provided to remove pollutants and suspended sediments generated during dewatering activities. A dewatering plan approved by the CVRWQCB would be prepared as a component of the SWPPP, and all dewatering waste discharged to surface water would meet the applicable water quality objectives (refer to beneficial uses and water quality objectives described above). All dewatering associated with the proposed project would be required to comply with these conditions and protect the beneficial uses Pleasant Grove Creek.

Stream Diversions: Temporary stream diversion could be required for in-channel construction activities, depending on flow volumes in Pleasant Grove Creek. Stream diversions are used in waterways to enclose a construction area and reduce sediment pollution from construction work taking place in or adjacent to water. The diversions would consist of a temporary dam constructed just upstream of the existing bridge and temporary pipes of sufficient number and size to carry stream flow from the temporary dam, through the construction site, to a point downstream.

The CGP allows temporary stream diversions provided that the discharge complies with the BMPs described in the SWPPP, is filtered or treated, does not exceed numeric action levels for pH and turbidity, and would not cause or contribute to a violation of water quality standards. The proposed stream diversions would isolate areas of ground disturbance from the flowing water of the stream and would reduce the potential for water quality degradation resulting from instream construction activity.

Construction of the Pleasant Grove Retention Facility north and south retention basins would create extensive areas of ground disturbance adjacent to Pleasant Grove and University Creeks. The fleet of heavy machinery used for earth moving and excavation could leak or cause spills of hazardous materials that could contaminate surface water and groundwater. Additionally, the construction of the basin inlet and outlet structures and the mouth of the south basin bypass channel would require the use of heavy equipment in the stream channel. The project would be required to implement erosion control BMPs, protect against sediment contamination of streams, and prevent spills and leaks of hazardous materials from construction equipment. Any required stream dewatering or diversion work would be accomplished in a manner that protects the beneficial uses of Pleasant Grove Creek. Implementation of these protections cannot prevent all water quality effects; however, if properly implemented, they provide reasonable assurance that construction activities would not adversely affect water quality. At this stage in planning, the project cannot demonstrate that these protections would be properly implemented; therefore, this impact would be potentially significant.

Off-Site Transportation and Utility Improvements

Construction activities, excavation, and ground disturbance required for the off-site transportation and utility connections would be subject to the conditions of the Statewide NPDES CGP described in the impact discussion for the net SAP area above. This permit requires development of a SWPPP to identify and control sources of sediment and other pollutants implementation of BMPs to protect water quality. For the same reasons described above, this impact would be potentially significant.

Conclusion

Under the project, water quality would be protected by establishing preserve and open space areas around streams and sensitive habitats. In addition, all future projects constructed through the project would be subject to existing laws and regulations requiring erosion and sediment controls; implementation and maintenance of temporary construction BMPs to capture, detain, and allow infiltration or otherwise control and properly manage site runoff; waste control measures to prevent leakage or spill of hazardous materials

into soils and surface waters; and management controls for stormwater runoff to prevent erosion and off-site transport of earth materials. If properly implemented, these existing protective policies and regulations would reduce the potential for construction activities to adversely affect water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be **potentially significant**.

Mitigation Measures

Implement Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1d, and 4.6-1e identified in Section 4.6, "Geology and Soils."

Mitigation Measure 4.9-3a: Place staging areas away from dwellings and resources (Net SAP Area and PRSP Area)

The improvement plans shall identify the stockpiling and/or vehicle staging areas with locations as far as practical from existing dwellings and protected resources in the net SAP and PRSP areas. The locations of stockpiling and/or staging areas shall be reviewed and approved by the County prior to initiating construction.

Mitigation Measure 4.9-3b: Place staging areas away from dwellings and resources (Other Supporting Infrastructure)

The County shall work with the project proponent to coordinate with the City of Roseville to make sure that stockpiling and/or vehicle staging, as identified on improvement plans, is located as far as practical from existing dwellings and protected areas, and that the locations are consistent with City of Roseville standards.

Significance after Mitigation

Implementation of Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.9-3a would minimize the potentially significant impacts of erosion through minimization of ground disturbance, installation of temporary and permanent erosion control BMPs, revegetation of disturbed areas, and compliance with Placer County construction standards for development within the Net SAP and PRSP areas.

Other supporting infrastructure areas are located outside the County's jurisdiction. Although implementation of Mitigation Measures 4.6-1d, 4.6-1e, and 4.9-3b would likely reduce potentially significant impacts associated with erosion in these areas, because the County cannot enforce these mitigation measures, the impact is considered **significant and unavoidable**.

Impact 4.9-4: Water quality impacts from urban land uses

Contaminants generated by urban development within the project area could be carried in stormwater runoff and could reach surface waters and degrade water quality. However, future projects within the project area would be required to comply with CVRWQCB, Placer County, and proposed SAP regulations, and permit conditions and would implement LID measures and stormwater BMPs to prevent urban pollutants from being carried into surface waters. Additional protections would be required for industrial projects. If properly implemented, these existing protections would reduce the potential for urban development within the project area to create a substantial adverse impact on water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be **potentially significant**.

Net SAP Area

After completion of construction, urban development brings the potential for accidental discharge of household and commercial products or improper use of pesticides and fertilizers, which could be carried in runoff or infiltrate the soil, reaching surface water and groundwater resources. While the runoff from some surfaces would be relatively free of contaminants (e.g., rooftops and other areas removed from automobile use), runoff from roadways and parking areas could contain sediment, crushed road abrasives, nutrients, organic compounds, trash and debris, oxygen-demanding substances, oil and grease, fluids from accidents

and spills, landscape care products, and metals. Without proper management, these contaminants could be carried in concentrated stormwater runoff and could reach surface waters, degrading water quality and affecting beneficial uses.

As described for Impact 4.9-1, under the SAP, LID measures and stormwater BMPs would be implemented to reduce the volume of urban runoff and help prevent contamination of surface waters (SAP Policy PFS-5.7). These may include pretreatment water quality vaults, oil and grit separators, infiltration/sedimentation basins, and on-site infiltration. In addition, the net SAP area is within the regulatory area of the *West Placer Storm Water Quality Design Manual*, and future projects within the net SAP area would be subject to the postconstruction stormwater control requirements. This would include the preparation of a storm water quality plan (SWQP) as part of the County environmental review for the project. After a future project is approved, a final SWQP would be submitted to the County with the project's improvement plans. The SWQP must include source control BMPs, which preclude the exposure of materials and activities to rainfall to prevent pollutants from being carried away in stormwater runoff. The SWQP must also identify the location and size of infiltration and treatment stormwater BMPs, sizing calculations, inspection and maintenance schedules and procedures, and the responsible parties to implement and maintain.

The SAP would continue to support similar industrial and manufacturing land use types that are currently allowed under the SIA Plan. In addition to the LID measure described above, Industrial projects would be required to obtain an Industrial General Stormwater Permit (NPDES No. CAS000001), which is similar to the Statewide NPDES CGP. Some industrial and other uses that require water for processing may discharge treated wastewater to land or surface waters. These projects would be required to obtain a separate and additional wastewater NPDES permit through CVRWQCB. Wastewater NPDES permits contain facility-specific water discharge requirements that protect the beneficial uses, ensure that discharges meet the water quality objectives of the water body to which wastewater is discharged (see Table 4.9-1) and meet federal and state nondegradation policies in instances in which existing water quality is better than required by law. The wastewater NPDES permit also specifies the location and frequency of effluent monitoring. Monitoring intervals vary depending on what is being tested and may be continuous (for flow), daily (for pH and temperature), weekly (e.g., for oxygen demand, total suspended solids, electrical conductivity), monthly (for hardness, nitrate, total dissolved solids), or quarterly or annually for more complex tests, such as total mercury or acute toxicity. The types of monitoring test required will depend on the characteristics of the wastewater and the receiving water. Self-monitoring reports are typically required to be submitted monthly.

If properly implemented, the protective policies and regulations discussed above would protect surface water and groundwater from urban runoff and water discharges from industrial uses within the net SAP area. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be potentially significant.

PRSP Area

At full buildout, the PRSP would include the development of over 5,600 residential units, the approximately 300-acre Sac State–Placer Center, 335 acres of Campus Park professional office use, 70 acres of commercial and commercial mixed use, and 335 acres of parks, recreation, and open space. As discussed above, the runoff generated by urban development could contain household and commercial products, pesticides, fertilizers and other contaminants which could be carried in runoff to surface waters or could infiltrate the soil, reaching groundwater resources. Runoff from roadways and parking areas could contain sediment, crushed road abrasives, nutrients, organic compounds, trash and debris, oxygen-demanding substances, oil and grease, fluids from accidents and spills, landscape care products, and metals. Because of these threats, runoff from urban development requires rigorous management to prevent degradation of water quality and adverse effects to beneficial uses.

The water quality effects of urban development in the PRSP area would be generally similar to those described above for the net SAP area. However, approximately half of the PRSP land area would be zoned for residential and public facility land uses, which typically have a much lower pollutant load than the commercial and industrial land uses proposed for some locations in the net SAP area (EPA 1999). All the protective SAP and Placer County policies discussed above would apply, and all projects would be required to meet the

Statewide NPDES GCP conditions. In accordance with SAP and Placer County policy, the PRSP would protect the water quality of Orchard Creek (as well as that of University Creek and Pleasant Grove tributaries) by maintaining habitat buffers of 50 feet from the edge of the intermittent stream channel, riparian zones, wetlands, and other sensitive habitats. In developed areas, LID measures would include source control to prevent contamination of surface runoff; impervious area disconnection to isolate potential contaminants; tree planting to decrease to amount of urban runoff that reaches stream courses; and vegetated swales to provide a final area of infiltration before stormwater is released to natural drainage areas.

Source control is the first line of defense in preventing urban contaminants from entering surface waters. The goal of source control is to prevent polluted water from commingling with clean water. Examples of source control measures include covering of trash receptacles, using efficient irrigation to reduce overspray, and connecting industrial floor drains to the sanitary sewer system instead of the storm drainage system. Operational measures may include using good housekeeping measures to minimize the generation of pollutants, make stormwater pollution prevention BMPs a part of standard operating procedures, and employee training programs. As required by the *West Placer Storm Water Quality Design Manual*, the Storm Water Quality Plan (SWQP) must be prepared at the earliest planning stages. A final SWQP must be submitted and approved with Improvement Plans would include detailed information on the selection of source control and site design measures (Placer County 2016).

As discussed in Impact 4.9-1, the Storm Drainage Master Plan prepared for the PRSP found that use of the planned LID measures would mitigate the postdevelopment stormwater runoff peak flows of a 2-year, 24-hour storm event to, or below, existing conditions (MacKay & Soms 2017). Runoff that is not infiltrated or evapotranspired would flow through the storm drain system and would flow through the vegetated swales before entering University Creek. Swales are used to slow runoff velocity and improve water quality. They remove pollutants from a moving stream of water through filtration, infiltration, adsorption, and biological processes. Swales have been shown to retain 14 to 98 percent of nutrient and sediments and up to 93 percent of metals (Ahiablame et al. 2012). A swale's effect on water quality is dependent on the density of vegetation, the infiltration ability of the underlying soil, and the length of time that runoff remains in the swale. The swales planned for the PRSP would be designed in accordance with the criteria West Placer LID Manual.

The implementation of the PRSP would create hundreds of acres of new urban development which could generate contaminants and adversely affect water quality. The potential for adverse water quality effects would be reduced by maintaining natural open space buffers around stream channels and sensitive habitats, source control measures to prevent urban contaminants from commingling with clean runoff, impervious surface disconnection to infiltrate runoff in adjacent pervious areas, vegetated swales to filter pollutants from stormwater generated by large events. If properly implemented, these measures would protect surface water and groundwater from contaminants carried in urban runoff. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be potentially significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The Pleasant Grove Retention Facility would not include urban development. After construction of the retention basins, the site would be revegetated and would function as open space (City of Roseville 2002). Additionally, the facility would retain floodwaters and allow some sediments to drop out of water before it is returned to Pleasant Grove Creek. Therefore, the use of the Pleasant Grove Retention Facility would have a less-than-significant impact on water quality.

Off-Site Transportation and Utility Improvements

The off-site transportation and utility connections required for development within the SAP area would be regulated under the facilities General Industrial Stormwater NPDES permit (Order CAS000001, WID 5S31S016850). This permit sets minimum stormwater BMP requirements, requires stormwater quality monitoring and reporting, and the development and maintenance of a SWPPP. However, because site-

specific BMPs have not been developed, the County conservatively determines this impact to be potentially significant.

Conclusion

Urban development within the project area could generate contaminants that could be carried in stormwater runoff and could reach surface waters and degrade water quality. However, future projects within the project area would comply with CVRWQCB, Placer County, and SAP regulations and permit conditions requiring the implementation of LID measures and stormwater BMPs to prevent urban pollutants from being carried into surface waters. Additional permitting and compliance measures would be required for stormwater runoff from industrial facilities and for industrial projects that would generate wastewater, including facility specific discharge requirements and regular monitoring and reporting. If properly implemented, these existing protections would reduce the potential for urban development within the project area to create a substantial adverse impact on water quality. However, at this stage of planning, the detailed site-specific BMPs have not been developed, and the County conservatively determines this impact to be **potentially significant**.

Mitigation Measures

Mitigation Measure 4.9-4a: Provide evidence of Waste Discharge Identification number (Net SAP Area and PRSP Area)

Before construction begins, the project proponent shall provide evidence to the Placer County ESD of a Waste Discharge Identification number generated from SWRCB's Stormwater Multiple Application and Report Tracking System. This document will serve as the RWQCB approval or permit under the NPDES construction stormwater quality permit.

Mitigation Measure 4.9-4b: Design project to meet source control requirements of MS4 Permit (Net SAP Area and PRSP Area)

The project is located in the permit area covered by Placer County's Small Municipal Separate Storm Sewer System (MS4) Permit (SWRCB NPDES), pursuant to the NPDES Phase II program. Project-related stormwater discharges are subject to all applicable requirements of the MS4 Permit.

The project proponent shall implement permanent and operational source control measures as applicable. Source control measures shall be designed for pollutant-generating activities or sources consistent with recommendations from the California Stormwater Quality Association's *Stormwater Best Management Practice Handbook: New Development and Redevelopment*, or an equivalent manual, and shall be shown on the improvement plans.

The project is also shall implement LID standards designed to reduce runoff, treat stormwater, and provide baseline hydromodification management as outlined in the *West Placer Storm Water Quality Design Manual*.

Mitigation Measure 4.9-4c: Design project to meet impervious surface and flow requirements of MS4 Permit (Net SAP Area and PRSP Area)

In accordance with the NPDES Phase II MS4 Permit, the project is a Regulated Project that creates and/or replaces 5,000 square feet or more of impervious surface. The project proponent shall submit a final SWQP either within the final drainage report or as a separate document that identifies how this project would meet the Phase II MS4 permit obligations. Site design measures, source control measures, and LID standards, as necessary, shall be incorporated into the design and shown in the improvement plans.

In addition, in accordance with the Phase II MS4 permit, projects creating and/or replacing 1 acre or more of impervious surface (excepting projects that do not increase the extent of impervious surface area over the preproject condition) are also required to demonstrate hydromodification management of stormwater such that the amount of postproject runoff is kept to equal to or below preproject flow rates for the 2-year, 24-hour

storm event, generally by way of infiltration, rooftop and impervious area disconnection, bioretention, and other LID measures that result in postproject flows that mimic preproject conditions.

Mitigation Measure 4.9-4d: Design off-site transportation and utility improvements to meet source control and impervious surface requirements (Off-site Transportation and Utility Improvements)

The County shall work with the project proponent to coordinate with the City of Roseville to verify that design of off-site transportation and utility improvements meet NPDES Phase II MS4 permit requirements, as well as any additional City of Roseville standards for protecting water quality during project operation.

Significance after Mitigation

Implementation of Mitigation Measures 4.9-4a, 4.9-4b, and 4.9-4c would minimize the potentially significant water quality impacts through compliance with Placer County standards for development within the project area implementation of LID measures for development projects.

Other supporting infrastructure areas are located outside the County's jurisdiction. Although implementation of Mitigation Measure 4.9-4d would likely reduce potentially significant impacts associated with operational water quality impacts, because the County cannot enforce this mitigation measure, the impact is considered **significant and unavoidable**.

Impact 4.9-5: Development within 100-year floodplains

The project area contains low-lying regions that are within the 100-year flood zone of Pleasant Grove, University, Auburn Ravine, and Orchard Creeks. Placer County regulatory protections and proposed SAP policies would effectively prohibit the placement of habitable structures within the 100-year floodplain. However, at this stage of planning, the details of these protections have not been developed, and the County conservatively determines this impact to be **potentially significant**.

Net SAP Area

The approval of the SAP would encourage development of a variety of urban uses in some areas that are within the 100-year flood zone (Exhibit 4.9-2). Floodplains in and adjacent to the net SAP area have been mapped only on stream reaches that have been studied for insurance purposes. It is important to note that floodplains exist on all streams, whether mapped or not. The potential for future projects to expose people or property to flood risks would be minimized through compliance with SAP flood protection Policies HS-2.1 through HS-2.5, included above. For example, Policy HS-2.2 requires detailed mapping of 100-year floodplains for all future development projects, and Policy HS-2.3 requires that natural conditions be maintained within the 100-year floodplain of all streams and drainageways with the exception of work completed to maintain drainage and for stormwater management. This policy effectively prohibits the placement of habitable structures within the 100-year floodplain. Development that cannot avoid the 100-year floodplain, such as minor roads, bridges, and paths (SAP Policy HS-2.1 requires that major roads be protected from the 100-year flood), would be required to meet the conditions of the Placer County Flood Damage Prevention Regulations (Section 15.52, *Placer County Code*). These regulations require that projects located within a mapped 100-year flood zone be evaluated by a registered civil engineer. An engineering study would be required, including a hydraulic analysis that demonstrates that the project would not aggravate or cause flooding problems on an adjacent property, would not create risks to users of the project itself, and would not cause an increase in the 100-year flood elevation. If properly implemented, SAP and Placer County policies would prohibit placement of habitable structures in the 100-year floodplain, restrict other development within the 100-year floodplain, and require measures to protect downstream and adjacent land uses. However, at this stage of planning, the details of these measures have not been developed, and the County conservatively determines this impact to be potentially significant.

PRSP Area

The potential for development within the 100-year floodplain in the PRSP area is generally similar as described above for the net SAP area. The SAP policies and Placer County regulations discussed above also

would apply to the PRSP area and would prevent the placement of buildings within the 100-year floodplain. Implementation of these policies can be seen in Exhibit 3-11, "PRSP Parks and Open Space Plan." The open space buffers along University Creek and its tributaries were delineated to avoid floodplains and sensitive aquatic resources. Additional floodplain mapping and hydrologic analysis (where required) would be completed for future development projects within the PRSP area, as conditions of approval for Placer County. If properly implemented, these protective policies would prohibit placement of habitable structures in the 100-year floodplain, restrict other development within the 100-year floodplain, and require measures to protect downstream and adjacent land uses. However, at this stage of planning, the details of these measures have not been developed, and the County conservatively determines this impact to be potentially significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The Pleasant Grove Retention Facility must be located within the 100-year flood inundation area of Pleasant Grove and University Creeks so that it can capture and retain stormwater flows during large storm events (City of Lincoln 2006; City of Roseville 2002). Construction of the retention basins would be subject to the conditions of the Placer County Flood Damage Prevention Regulations (described above). By definition, the retention facility would not include buildings or habitable structures; its very purpose would be to retain floodwaters and reduce the potential for downstream flooding. Therefore, with regard to development within 100-year floodplains, the facility would have no impact.

Off-Site Transportation and Utility Improvements

Portions of the off-site utility connections required for development of the SAP area could be located within the 100-year floodplain of Pleasant Grove Creek. However, these connections would be placed underground in appropriate casing or vaults or, in the case of aboveground utilities, would be limited to the footprint of power poles. Due to the small diameter of the poles and the distance between them, these structures would not alter the flow of 100-year storm events. Off-site roadway improvements would generally not be within the 100-year floodplain. This impact is less than significant.

Conclusion

Although the project area contains low-lying areas that are within the 100-year flood zone, Placer County regulatory protections and proposed SAP requirements are in place to prevent the placement of habitable structures within the 100-year floodplain. Structures such as bridges, roads, and retention basins that are located within the floodplain would be required to demonstrate that their construction would not aggravate or cause flooding problems on an adjacent property, would not create risks to users of the project itself, and would not cause an increase in the 100-year flood elevation. If properly implemented, these protective policies would prohibit placement of habitable structures in the 100-year floodplain, restrict other development within the 100-year floodplain, and require measures to protect downstream and adjacent land uses. However, at this stage of planning, the details of these protections have not been developed, and the County conservatively determines this impact to be potentially significant. The PRSP proposed off-site Pleasant Grove Retention Facility is a flood control facility and would not include habitable structures; therefore, its construction would have no impact relative to flood risk.

Mitigation Measures

Implement Mitigation Measure 4.9-1a: Submit final drainage report and Mitigation Measure 4.9-1b: Design, construct, and maintain retention and detention facilities.

Mitigation Measure 4.9-5a: Delineate 100-year floodplain on subdivision maps (Net SAP Area and PRSP Area)

The improvement plans and informational sheet(s) filed with the appropriate small lot final subdivision map(s) shall show the limits of the future, unmitigated, fully developed 100-year floodplain (after grading) for University Creek and its tributaries and designate the limits as a building setback line.

Mitigation Measure 4.9-5b: Demonstrate that all building pad elevations are a minimum of 2 feet above the 100-year floodplain line (Net SAP Area and PRSP Area)

The improvement plans and informational sheet(s) filed with the appropriate small lot final subdivision map(s) shall show finished building pad elevations to be a minimum of 2 feet above the 100-year floodplain line (or finished floor 3 feet above the 100-year floodplain line). The final pad certification letter shall be certified by a California registered civil engineer or licensed land surveyor and submitted to the Placer County ESD. This certification shall be done before construction of the foundation or at the completion of final grading, whichever comes first. No construction is allowed until the certification has been received by ESD and approved by the floodplain manager. Benchmark elevation and location shall be shown on the improvement plans and informational sheet(s) to the satisfaction of Development Review Committee.

Mitigation Measure 4.9-5c: Prohibit grading within the 100-year floodplain (Net SAP Area and PRSP Area)

No grading activities of any kind may take place within the 100-year floodplain of the stream/drainageway unless approved and analyzed as part of this project. All work shall conform to provisions of the County Flood Damage Prevention Regulations (Section 15.52, Placer County Code). The location of the 100-year floodplain shall be shown on the Improvement Plans.

Prior to Improvement Plan approval and if required by the County Floodplain Administrator, the project proponent shall obtain from FEMA, a Conditional Letter of Map Revision (CLOMR) or Conditional Letter of Map Revision based on Fill (CLOMR-F) for fill within a Special Flood Hazard Area. A copy of the letter shall be provided to the Engineering and Surveying Division prior to approval of Improvement Plans. A Letter of Map Revision (LOMR), or a Letter of Map Revision based on Fill (LOMR-F) from FEMA shall be provided to the Engineering and Surveying Division prior to acceptance of project improvements as complete.

Significance after Mitigation

Implementation of Mitigation Measures 4.9-1a, 4.9-1b, 4.9-5a, 4.9-5b, and 4.9-5c would require submittal of the final drainage report; design, construction, and maintenance of retention and detention facilities; clear delineation of the 100-year flood floodplain on improvement plan documents; demonstration that all building pad elevations are a minimum of 2 feet above the 100-year floodplain line; and prohibition of grading within the 100-year floodplain. These measures are designed to reduce potential impacts related to development within the 100-year floodplain and require the direct review and oversight of Placer County ESD staff. This impact is **less than significant** with implementation of mitigation measures.

CUMULATIVE IMPACTS

Cumulative impacts on hydrology and water quality need to be considered in the context of the lower Sacramento River Basin. The following discussion addresses the potential cumulative hydrology and water quality impacts of the project.

Cumulative Impact 4.9-6: Cumulative increases in stormwater runoff and potential for downstream flooding

Development projects in western Placer County and adjacent portions of Sutter County, Yolo County, and Sacramento County would result in increases in impermeable surface area (e.g., roofs, roads, parking areas, sidewalks), which collect urban pollutants, prevent infiltration of stormwater, and increase the volume and rate of stormwater runoff. The foreseeable development projects identified in Table 4.0-2 would develop over 50,000 acres in the region, adding more than 100,000 residential units and millions of square feet of non-residential building floor area. Such changes in the regional hydrology could contribute to downstream flooding, exceed the capacity of stormwater drainage systems, and generate substantial new sources of polluted runoff. However, these projects would be required to meet the conditions of county and municipal stormwater design manuals that implement the CVRWQCB municipal NPDES permits. Therefore,

contributions by the SAP, including the PRSP, to stormwater-related flooding or an effect on stormwater drainage systems would not be cumulatively considerable. This impact would be **less than significant**.

Development projects within west Placer County and adjacent portions of Sutter County, Yolo County, and Sacramento County, including the projects listed in Table 4.0-2, could increase stormwater runoff in a manner that would result in downstream flooding, exceed the capacity of stormwater drainage systems, and generate substantial new sources of polluted runoff. Urban development increases volume and rate of stormwater runoff generated from an area through conversion of vegetated or pervious surfaces to impervious surfaces and by the development of drainage systems that connect these impervious surfaces to streams or other water bodies. In this way, development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. The increased extent of impervious surfaces in upper watershed areas may also create flooding concerns for lower watershed areas. However, these projects would be required to meet the conditions of county and municipal stormwater design manuals (including the Placer County LID Manual and the *Stormwater Quality Design Manual for the Sacramento Region*) that implement the CVRWQCB municipal NPDES permits. This includes installation of LID measures with all new construction and hydromodification for large projects or projects that discharge to sensitive waters (depending on the jurisdiction). Hydromodification requirements are generally consistent and include on-site mitigation so that runoff from the 2-year, 24-hour storm is reduced to preproject flow rates (County of Sacramento et al. 2017; Placer County 2016). As described for Impact 4.9-1, the PRSP would comply with these conditions through LID measures to reduce stormwater runoff and stormwater retention to reduce the potential for downstream flooding. Additionally, projects implemented through the SAP and all other regional projects would be required to conduct project-specific environmental review and demonstrate their compliance with CVRWQCB, county, and municipal stormwater regulation and ordinances. Therefore, the project's contributions to stormwater-related flooding or an effect on stormwater drainage systems would not be cumulatively considerable. This impact would be **less than significant**.

Cumulative Impact 4.9-7: Cumulative groundwater depletion and recharge

Overuse of groundwater resources in the North American subbasin in past decades has affected groundwater levels in many areas and created a cumulatively adverse condition. Groundwater management regulation implemented since the 1990s has stabilized groundwater levels. Any new development initiated through the SAP or other projects would be serviced primarily by surface water through suppliers that must operate in compliance with sustainable groundwater management plans. Development of the projects in the cumulative setting detailed in Table 4.0-2 would result in development of over 50,000 acres in the region, and the construction of more than 100,000 new residential units and millions of square feet of non-residential building floor area. Because the SAP, including the PRSP, and other projects would be served primarily by surface water, development would not worsen or significantly contribute to existing cumulative adverse conditions related to groundwater depletion and recharge. This impact would be **less than significant**.

New groundwater wells or increased use of existing wells to support new development could deplete groundwater resources. Before passage of the Groundwater Management Act (AB 3030) in 1992, intensive pumping of groundwater to meet agricultural and urban demands decreased groundwater elevations by roughly 65 feet in the Roseville area (PCWA 2007). The decline of groundwater levels was halted with restrictions that prohibited further increases in groundwater pumping. Groundwater levels have stabilized but remain low in many areas within the North American subbasin (PCWA 2007). This represents an existing cumulative adverse condition.

The SAP area includes two existing groundwater wells that are owned by PCWA and are reserved for emergency use in single dry years (see discussion of Impact 4.9-2). Since the 1990s, urban areas and water suppliers such as PCWA have chiefly relied on surface water with groundwater for some agricultural customers and for backup and emergency use (PCWA 2007). In 2007, the WPCGMP was established to coordinate and monitor groundwater use in the Placer County portion of the North American subbasin and to protect against adverse effects on surface waters and existing groundwater uses. The *Sutter County Groundwater Management Plan* provides the same level of protection for the eastern portion of the

subbasin. Any new development initiated through the SAP or other projects, including those approved projects detailed in Table 4.0-2, would be serviced primarily by surface water through suppliers that must operate in compliance with sustainable groundwater management plans. Therefore, implementing the SAP, including the PRSP, would not worsen or significantly contribute to existing cumulative adverse conditions related to groundwater depletion and recharge. This impact would be **less than significant**.

Cumulative Impact 4.9-8: Cumulative construction-related water quality impacts

Implementing the SAP and other development projects would result in construction activity and ground disturbance that would increase the potential for pollution of waterways. However, because the SAP, including the PRSP, and all other foreseeable development projects in the region would be required to comply with applicable protective regulations, the potential for construction-related adverse water quality impacts would not be cumulatively considerable. This impact would be **less than significant**.

Implementing the SAP and other development projects would result in construction and ground disturbance that would increase the potential for soil erosion and sediment pollution of waterways. As shown in Table 4.0-2, approved projects in the cumulative setting would develop more than 50,000 acres in the region, including the construction of more than 100,000 residential units and millions of square feet of non-residential building area. The equipment required for construction would use fuel, solvents, lubricants, and other potentially hazardous materials that could degrade surface water and groundwater quality through accidental spills. However, the SAP, including the PRSP, and other foreseeable development would also be required to comply with CVRWQCB NPDES permit conditions that include preparation of a SWPPP and a hazardous materials spill response plan, and to comply with all County-mandated stream setbacks and protective permit conditions. Because the SAP, including the PRSP, and all other foreseeable development projects within the region would be required to comply with applicable protective regulations, the potential for construction-related adverse water quality impacts would not be cumulatively considerable. This impact would be **less than significant**.

Cumulative Impact 4.9-9: Cumulative water quality impacts from urban land uses

Runoff from urban development can carry many pollutants that can degrade water quality. However, because the SAP, including the PRSP, and all other foreseeable development projects within the region would be required to comply with LID measures as a condition of project approval, the potential for adverse water quality impacts from urban development would not be cumulatively considerable. This impact would be **less than significant**.

Water quality in the lower Sacramento River Basin has been adversely affected by runoff from agriculture and urban development. Many water bodies, including Pleasant Grove Creek, the Natomas East Main Drainage, and the lower portions of the Sacramento, Feather, and American Rivers, are listed as CWA Section 303 impaired waters because of contamination by pesticides, industrial pollutants, and/or mercury (EPA 2017; CVRWQCB 2008). Although these impairments are recognized, only a few Total Maximum Daily Loads have been established to address them. These conditions have created a significant adverse cumulative condition.

Continued urban development creates the potential for accidental discharge of household or commercial products, improper use of pesticides, and runoff carrying oil and roadway residue. The SAP and other regional development projects would create new urban areas and could increase the potential for contaminated urban runoff to reach surface water and groundwater, degrading water quality and affecting beneficial uses. The approved projects detailed in Table 4.0-2 would develop more than 50,000 acres in the region, including more than 100,000 residential units and millions of square feet of non-residential building floor area. The CVRWQCB works to protect water quality from urban runoff through NPDES programs for municipal stormwater and industrial uses. As discussed for Impact 4.9-4, development within the SAP and for other regional projects would be required to meet the conditions of county and municipal stormwater design manuals (including the Placer County LID Manual and the *Stormwater Quality Design Manual for the Sacramento Region*) that implement the CVRWQCB municipal NPDES permits. LID design measures have been well studied by governmental and research institutions and, when properly implemented, can

substantially reduce water quality degradation when compared with conventional stormwater management systems (EPA 2012; Ahiablame et al. 2012) Examples of minimum LID measures include isolation requirements for fueling areas and waste disposal areas, disconnection of impervious surfaces to allow infiltration of runoff on-site, identification signs and marking on storm drains to discourage improper use, and stormwater filtration and treatment where applicable. Each development project would be required to demonstrate compliance with LID measures as a condition of permit approval. The SAP integrates these Placer County and CVRWQCB requirements. They are reflected in many SAP policies, particularly Policy PFS-5.7, “Low Impact Development and Policy PFS-5.8 “Stormwater Mitigation Coordination.”

While these regionally implemented water quality protections cannot completely eliminate the potential for urban development to result in additional water quality impairments, they reduce the potential threat to a less-than-significant level. For this reason, implementing the SAP, including the PRSP, would not make a considerable contribution to a significant cumulative impact related to water quality impairments from urban runoff. This impact would be **less than significant**.

Cumulative Impact 4.9-10: Cumulative development within 100-year floodplains

Urban development and floodplain modifications have created a cumulative adverse condition relative to flooding in the lower Sacramento River Basin and especially in the Natomas Cross Canal watershed. However, the SAP and other potential projects within the watershed would be required to meet existing mitigation standards to prevent an increase in 100-year flood flows and would be subject to federal and County floodplain protection regulations. The projects in the cumulative setting would develop more than 50,000 acres in the region, including the construction of more than 100,000 residential units and millions of square feet of non-residential building floor area. Therefore, implementing the SAP, including the PRSP, would not significantly contribute to existing cumulative adverse conditions related to 100-year floodplains and flood elevations. This impact would be **less than significant**.

The gently rolling to nearly flat topography of the lower reaches of the Sacramento River Basin lends itself to small stream channels with extensive overbank flooding areas. Before the start of development in the Sacramento Valley, seasonal flooding was extensive along the Sacramento River and the lower reaches of its tributaries during large storms and spring runoff. Beginning in the early 1900s, levees and dikes were installed to protect landowners and farmers by controlling these natural flood flows. This effort resulted in a highly channelized and confined stream system, especially in the lower watershed, that has effectively eliminated the natural floodplain. The confined channels cause increased flow elevations that then create flooding of areas just upstream of bridges that become undersized because of the loss of floodplain. Compounding the loss of floodplain is the elevated flood stage heights of the Sacramento River caused by runoff from urban development throughout the drainage basin. The increased height of the river causes flows to back up and flood along tributary streams. This existing cumulative adverse condition is especially pronounced in the Natomas Cross Canal watershed, which receives flows from Pleasant Grove Creek, Auburn Ravine, Orchard Creek, Markham Ravine, and Coon Creek.

In 1993, PCFCWCD commissioned a flood mitigation study to address flooding issues in the Natomas Cross Canal watershed (PCFCWCD 1993). This study established volumetric stormwater retention requirements for projects in the watershed. To avoid aggravating flood conditions in the Natomas Cross Canal watershed, future projects must provide stormwater retention for the increased runoff generated by 100-year, 8-day storm. Additionally, federal and County regulations restrict future development within the 100-year floodplain. Future projects must demonstrate that they would not cause an increase in the 100-year flood elevation or create structures that could be damaged by flood. Finally, the SAP includes rigorous flood protection policies that effectively prohibit the placement of habitable structures within the 100-year floodplain (see discussion of Impact 4.9-5). Although the off-site volumetric retention facilities would be located within the 100-year floodplain, these facilities would be required to comply with federal and County floodplain regulation, would function to reduce downstream flooding, and would not include habitable structures.

Urban development and floodplain modifications have created an existing cumulative adverse condition relative to flooding in the lower Sacramento River Basin and especially in the Natomas Cross Canal watershed. However, the SAP, including the PRSP, and other potential projects within the watershed would be required to meet existing mitigation standards to prevent an increase in 100-year flood flows and would be subject to federal and County floodplain protection regulations. Therefore, implementing the SAP, including the PRSP, would not worsen or significantly contribute to existing cumulative adverse conditions related to 100-year floodplains and flood elevations. This impact would be **less than significant**.

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