4.12.1 PUBLIC UTLITIES - WATER

4.12.1.1 INTRODUCTION

This water analysis is based on information within the following documents:

- *Amoruso Ranch Study Area - Feasibility Analysis*, September 29, 2010 (City of Roseville, 2010b)
- *Amoruso Ranch Specific Plan (ARSP) Area – Water Master Plan*, February 2016 (Kimley Horn, 2016b; Included in **Appendix H**)
- *ARSP Area Recycled Water Master Plan*, Kimley-Horn, April 2016 (Kimley-Horn, 2016d; Included as **Appendix F**)
- *ARSP Area – Water Conservation Plan*, September 2015 (Kimley Horn, 2015b; Included in **Appendix G**)
- *Aquifer Storage and Recovery Program Final Environmental Impact Report (EIR),* March 2012 (City of Roseville, 2012a)
- *City of Roseville 2010 Urban Water Management Plan (UWMP)*, August 2011 (City of Roseville, 2011e)
- *City of Roseville General Plan 2025*, June 2015 (City of Roseville, 2015a)
- *Creekview Specific Plan (CSP) Final EIR*, April 2011 (City of Roseville, 2011a)
- *Sierra Vista Specific Plan (SVSP) EIR Technical Memorandum: Effects of Changed Water Management Operations on Fisheries and Water Quality Impacts Previously Disclosed in the Water Forum Proposal EIR*, Robertson-Bryan Inc. and HDR, October 2009
- *Water Forum Agreement (WFA) Final EIR*, October 1999 (Water Forum, 1999)
- *Water Supply Assessment (WSA) for the ARSP*, West Yost Associates, February 2016 (West Yost, 2016a; Included in **Appendix E**)
- *Water Supply Effects Analysis in Support of the ARSP EIR,* Robertson-Bryan, Inc. November 2015 (RBI, 2015; Included in **Appendix S**)
- *West Roseville Specific Plan (WRSP) Final EIR*, February 2004 (City of Roseville, 2004b)
- Western Placer County Groundwater Management Plan, November 2007 (MWH, 2007)

All of the above listed documents are available for review during normal business hours at:

City of Roseville Permit Center
311 Vernon Street
Roseville, CA 95678

In response to the Notice of Preparation (NOP; **Appendix C**), the City received comments from members of the public stating that the Draft EIR should address potential affects to existing wells. Refer to **Appendix C** of this EIR to view the comments received on the Proposed Project in response to the NOP.

4.12.1.2 ENVIRONMENTAL SETTING

City of Roseville

Water Supply

The City of Roseville would provide water service to the ARSP. Water for the City is primarily provided from the Federal Central Valley Project (CVP), owned and operated by the United States Bureau of Reclamation (USBR), which includes Folsom Lake. The City also has contracts with the Placer County Water Agency (PCWA) and the San Juan Water District (SJWD) to allocate additional water to the City for municipal and industrial (M&I) purposes. Additional water sources include recycled water for irrigation or cooling water and groundwater, which are used as a backup supply when surface water supplies are limited, such as during drought or emergency conditions. Each of the City's water supply sources is described in detail in the WSA (West Yost, 2016a) included as **Appendix E** and summarized below. Additional information on recycled water is included in **Section 4.12.2**, **Public Utilities – Recycled Water**.

In addition to the water supplies identified above, supplemental water is available through interties with the following agencies: SJWD, Sacramento Suburban Water District (SSWD), PCWA, the California American Water Company (CAW), and the Citrus Heights Water District (West Yost, 2016a). Interties are connections between purveyors' distribution systems that can be used to transfer water between agencies in the event of a water treatment plant (WTP) or conveyance system disruptions, in times of drought or as part of local operational needs.

Surface Water Supply

The City's current surface water supply is American River water diverted from Folsom Lake. Folsom Lake has been the primary source of water supply to the City since 1971 (West Yost, 2016a). Prior to 1971, the City relied on PCWA water delivered through the Boardman Canal to a treatment facility that was located in the eastern portion of the City and which is now a part of the Stoneridge Specific Plan Area. Additionally, prior to 1971, Roseville used groundwater from wells located in the older part of the City.

Surface water is now delivered from Folsom Lake via USBR facilities through a pumping plant and parallel 48-inch and 60-inch transmission lines to the City's WTP, located on Barton Road in Granite Bay. The rate at which the City can take water from USBR pumping facilities is limited to 150 cubic feet per second (cfs). This is equivalent to 96.9 million gallons per day (mgd). The City's water plant has a treatment capacity of 100 mgd. Water is treated through conventional treatment processes of flocculation/sedimentation, filtration, and disinfection. Treated water is fluoridated for consumer health, and pH is adjusted for corrosion protection of the distribution system.

The City has contracts for 66,000 acre-feet per year (AFY) of surface water through contracts with the USBR, PCWA, and SJWD. The City maintains a contract entitlement with the USBR for 32,000 AFY of CVP supplies. Roseville's water supply contract with PCWA allows for 30,000 AFY of American River Middle Fork Project (MFP) water wheeled through USBR facilities at Folsom Lake. Lastly, the City has a current contract with SJWD for 4,000 AFY in in normal years. The City's water supply contracts are further described within **Appendix E** and the City's 2010 UWMP (City of Roseville, 2011e). **Table 4.12.1-**

1 shows how the City intends to make use of its current water supply contracts over time (West Yost, 2016a).

Although water contract entitlements total 66,000 AFY, the City's diversions from the American River are limited by the WFA (Water Forum, 2000), a regional stakeholder effort concerned with the protection of the Lower American River and reliable water supplies, of which the City is a signatory. As described in more detail in **Section 4.12.1.3**, the Water Forum resulted in the development of purveyor-specific agreements that outline how suppliers will meet commitments agreed to as part of the Water Forum efforts. The goal of the Water Forum is to provide a safe and reliable water supply for the region and to protect the ecologic health of the Lower American River through 2030. Roseville's agreement includes a limitation of diversion from the American River in both wet and dry years. The Water Forum categorizes water years into three types: 1) Normal or Wet Years (normal/wet), 2) Drier Years, and 3) Driest Years (critically dry). These hydrologic year types are defined as follows:

- Normal or Wet Years: When the projected March through November American River Unimpaired Inflow to Folsom Reservoir is greater than 950,000 acre-feet (AF);
- Drier Years: When the projected March through November American River Unimpaired Inflow to Folsom Reservoir is between 950,000 AF and 400,000 AF; and,
- Driest (Critically Dry) Years: When the projected March through November American River Unimpaired Inflow to Folsom Reservoir is less than 400,000 AF.

TABLE 4.12.1-1
CITY OF ROSEVILLE SURFACE WATER CONTRACTS

Contracted Water Supply (AFY)	2015	2020	2025	2030	2035+
USBR (Central Valley Project supply)	32,000	32,000	32,000	32,000	32,000
PCWA (Middle Fork supply)	15,000	20,000	30,000	30,000	30,000
SJWD (Middle Fork supply)[a]	4,000	4,000	4,000	4,000	4,000
Total Contracted Supplies	51,000	56,000	66,000	66,000	66,000

a - San Juan Water District is only available as a Normal or wetter year supply.
Source: West Yost, 2016a (**Appendix E**).

In wet years the City agreed to limit diversions from its American River supply contracts to no more than 58,900 AFY in normal/wet years. In a driest years, the City's maximum diversion from the American River is limited to 39,800 AFY and PCWA would re-operate its reservoirs to release an offsetting amount of 20,000 AF into the American River. This 20,000 AF is not a part of the City's contracted supply of 66,000 AFY and is described in more detail below. In drier years, the City may divert an amount between a maximum of 54,900 AFY to a minimum of 39,800 AFY from the American River based on unimpaired inflow flow into Folsom Lake as long as a proportional re-operational release by PCWA is made in the drier years. The anticipated reliability of the surface water supplies in Normal, Single Dry, and Multiple Dry hydrologic conditions are shown in **Table 4.12.1-2**. As shown therein, either total surface water supply availability or Water Forum division limitations drive available water reliability. For example, in a Normal Year condition, the City currently has 66,000 AFY of water supply contracts, but the City's WFA limits diversion from the American River to 58,900 AFY. Therefore, in a Normal Wet Year the Water Forum drives City supplies. Comparatively, in a Single Dry Year, where it is assumed the City could

receive up to a 75 percent reduction in its CVP contracted supply (as seen during 2015), surface water allocations (38,000 AFY) drive supplies over the City's WFA that would limit surface water diversions to 39,800 AFY.

As described in the WSA (**Appendix E**), based on the historical hydrologic record the Water Forum used for their analysis (and for the WFA restrictions), the 58,900 AFY contract surface water supply is assumed to be available to the City in about 83 percent of the years. In the remaining 17 percent of years, supply quantities ranging from 54,900 AFY to 39,800 AFY of surface water would be available per the WFA or between 54,900 AFY to 38,000 AFY based on potential CVP water supply allocations. Thus, in drier and driest years, demands will be reduced through increased conservation measures and supplemental supplies (including groundwater or other supplies) potentially totaling up to 20,900 AFY (the difference between the normal/wet year supply and the single dry year supply allocation) would be needed to make up for the deficiencies in drier or critically dry years (West Yost, 2016a). The assumptions used by the Water Forum are consistent with the hydrologic record that shows that for the last 115 years of unimpaired inflow for the American River, there were 3 critically dry (driest) years and 16 drier years; in other words, 17 percent of the time (MCG, 2015b).

TABLE 4.12.1-2
CITY OF ROSEVILLE SURFACE WATER SUPPLY RELIABILITY

Contracted Water Supply	Normal Year	Single Dry Year [a]	Multiple Dry Years[b]		
			Year 1	Year 2	Year 3
USBR (Central Valley Project supply)	32,000	8,000	24,000	24,000	16,000
PCWA (Middle Fork supply)	30,000	30,000	30,000	30,000	30,000
SJWD (Normal year only – Middle Fork supply) [c]	4,000	—	—	—	—
Total Surface Water Supply Available	66,000	38,000	54,000	54,000	46,000
WFA Limitation Based on Hydrologic Record	58,900	39,800	51,394	58,900	45,426

a - Minimum American River diversion as outlined in the City's Water Forum Agreement is 39,800 AFY (See City 2010 UWMP Table 5.11). PCWA 2010 UWMP assumes full delivery of 30,000 AFY in Single Dry Years. USBR supplies vary and reached a minimum of 8,000 AFY in 2015. Total 2015 supplies were therefore 38,000 AFY, which is less than the WFA allowed American River diversions in critical dry years..
b - Based on the 1990 1992 historical hydrologic conditions. Unimpaired inflows during these years are used as the basis for determining water availability based on the WFA.
c - SJWD is available only as a normal or wetter year supply.
Source: West Yost, 2016a (**Appendix E**).

While the WFA limits the City of Roseville's diversion from Folsom Lake in driest years to no more than 39,800 AFY, the original goal was to limit all diversions from the American River to 1995 levels (baseline). City diversions in 1995 were 19,800 AF. Because annual M&I demands were projected to increase significantly between 1995 and 2030, it was agreed to that it was not feasible to reduce City diversions to 1995 levels. Therefore, the City agreed to offset a portion of its demand in drier and driest years by facilitating additional environmental releases of up to 20,000 AF of water into the American River (the difference between 39,800 AF and 1995 levels of 19,800 AF). Increased releases to the river would come either entirely from MFP storage or from a combination of the City's PCWA contract water and MFP

storage. The intent of MFP re-operational releases during drier and driest years is to mitigate environmental impacts resulting from increased diversions above the 1995 baseline amounts. By agreeing to release equivalent amounts of environmental mitigation water above the 1995 baseline, the City's environmental impacts were held to a minimum. Those impacts were identified in the WFA EIR and other measures listed in the Water Forum purveyor specific agreements (PSAs).

In addition to WFA limitations, the City's CVP supplies with USBR are subject to shortage provisions. In severe droughts the shortage provisions could result in City supplies falling below the lowest WFA limitations. If USBR calls for shortages in excess of 73 percent of the contracted USBR total of 32,000 AFY, then available untreated surface water availability would fall below the WFA threshold of 38,900 AFY. **Table 4.12.1-3** summarizes the total amount of surface water available under five different delivery scenarios: 100 percent, 75 percent, 50 percent, 25 percent, and zero percent. In 2015, USBR CVP allocation to the City was 25 percent of historical use, or nearly 25 percent of the City's full contracted amount. It is important to note that this table shows potential available water supplies but does not reflect potential American River division limitations under the City's WFA PSA which in dry years limits diversions from Folsom Reservoir between 54,900 AFY to 39,800 AFY.

TABLE 4.12.1-3
AVAILABLE CONTRACTED WATER SUPPLIES DURING SEVERE DROUGHT YEARS

Source	Time Frame	Percent Availability of USBR CVP Supply				
		100%	75%	50%	25%	0%
USBR Raw Water	Existing and Buildout	32,000	24,000	16,000	8,000	0
PCWA Raw Water	Existing and Buildout	30,000	30,000	30,000	30,000	30,000
PCWA Treated Water	Buildout Only	1,500	1,500	1,500	1,500	1,500
Total, Existing	Existing	62,000	54,000	46,000	38,000	30,000
Total, Buildout	Buildout	63,500	55,500	47,500	39,500	31,500

Note: Per the City's WFA PSA, the City may only divert from the American River 58,900 AFY in normal years and between 54,900 AFY t0 39,800 AFY in drier years. The PCWA Treated Water supply of 1,500 is available per PCWAs WFA PSA and is available in all years.
Source: West Yost, 2016a (**Appendix E**).

Future Water Supply Options

The City is evaluating options for increasing water supply reliability. This includes evaluating the potential of increasing surface water diversion points. One such option includes using the remaining 7,100 AFY of water (the difference between contracted supplies of 66,000 AFY and normal/wet year WFA limitation of 58,900 AFY) which would be delivered from a new diversion on the Sacramento River through the proposed Sacramento River Water Reliability Project (SRWRP), should the Proposed Project be completed. The SRWRP was originally conceived as a joint project between the City of Sacramento, SSWD, PCWA, the City of Roseville, and several other agencies. The SRWRP is now being conceived as a project that could include an even greater number of stakeholders. As discussed in **Section 4.12.1-1** and **Section 4.12.1-2**, below, the City is not proposing to use a surface water supply diversion point from the Sacramento River to serve the ARSP. However, this Sacramento River alternative is being considered to serve cumulative conditions in 2035. Therefore, additional information on the SRWRP is included within **Impact 4.12.1-7**.

Another option actively being pursued by the City is participation in the PCWA's Ophir WTP Project. This option would allow the City the greater flexibility in receiving its American River water supplies at a point upstream of Folsom Reservoir. As discussed in **Section 2.7.1**, the City is proposing to enter into an agreement with PCWA for wholesale treated water supplies from PCWA's Sunset/Foothills/Ophir water system to provide water supply for the ARSP. Additional information on the Ophir WTP Project is included within **Impact 4.12.1-7**.

Surface Water Supply Sources

The American River

The American River, from which the City of Roseville and PCWA draw surface water, is one of the major tributaries of the Sacramento River. The Feather River is the other. The American River watershed encompasses approximately 5,375 square miles and ranges in elevation from approximately 23 feet to 9,148 feet above mean sea level (msl; SRWP, 2010). The average annual flow of the American River at Fair Oaks (USGS Station No. 11446500) has been approximately 2.63 million AFY from 1956 through 2014 (USGS, 2015). It contributes about 15 percent of the total Sacramento River flow below its confluence in Sacramento (DWR, 2013a).

The largest reservoir in the watershed, Folsom Lake, is owned and operated by the USBR for the CVP and is discussed in detail below. Other major reservoirs upstream from Folsom Lake include the Union Valley Reservoir (277 thousand acre-feet [TAF]) on Silver Creek, which is owned and operated by SMUD, PCWA's Hell Hole Reservoir (208 TAF) on the Rubicon River, and French Meadows Reservoir (135 TAF) behind the L.L. Anderson Dam on the Middle Fork American River (SMUD and PG&E, 2005; SWRCB, 2004). Folsom Lake has dedicated capacity to store flood flows, and the property located adjacent to the Lower American River is protected by a levee system.

Folsom Reservoir

Folsom Reservoir (or Folsom Lake) has a maximum storage capacity of approximately 976,000 AF and a maximum depth of approximately 275.4 feet (USBR, 2009). Folsom Reservoir, is the farthest upstream CVP facility on the American River, and is located at an elevation of 466 feet above msl.

Folsom Lake is part of the Folsom Lake State Recreation Area (SRA), a 19,500-acre area encompassing Folsom Lake and Lake Natoma managed by the California Department of Parks and Recreation (DPR; California State Parks, 2013). The Folsom Lake SRA is one of the most heavily used recreation areas in the California State Park System because of its proximity to large urban areas, the diminishing open space of the area, and high regional interest in recreation. When full, the reservoir has a surface area of approximately 11,900 acres, 75 miles of undeveloped shoreline, and a surface elevation of 466 feet above msl (Water Forum, 1999).

Folsom Lake accommodates a variety of water-dependent recreational activities, including power and sail boating, camping, fishing, swimming, water skiing, jet skiing, and windsurfing. Major shoreline use areas are Beal's Point, Granite Bay, and Rattlesnake Bar on the western shoreline; Folsom Point (formerly Dyke 8) and Folsom Lake Marina at Brown's Ravine on the southern and eastern shorelines; and the Peninsula Campground between the north and south forks of the American River. Each of these areas contains a boat ramp and various other recreational facilities. Folsom Lake Marina at Brown's Ravine, the only

marina on Folsom Lake, is open year-round and has a main boat ramp, a low-water boat ramp, and 685 wet slips and 45 dry slips available for mooring (Water Forum, 1999). The recreation area has approximately 95 miles of trails for hikers, bicyclists, runners, and horseback riders (California State Parks, 2013).

Boating, sailing, and water skiing take place throughout the main reservoir area. Anglers fish from boats throughout the lake and especially in the upper arms of the reservoir, which are designated slow-boating zones. Fishing is mainly for coldwater species, such as rainbow trout (*Oncorhynchus mykiss*) and kokanee salmon (*O. nerka*), and warm water species, such as bass, catfish (*Ameiurus catus* & *Ictalurus punctatus*), and sunfish (*Lepomis cyanellus* & *L. microlophus*). Swimming and sunbathing take place at many undesignated areas along the reservoir shoreline.

The water level at Folsom Lake dictates the length of the recreation season. During years with normal precipitation, the main recreational season is May through Labor Day in September, when recreation is primarily focused on water-dependent activities. During the remaining months of the year, use consists of fishing and land-based recreation (California State Parks, 2015). Water-dependent activities account for nearly 85 percent of recreation use at Folsom Lake. Boating is the most popular activity at the reservoir, followed by swimming and fishing (Water Forum, 1999).

With respect to its qualities as fish habitat, strong thermal stratification occurs within Folsom Reservoir annually between April and November. Thermal stratification establishes a warm surface water layer (epilimnion), a middle water layer characterized by decreasing temperature with increasing depth (metalimnion or thermocline), and a bottom, coldwater layer (hypolimnion) within the reservoir. In terms of aquatic habitat, the warm epilimnion of Folsom Reservoir provides habitat for warm water fishes, whereas the reservoir's lower metalimnion and hypolimnion form a "coldwater pool" that provides habitat for coldwater fish species throughout the summer and fall portions of the year. Hence, Folsom Reservoir supports a “two-story” fishery during the stratified portion of the year (April through November), with warm water species (both centrarchids and ictalurids) using the upper, warm-water layer and coldwater species using the deeper, colder portion of the reservoir (Water Forum, 1999).

Native species that occur in the reservoir include hardhead (*Mylopharodon conocephalus*) and Sacramento pikeminnow (*Ptychocheilus grandis*). However, introduced largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), bluegill (*L. macrochirus*), crappie (*Pomoxis annularis & Pomoxis nigromaculatus*), and catfish constitute the primary warm-water sport fisheries of Folsom Reservoir. The reservoir’s coldwater sport species include rainbow and brown trout (*Salmo trutta*), kokanee salmon and Chinook salmon (*O. tshawytscha*), all of which are currently or have been stocked by the California Department of Fish and Wildlife (CDFW). Although brown trout are no longer stocked, a population still remains in the reservoir. Salmonids are stream spawners and, therefore, do not reproduce within the reservoir. However, some spawning by one or more of these species may occur in the American River upstream of Folsom Reservoir (Water Forum, 1999).

Folsom Reservoir’s coldwater pool is important not only to the reservoir’s coldwater fish species identified above, but also is important to lower American River fall-run Chinook salmon and steelhead (*Oncorhynchus mykiss*). Seasonal releases from the reservoir’s coldwater pool provide thermal

conditions in the lower American River that support annual in-river production of these salmonid species. Folsom Reservoir's coldwater pool is not large enough to allow for both coldwater releases during the warmest months (July through September) to provide maximum thermal benefits to lower American River steelhead and also coldwater releases during October and November that would maximally benefit fall-run Chinook salmon immigration and holding, spawning, and embryo incubation. Consequently, management of the reservoir's coldwater pool on an annual basis is essential to providing thermal benefits to both fall-run Chinook salmon and steelhead, within the constraints of coldwater pool availability (Water Forum, 1999).

Lower American River

The lower American River extends for 23 miles from Lake Natoma to its confluence with the Sacramento River. The river passes through the American River Parkway, a 5,000-acre open space corridor that includes a series of interconnected parks along the publicly owned lands of the river. The parkway has 14 county parks that provide user access, and the 32-mile Jedediah Smith Memorial Trail, that provide bicycling, hiking, and horseback-riding opportunities from Discovery Park to the Folsom Lake SRA. The lower American River is a major site for recreational boating (rafting, kayaking, and canoeing), fishing, swimming, and wading. Boating activity, particularly commercial rafting, depends primarily on air temperature, river flows, and season of the year. The most popular reach for rafting is from Sunrise Boulevard to Goethe Park. There are several popular swimming areas along the river, including Paradise Beach and Tiscornia Park, both with large sand beach areas. Both shoreline and boat fishing take place throughout the river. Anglers fish mainly for salmon, steelhead, and shad (*Alosa sapidissima* & *Dorosoma petenense*). Fishing is permitted year-round within the parkway, except during fall and early winter when the river is closed from Ancil Hoffman Park on the west to the Hazel Avenue Bridge on the east to protect spawning fish (Water Forum, 1999).

Parkway visitation in 1997 was estimated at six million visitor-days. Visitation is expected to increase to 9.6 million visitor-days by 2020, assuming river flows are stable. Boating, particularly rafting, is the most popular water-dependent activity on the river, followed by fishing and swimming (Water Forum, 1999).

The American River has historically provided over 125 miles of riverine habitat to anadromous and resident fish. Presently, use of the American River by anadromous fish is limited to the 23 miles of river below Nimbus Dam (the lower American River; Water Forum, 1999).

The lower American River provides a diversity of aquatic habitats, including shallow, fast-water riffles, glides, runs, pools, and off-channel backwater habitats. The portion of the lower American River from Nimbus Dam (river mile [RM] 23) to approximately Goethe Park (RM 14) is primarily unrestricted by levees, but is bordered by some developed areas. Natural bluffs contain this reach of the river and terraces cut into the side of the channel. The river reach downstream of Goethe Park, and extending to its confluence with the Sacramento River (RM 0), is bordered by levees. The construction of levees changed the channel geomorphology and has reduced river meanders and increased depth (Water Forum, 1999).

At least 40 species of fish have been reported to occur in the lower American River system, including numerous resident native and introduced species, as well as several anadromous species (SRWP,

2015a). Although each fish species fulfills an ecological niche, several species are of primary management concern either as a result of their declining status or their importance to recreational and/or commercial fisheries. Both steelhead, listed as "threatened" under the Federal Endangered Species Act (FESA), and Sacramento splittail (*Pogonichthys macrolepidotus*), a California species of special concern, occur in the lower American River. Additionally, the lower American River from the outfall of the Natomas East Main Drainage Canal (NEMDC, and also known as Steelhead Creek) downstream to the confluence with the Sacramento River is designated as critical habitat for spring-run Chinook salmon (70 FR 52510).[1]

Recreationally and/or commercially important anadromous species include fall-run Chinook salmon, steelhead, striped bass (*Morone saxatilis*), and American shad (Water Forum, 2005).

The Sacramento River

The Sacramento River is the largest river in California, providing water for municipal, agricultural, recreational, and environmental purposes throughout Northern and Southern California. Water originating from the upper Sacramento River drainages represents a significant component of the total CVP supply, which provides high-quality water to meet downstream urban and agricultural demands (Water Forum, 1999). The Sacramento River Basin includes irrigated agriculture, wetlands, and riparian habitats that dominated the Sacramento Valley floor and annual grasslands and oak woodland east and west of the valley (SRWP, 2015b).

The average annual flow of the Sacramento River at Verona (upstream of the confluence with the American River; USGS Station No. 11425500) has been approximately 14.16 million AFY from 1946 through 2014 (USGS, 2015). The Sacramento River is the primary water source for the CVP, which operates major storage reservoirs in the foothills and watershed uplands. These reservoirs include Shasta Lake with 4,552 TAF in the Sacramento River basin, Whiskeytown Lake (241 TAF) and Trinity Lake (2,448 TAF) in the Trinity River basin, and Black Butte Reservoir (130 TAF) in the Stony Creek basin (USBR, 2012; SRWP, 2015c).

The Sacramento River enters the Delta near Freeport (USGS Station No. 11447650), downstream of its confluence with the American River, where its average annual flow has been approximately 16.7 million AFY from 1949 to 2014 (USGS, 2015). Most flood flows from the upper Sacramento River, Feather River, and Sutter Bypass are diverted west of Freeport and the Sacramento area into the Yolo Bypass through the Fremont Weir at Verona. During the highest flood flows, gates at the Sacramento Weir are opened to divert flow into the Yolo Bypass and provide an additional layer of flood protection for the Sacramento area. The Yolo Bypass conveys excess flows to a point above the City of Rio Vista, where it returns flows to the Sacramento River. Property adjacent to the Sacramento River and its bypasses is also protected from flood damage by an extensive levee system (DWR, 2012).

[1] As described in National Marine Fisheries Service (NMFS) 2005 Final Rule Designating Critical Habitat for Seven Evolutionarily Significance Units of Pacific Salmon and Steelhead in California (70 FR 52510), NMFS identifies the reach of the lower American River from the outlet of the Natomas Main Drainage Canal downstream to the confluence with the Sacramento River as spring-run Chinook salmon critical habitat because it is believed to support nonnatal rearing. In its Final Rule, NMFS further states that the lower American River may be used during high winter flows for rearing and refugia by multiple populations of spring Chinook in the central valley (e.g., Feather and Yuba Rivers).

Over 30 species of fish are known to use the Sacramento River. Of these, a number of both native and introduced species are anadromous. Anadromous species include Chinook salmon, steelhead, green and white sturgeon, striped bass and American shad. Other Sacramento River fishes are considered resident species, which complete their lifecycles entirely within freshwater, often in a localized area. Resident species include rainbow and brown trout, largemouth and smallmouth bass, channel catfish (*I. punctatus*), sculpin (*Cottus asper* & *Cottus gulosus*), Sacramento pikeminnow, Sacramento sucker (*Catostomus occidentalis*), hardhead, and common carp (*Cyprinus carpio*) (Water Forum, 1999).

The Sacramento River Watershed Program (SRWP) has identified the following primary water quality issues in the Sacramento Valley Subregion of the Sacramento River Watershed: pesticide contamination of surface and groundwater from agricultural and urban sources, nitrate contamination of groundwater, sediment binding pesticides that bioaccumulate through the food chain, abandoned mines and discharge of heavy metals, mercury from legacy mining operations and natural sources, urban runoff, and operations of damns and diversions that affect streamflow and water quality (SRWP, 2015d).

Upper Sacramento River

The upper Sacramento River is often defined as the portion of the river from Princeton (RM 163) the downstream extent of salmonid spawning in the Sacramento River, to Keswick Dam (the upstream extent of anadromous fish migration and spawning). The Sacramento River is an important migration corridor for anadromous fishes moving between the Pacific Ocean or the Delta and upper river and tributary spawning and rearing habitats. The upper Sacramento River is differentiated from the river's "headwaters" which lie upstream of Shasta Reservoir. The upper Sacramento River provides a diversity of aquatic habitats, including fast-water riffles and shallow glides, slow-water deep glides and pools, and off-channel backwater habitats (Water Forum, 1999).

Streamflow is greatly influenced by managed releases from Shasta Reservoir and, during the rainy season, by stormwater runoff. The stream channel is in a natural state, with no artificial levees. The drainage basin area includes parts or all of the Great Basin, Middle Cascade Mountains, Klamath Mountains, Coast Ranges, and Sacramento Valley physiographic provinces. Land cover in the area is mainly forestland; cropland, pastures, and rangeland cover most of the remaining land area. Water quality effects from past and present mining activities in the Klamath Mountains are likely to be detected at this location (USBR, 2003).

The upper Sacramento River is of primary importance to native anadromous species, and is presently utilized for spawning and early-life-stage rearing, to some degree, by all four runs of Chinook salmon (fall-, late fall-, winter-, and spring-runs) and steelhead. Consequently, various life stages of the four runs of Chinook salmon and steelhead can be found in the upper Sacramento River throughout the year (Water Forum, 1999).

Lower Sacramento River

The lower Sacramento River is generally defined as that portion of the river from Princeton to the Delta, at approximately Chipps Island (near Pittsburg). The lower Sacramento River is predominantly channelized, leveed, and bordered by agricultural lands. Aquatic habitat in the lower Sacramento River is

characterized primarily by slow-water glides and pools, is depositional in nature, and has reduced water clarity and channel habitat diversity compared to the upper portion of the river (Water Forum, 1999).

Many of the fish species utilizing the upper Sacramento River also use the lower river to some degree, even if only as a migratory pathway to and from upstream spawning and rearing grounds. For example, adult Chinook salmon and steelhead primarily use the lower Sacramento River as a migration route to upstream spawning habitats and an emigration route to the Delta. The lower river is also used by other fish species (e.g., Sacramento splittail and striped bass) that make little to no use of the upper river (upstream of RM 163). Overall, fish species composition in the lower portion of the Sacramento River is quite similar to that of the upper Sacramento River and includes resident and anadromous cold- and warmwater species. Many fish species that spawn in the Sacramento River and its tributaries depend on river flows to carry their larval and juvenile life stages to downstream nursery habitats. Native and introduced warmwater fish species primarily use the lower river for spawning and rearing, with juvenile anadromous fish species also using the lower river and non-natal tributaries, to some degree, for rearing (Water Forum, 1999).

Sacramento – San Joaquin Delta Estuary

Below its confluence with the American River at Sacramento, the Sacramento River enters the Delta at Freeport, merges with the San Joaquin River, and then flows through San Francisco Bay to the Pacific Ocean. The Delta is defined as the most upstream portion of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Estuary or Estuary), and consists of a triangle-shaped area composed of islands, river channels, and sloughs at the confluence of the Sacramento and San Joaquin rivers. The Delta forms the lowest part of the Central Valley, bordering and lying between the Sacramento and San Joaquin rivers and extending from the confluence of these rivers inland as far as Sacramento and Stockton. The Delta is the source of drinking water for more than 23 million Californians in the San Francisco Bay Area, Central Valley, and Southern California (USBR, 2013). The Delta is also an important agricultural area for corn, grain, hay, rice, and pasture. Although much of the Delta is used for agriculture, the land also provides habitat for wildlife. Many agricultural fields are flooded in the winter, providing foraging and roosting sites for migratory waterfowl. In addition to lands that are used seasonally, CDFW manages thousands of acres, including Lower Sherman Island and White Slough wildlife areas, Woodbridge Ecological Reserve, and Palm Tract Conservation Easement, specifically for wildlife (SWRCB, 1999).

On average, about 21 million AF of freshwater reach the Delta annually. About 80 percent of total Delta inflow is from the Sacramento River, including flood flows in the Yolo Bypass. Actual Delta inflow varies widely from year to year. In 1977, a critically dry year, Delta inflow totaled only 5.9 million AF, while in 1983, a wet year, the total was about 70 million AF (USBR, 2007). Both the CVP and State Water Project (SWP) export water to the San Joaquin Valley and Southern California through the Jones and Banks pumping plants located in the south Delta. Like upstream areas vulnerable to flooding, the property adjacent to the Delta is protected by an extensive levee system (DWR, 2013b).

San Francisco Bay (Bay) and the Delta (together Bay-Delta) make up the largest estuary on the west coast. The northern Delta is dominated by the waters of the Sacramento River, which are of relatively low salinity; whereas the relatively higher salinity waters of the San Joaquin River dominate the southern

Delta. The central Delta includes many channels where waters from the Sacramento and San Joaquin rivers and their tributaries converge. The Delta includes the river channels and sloughs at the confluence of the Sacramento and San Joaquin rivers (USBR, 2007). Details regarding the facilities and water bodies associated with the Delta and the fisheries resources they support are provided below.

The Delta's tidal-influenced channels and sloughs cover a surface area of approximately 75 square miles. These waters support a number of resident freshwater fish and invertebrate species. The waters are also used as migration corridors and rearing areas for anadromous fish species and as spawning and rearing grounds for many estuarine species. Shallow-water habitats, defined as waters less than three meters in depth (mean low water) are considered particularly important forage, reproduction, rearing, and refuge areas for numerous fish and invertebrate species. The Bay-Delta estuary provides habitat for a diverse assemblage of fish and macroinvertebrates. Many of the fish and macroinvertebrate species inhabit the estuary year-round, while other species inhabit the system on a seasonal basis as a migratory corridor between upstream freshwater riverine habitat and coastal marine waters, as seasonal foraging habitat, or for reproduction and juvenile rearing (USBR, 2007).

There have been over 100 documented introductions of exotic species to the Bay-Delta estuary. These include intentionally introduced game fishes such as striped bass and American shad, as well as inadvertent introductions of undesirable organisms such as the Asian and Asiatic clams (*Corbicula fluminea*) (USBR, 2007).

Central Valley Project

The CVP provides water supply to meet in-basin needs and exports for areas south of the Delta. The CVP is a multipurpose project operated by USBR that stores and transfers water from the Sacramento River, San Joaquin River, and Trinity River basins to the Sacramento, San Joaquin, and Santa Clara valleys. The CVP was authorized by Congress in 1937, and operates as an integrated system to serve water supply, hydropower generation, flood control, navigation, fish and wildlife, recreation, and water quality control purposes. The CVP service area extends about 430 miles through much of California's Central Valley, from Trinity and Shasta reservoirs in the north to Bakersfield in the south. The CVP also includes the San Felipe Unit, which delivers water to the Santa Clara Valley (Water Forum, 1999). In water year 2013 (October 2012 through September 2013), CVP deliveries totaled approximately 4.76 million AF, or about 50 percent of its total contracted deliveries of 9.51 million AF (USBR, 2015). As noted earlier, the City of Roseville has a contract with USBR for up to 32,000 AFY of CVP water diverted from Folsom Reservoir.

Groundwater Supply

The City of Roseville overlies a portion of the North American Sub-basin (Sub-basin); a groundwater sub-basin of the Sacramento Valley Basin. A description of the regional groundwater sub-basin and groundwater recharge is provided in **Section 4.13**, **Hydrology and Water Quality**.

The California Department of Water Resources (DWR) has not identified the sub-basin to be in an overdraft condition, however it has identified it as a high-priority basin due to regional growth potential. Groundwater levels in southwestern Placer County and northern Sacramento County have generally decreased between 1947 through 1997. Many wells experienced declines at a rate of about 1.5 feet per

year with some of the largest decreases occurring in the area of McClellan Air Force Base. Groundwater elevations have risen due to extensive groundwater banking in Sacramento County. Historical data indicates that after 1997 water levels seem to have stabilized, indicating that the sub-basin is in a state of equilibrium. Groundwater levels in Sutter and northern Placer Counties have generally remained stable.

In August 2007, the Cities of Roseville and Lincoln, along with PCWA and CAW, published the Western Placer Groundwater Management Plan (GMP; MWH, 2007). The GMP was prepared in an effort to maintain a safe, sustainable, and high-quality groundwater resource to meet backup, emergency, and peak demands within a zone of the North American Sub-basin (West Yost, 2016a). To further ascertain the health of the underlying groundwater basin, GEI Consultants completed a safe-yield analysis in 2013 for the Western Placer GMP partners. The analysis concluded that the portion of the groundwater basin under Placer County has approximately 800,000 AF of storage. It was found that the sustainable yield in Placer County is approximately 100,000 AFY. This accounts for 7,000 AFY leaving western Placer County and entering the pumping depression in Sacramento County (GEI, 2013).

Although the City of Roseville does not rely on groundwater in most years, groundwater is part of its water supply portfolio. The primary purpose for developing groundwater resources is to increase the City's water supply reliability during drier and driest years. The City's WFA acknowledges extraction of up to 6,600 AFY of groundwater during the drier and driest year types but did not specify any groundwater extraction limits. The last instances of groundwater used to address drought conditions occurred in 1991 and again in 2014[2]. Limited groundwater extraction has also taken place during the City's Aquifer Storage and Recover pilot program studies as further described below.

In 2012, the City Council finalized and approved the EIR for the Aquifer Storage and Recovery (ASR) program, and an operational permit from the Central Valley Regional Water Quality Control Board was obtained in early 2013. The ASR Program EIR is incorporated into this document by reference, as described within **Section 1.4** of this EIR. The ASR program allows the City to store treated surface water (potable water) in the aquifer for use when it is needed (i.e. during a drought). Under this program, surface water is injected into the aquifer during normal or wet times (when excess water is available), and then banked water is extracted from City wells during dry years when surface water supplies are reduced. This water mitigates future draws on the groundwater basin during dry years. The minimum amount of water available for injection could be as low as 0 AF a year during a critically dry year or in excess of 13,000 AF during a wet year based on population demand and a 20 percent conservation factor as mandated by State law. In years where there is little or no injection, extraction will most likely occur, offsetting significant reductions in surface water supplies. As the City approaches buildout conditions, when all water supply contracts are being utilized to meet municipal demands, the amount of water available for injection would decrease. The City extracted 439 AF of groundwater in Phase 1 pilot testing (September 2004) and 2,140 AF during Phase 2 pilot testing (February 2008) after banking over 1,000 AF between the two pilots (City of Roseville, 2012b). Over the five year period between 2008 and 2013, the City extracted 410 AF but has injected 2,186 AF as part of its ongoing banking program.

The City currently has three groundwater wells in Zone 4 designed and equipped to both inject treated surface water and extract groundwater and three groundwater wells in Zone 1 that are only equipped to

[2] Groundwater wells were operational from January 27, 2014 through February 28, 2014 (City of Roseville, 2015d).

extract water. The City's groundwater wells are located primarily on the City's western side. Well sites average between 0.5 and 1 acre, and are currently in varying stages of development. The existing six groundwater wells have extraction capacity of approximately 16,000 AFY if run continuously. A more realistic production amount is 40 AF per day (1,500 gallons per minute [gpm] per well) over limited time frames to augment the water supply (West Yost, 2016a). Information regarding existing City well facilities is described in **Table 4.12.1-4**. The City has plans to expand its groundwater well network to include ten additional groundwater well sites that have been identified. Once constructed, the City's groundwater facilities (16 wells) are projected to deliver of up to 106.07 AF per day (6.63 AF per day per well) or 38,715 AFY, if run on a continuous basis (West Yost, 2016a).

TABLE 4.12.1-4
EXISTING MUNICIPAL WELL FACILITY INFORMATION

Facility Name	Installation/ Rehab Date	Well Depth (feet)	Rated Capacity (Gallons per Minute)	Service Zone
Darling Way (Well # 4)	1958/1999	303	1,000	1
Oakmont (Well # 5)	1978/1999	360	1,950	1
Diamond Creek (Well # 6)	2002	323	2,700	4
Woodcreek North (Well #7)	2008	450	1,800	1
Hayden Parkway (Well #8)	2006/2013	520	1,750	4
Del Webb (Well #12)	2013	478	1,750	4
Source: City of Roseville, 2015e.				

Recycled Water Supply

Recycled water refers to wastewater treatment plant (WWTP) effluent that has received a level of treatment that meets the State requirements (Title 22) for direct non-potable reuse (for example, irrigating landscaping). Recycled water is part of the City's water supply portfolio and is available from Roseville's two WWTPs, the Dry Creek WWTP (DCWWTP), and the Pleasant Grove WWTP (PGWWTP). Both plants produce a Title 22 quality effluent that is available for recycled water applications. The regional recycled water system currently serves approximately 2,216 AFY of recycled water to parks, streetscapes, and golf course customers within and outside of the City limits. The City also supplies recycled water for cooling purposes to the Roseville Energy Park. System expansion is planned for more intensive use of recycled water in the western portion of the City as new development occurs. Recycled water demands within the City are expected to increase to a total recycled water demand of 4,491 AFY at build out of the City's existing General Plan (West Yost, 2016a). The City's recycled water system is described in **Section 4.12.2**, **Public Utilities – Recycled Water**.

Water Supply Reliability

The City of Roseville currently supplies surface water for M&I uses, which requires firm surface water contract amounts to ensure that proper supplies are maintained for the residences and businesses relying on the water supply (City of Roseville, 2011e). The City estimates that during normal/wet years, the City of Roseville has sufficient surface water to meet its customers' needs through buildout of the current General Plan. This is based on a continued commitment to regional planning for water supplies, ongoing conservation efforts, and additional recycled water use for landscaping.

Based on over 70 years of historical hydrology of the American River, an analysis was performed as part of the WFA. That analysis concluded that the City's contract surface water supply would be available pursuant to the City's purveyor-specific WFA. In times of drought and water shortage, the Water Forum analysis also assumed that urban demand would decrease as a result of increased conservation awareness and regulations and supplies would be supplemented with groundwater. It is expected that if the supply were to be reduced due to shortage, consistent with reductions identified in the WFA, existing surface water supply, combined with conservation and groundwater use, will be sufficient to meet citywide demands (City of Roseville, 2011e). The City's water system is completely "on-demand," as is typical of many urban water systems. During normal years, water supplies from Folsom Lake are sufficient to meet the City's contractual amounts, and the City has sufficient quantities, either directly from USBR or wheeled through Folsom Lake from PCWA, to meet the needs of the community. During times of drought, water allocations may be reduced, resulting in restrictions on all water used within the City and the increased use of groundwater. The City has developed policies to address the potential of water shortages as described below (City of Roseville, 2011e).

Shortage Contingency Plan

The City has considered probabilities of shortage and outages that could affect water supply as part of its UWMP. This Water Shortage Contingency Plan notes that long-duration shortages are handled through implementation of a drought contingency plan, and short-term disruptions are addressed through use of existing system storage and interties with adjacent jurisdictions. In the event these supplies are not sufficient or available to meet short-term needs, groundwater can be used to supplement the required demand (City of Roseville, 2011e).

The Water and Energy Conservation component of the City of Roseville General Plan encourages resource conservation and protection, and the City provides an information program to encourage conservation. The City has implemented various strategies and plans to minimize the use of potable water in order to operate effectively under drought conditions (City of Roseville, 2011e).

In 1991, the City developed and adopted the Roseville Water Conservation and Drought Mitigation Ordinance. This ordinance was updated in 2013 and more recently in May 2015 (Ord. No. 5491). Under this ordinance, the City has authority to declare water shortage conditions and implement drought related mitigation measures. The City can initiate this process by declaring a drought stage (Stage One through Stage Five) and imposing the appropriate and corresponding drought response measures. For example, Stage One prohibits washing of streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes and places restrictions on serving water in restaurants. Under Stage Two, additional conservation measures would be imposed. Depending on the severity, Stage Three, Four, and Five drought restrictions and the use of groundwater could also be initiated. With the 2015 ordinance update, the City established seasonal irrigation schedules that range from 0 days per week for watering to up to 3 days per week, depending on time of year and stage level (City of Roseville, 2011e). The water shortage stages, and their respective anticipated reduction in potable water demand, are shown in **Table 4.12.1-5**.

TABLE 4.12.1-5
CITY OF ROSEVILLE WATER SHORTAGE CONTINGENCY PLAN PROJECTED DEMAND REDUCTION

Water Shortage Stage Description	Projected Demand Reduction (percent)
Baseline Water Conservation	0
Stage 1 Drought	10
Stage 2 Drought	20
Stage 3 Drought	30
Stage 4 Drought	40
Stage 5 Drought	50
Source: West Yost, 2016 (**Appendix E**).	

By way of example, on March 24, 2014, the city entered into a Stage Two level of drought. The City upgraded to a Stage Three level of drought in May 2015 to comply with the State mandates for conservation requirements. The State required the City of Roseville to reduce water usage by 28 percent over 2013 water use levels (West Yost, 2016a). Between June 1, 2015 and end of December 2015, the City has reduced its water use over 2013 levels by 35.9 percent.

The City also established a Water Efficient Landscape Ordinance (WELO) in compliance with the Water Conservation in Landscaping Act of 2006 (AB 1881). This ordinance was approved by the City Council on November 4, 2009 (Ord No. 4786) and amended on November 19, 2014 (Ord. No. 5428). As mandated by recent amendments at the state level, the City will be updating its WELO with additional restrictions in spring 2016.

Water Demand

Water demand is the amount of water required to serve customers on an annual basis. The City measures this amount of water in AFY. One acre-foot of water is the volume of water that covers an acre of land one foot deep, and is equivalent to 325,851 gallons. Total water demand for buildout of the City's existing General Plan was developed using unit demand factors developed in 2002 by Montgomery Watson Harza for the WRSP, which are measured in gallons per day per dwelling unit (GPD/DU) or per acre (GPD/AC) for non-residential uses. The City conducted additional studies in 2006 and 2008 to confirm the unit demand factors using the history of available water meter data from City customers. These water demand factors are provided in **Table 4.12.1-6**.

City water demands are categorized as potable demands and recycled water demands. Potable demand refers to the portion of total water that is used for human consumption and related activities such as indoor water use, as well as irrigation when recycled water is not available. Potable water demands are typically met by surface water supplies and are supplemented by groundwater supplies when there is a significant shortage of surface water. Recycled water is tertiary treated wastewater. It is part of the City's water supply portfolio, and is used primarily for irrigation purposes. Net potable demands are calculated by subtracting estimated recycled water use from the total water demand. Anticipated recycled water demand is calculated based upon estimates of irrigated areas as described in **Section 4.12.2**, **Public Utilities – Recycled Water**.

TABLE 4.12.1-6
WATER DEMAND FACTORS

Residential Land Use Categories	Unit Demand Factor (GPD/DU)
LDR1 (<3.5 DUs/ Acre)	728
LDR2 (3.5 to 5 DUs/ Acre)	600
LMDR1 (>5.0 to 6.0 DUs/ Acre)	521
LMDR2 (>6.0 to 8.0 DUs/ Acre)	430
MDR (>8.0 to 12.0 DUs/ Acre)	323
HDR1 (>12.0 to 16.0 DUs/ Acre)	288
HDR2 (>16.0 DUs / Acre)	177
Non Residential Land Use Category	**Unit Demand Factor (GPD/AC)**
Community Commercial/ Retail	2,598
Business Professional	2,598
Light Industrial	2,598
Industrial	2,562
Railyard	109
Elementary School	3,454
High School	4,069
Public Quasi-Public	1,780
Parks	2,988
Open Space/ Right of Way	0

Notes: GPD/DU = gallons per day per dwelling unit; GPD/AC = gallons per day per acre
Source: West Yost, 2016a (**Appendix E**).

The City's total water demand in 2013 was 37,001 AFY. This included 34,138 AFY of surface water supplies and 2,040 AFY of recycled water use within the City (MCG, 2015a). At buildout of the City's General Plan, water demands are estimated to reach 63,081 AFY. Of this amount 4,491 AFY will be met by recycled water supplies leaving the remaining, 58,590, to be met by surface water supplies (West Yost, 2016a). At buildout, the City's remaining available potable water supply is estimated to be approximately 310 AFY (58,900 AFY supply – 58,590 AFY demand) during normal/wet year conditions.

Potable Water Treatment

The City of Roseville operates a 100-mgd WTP. The City's WTP is located on Barton Road in the Granite Bay community of Placer County. Raw (untreated) surface water from Folsom Lake is conveyed from the USBR facilities to the City's WTP for treatment. USBR raw water delivery facilities are described in the Water Distribution section below. Raw water treatment consists of these primary processes; flocculation/sedimentation, clarification, filtration and disinfection. Following these processes the treated water is fluoridated prior to distribution to City water customers (City of Roseville, 2011e). The Barton Road plant treated up to 50.3 mgd on a single day in 2013. The highest daily treatment rate occurred in 2006 at 60.1 mgd.

Water Distribution

The City's water distribution system consists of (1) raw water facilities to deliver surface water supplies to the City's WTP, (2) potable water facilities that deliver potable water to City water customers, and (3) a recycled water distribution system, which is described in **Section 4.12.2**, **Public Utilities –Recycled Water**.

Raw Water Facilities

The raw water facilities consist of both infrastructure owned and operated by the USBR and infrastructure owned and operated by the City of Roseville. USBR facilities include an 84-inch intake pipeline and pumping plant. The pumping plant has sufficient capacity for SJWD, Roseville and portions of the City of Folsom. Roseville pumping capacity limits are 150 cfs (96.9 mgd). Once through the pumping station, water is conveyed through an 84-inch pipeline and a 72-inch parallel pipeline to the "Hinkel Y" where the flows are split to SJWD and Roseville. Raw water for Roseville then flows through parallel raw water pipelines to the City's Barton Road WTP. These pipelines consist of parallel 60-inch pipelines followed by parallel 60-inch and 48-inch pipelines. The raw water is then introduced at the influent portion of the Barton Road plant for treatment (City of Roseville, 2011e).

Potable Water Facilities

The City's potable water facilities are comprised of pipes, water storage facilities, booster pumping stations, groundwater wells and pressure regulating stations. Distribution piping in the City ranges from as large as 66-inch diameter to as small as 4-inch diameter. The City designs its distribution system to meet various pressure and velocity criteria under average day, maximum day and peak hour delivery scenarios. In general, the City's system meets the maximum day demand criterion of six feet per second (fps) for transmission main velocity (i.e., the rate at which water flows through the pipelines) and the water pressure criterion of 50 pounds per square inch (psi). There are a few locations where these criteria are not met, but these discrepancies are minimal and do not adversely affect water service to customers (City of Roseville, 2011e).

The City has six storage tanks with a combined total storage capacity of 32 million gallons (mg). Water storage is necessary in order to manage flow fluctuations on a daily basis and maintain sufficient storage to address emergency needs, such as water main breaks, and high water needs, such as firefighting activities (City of Roseville, 2011e).

The City currently has two pumping stations in the City, is in the process of commissioning two new booster stations, and has plans for two more. The existing stations are the Dual Purpose Pump Station (DPPS) and the Highland Reserve North Pump Station (HRNPS). As the name implies, the DPPS provides two distinct functions: filling the City's North East Storage Reservoirs during off-peak demand periods and boosting water pressures into higher elevation areas in and adjacent to the Stoneridge Specific Plan Area of the City. Similarly, the HRNPS allows the City to boost water pressures into higher elevation portions of the Highland Reserve North Specific Plan Area (City of Roseville, 2011e). The City is finalizing construction and commissioning two new booster pump stations. The first, located along PFE Road will allow the city to access water supplies from the SSWD. The second booster pump station is located on Pleasant Grove Boulevard near Mahaney Park near the Pressure Zone 1 and Pressure Zone

4 boundary. This pump station will allow the City to move groundwater supplies produced in Zone 4 to Zone 1. Both booster stations have been tested and are operational. . Future water storage tanks and associated pump stations are planned for construction within the WRSP and the SVSP Areas to service customers in the western portion of the City (City of Roseville, 2011e).

Groundwater facilities are also part of the City's water supply system. The City currently has six operational wells and has plans to construct an additional ten wells over time. These facilities are described previously in this section (see **Table 4.12.1-2**).

Placer County Water Agency

The PCWA was created in 1975 by a special Act of the State Legislature (PCWA Act). This Act gives the PCWA countywide authority with regard to water. The PCWA boundary includes 1,400 square miles within Placer County. PCWA is also designated as a local agency and an independent "special district" encompassing all of Placer County. PCWA carries out a broad range of responsibilities, including water resource planning and management, retail and wholesale supply of irrigation water and drinking water, and production of hydroelectric energy. In addition to providing untreated surface water to the City of Roseville, PCWA is a participating agency for the West Placer GMP. The City is in discussions with PCWA for treated surface water supplies to serve the project site. Both specific plans are new urban growth areas being planned by the City.

PCWA is comprised of 5 different service zones. Zones 1, 2, 3, and 5 comprise the Western Water System or Western Area, while Zone 4 comprises the Eastern Water System. The ARSP is located in Zone 5 of the Western Water System. At present, Zone 5 supplies only untreated agricultural water, but urban development is anticipated in Zone 5. The water supply in Zone 5 is delivered through Zone 1 infrastructure, which is the largest of the 5 zones and has the highest density of urban customers. Although considered independent water service areas by PCWA, demands from Zone 1 and Zone 5 are considered together in anticipation of future urban growth in Zone 1, which will displace land uses currently in Zone 5 (PCWA, 2011).

Surface Water Supply

PCWA uses surface water as its primary supply. PCWA also produces a limited amount of groundwater for use in Zone 4, and may produce groundwater in dry hydrologic conditions to meet demands in the Zone 1 service area. As described in PCWA's 2010 UWMP, PCWA's primary surface water supplies consist of MFP water from the American River, water purchased from Pacific Gas & Electric Company (PG&E) from the Yuba and Bear Rivers, and CVP[3] water from the American River. PCWA also uses a limited amount of surface water from small creeks under pre 1914 water rights. Historically, PCWA has purchased surplus water from the South Sutter Water District for service to PCWA Zone 5 customers

[3] PCWA has a CVP water contract with the USBR for delivery of no more than 35,000 af/yr. This long-term renewalcontract provides an indication of the reliability of the CVP water supply by stating that, for modeling purposes, the average quantity of water made available to PCWA in the most recent five years was 32,000 AFY. The current CVP contract expired in 2011. A Long Term Renewal Contract is awaiting formal approval by the USBR. (West Yost, 2015) This analysis conservatively assumes 31,000 AFY of CVP water supply to be consistent with the PCWA UWMP.

under Nevada Irrigation District's (NID's) water rights. PCWA's contracted water supply volumes are summarized in **Table 4.12.1-7**, and further described within WSA (**Appendix E**).

TABLE 4.12.1-7
PCWA CONTRACTED WATER SUPPLY VOLUMES

Contracted Water Supply Source	Contract Amount (AFY)
PG&E	100,400
Middle Fork Project (MFP)	120,000
CVP supply	31,000
Pre-1914 Appropriative Water Rights	3,400
Total	**254,800**

Source: West Yost, 2016a (**Appendix E**).

Water Forum Limitations on PCWA American River Water Supplies

Similar to City of Roseville, PCWA is a signatory to the WFA and access to PCWA's American River supplies requires compliance with diversion limitations outlined in PCWA's PSA. The PSA outlines diversion limitations under normal/wet years, drier years and driest years.

Normal/Wet Years

In normal/wet years, PCWA agreed to divert and use 35,500 AF from the American River. PCWA may also divert and use 35,000 AF from the Sacramento and/or Feather Rivers if exchanges of equal amounts can be made with others under terms acceptable to PCWA[4]. If circumstances prevent PCWA from developing the diversion from the Sacramento and/or Feather Rivers, PCWA and the other members of the Water Forum Successor Effort will enter into negotiations with the objective of finding a mutually agreeable alternative (West Yost, 2016a).

Drier and Driest Years

In the drier and driest years, when Folsom Reservoir inflow is less than 950,000 AF, PCWA agreed to divert and use 35,500 AF from the American River. The WFA commits PCWA to additional releases of water from MFP reservoirs to mitigate for additional diversions at its Auburn and Folsom Lake points of diversion above WFA baseline volumes. The releases are made on a sliding scale basis and begin when projected March through November Folsom inflow is 950,000 AF or less, and PCWA diversions increase above the baseline volumes. The releases are only made if there is a water transfer agreement in place with an entity that can divert the water for beneficial use below the confluence of the American and Sacramento Rivers. The maximum additional volume potentially released for Water Forum purposes in the driest year on record (1977) at PCWA's maximum use of MFP water is 47,000 AF. PCWA will also divert and use 35,000 AF from the Sacramento and/or Feather River if it can secure exchanges as described under normal conditions (West Yost, 2016a).

[4] PCWA is pursuing a transfer of a portion of its American River supplies to the Sacramento River, such that it would be able to divert water from the Sacramento River for service in PCWA Zone 1. While PCWA projects that it is possible that water might be available from a Sacramento River diversion by 2020, this potential future water supply source is not included in PCWA's projections of available water supply.

Water Supply Reliability

For the Western Water System, PCWA's Middle Fork American River Supply is highly reliable, whereas, its other supplies, including PG&E, are subject to 50 percent cutbacks. Given the physical constraints of the water delivery systems and the large difference between treated and irrigation demands dependent upon the reduced PG&E supply, more severe cuts in delivery must be implemented in irrigation canals than in the treated water systems. Additionally, state law and practical necessity dictate that public health and safety needs, which involve treated water systems and include fire protection, sanitation, hospitals, schools, and other critical needs, be prioritized (PCWA, 2011).

Shortage Contingency Plan

As part of its 2010 UWMP, PCWA created a four-stage Water Shortage Contingency Plan to help meet its goals during water shortages. The Water Shortage Contingency Plan was revised in April 2015 to conform to Water Board emergency regulations adopted July 15, 2014 and March 17, 2015 and Governor's Executive Order B-29-15. Each stage corresponds to an increased demand reduction target to align with anticipated supply availability. The shortage contingency plan includes voluntary and mandatory actions that expand under each stage, depending on the cause, severity, and anticipated duration of the water supply shortage (PCWA, 2011).

Water Demand

When providing water supply to new development projects, PCWA generally works on a first come, first served basis; meaning that at some points, such as the present, the amount of infrastructure does not exist such that instantaneous buildout could occur. It has been PCWA's practice to build infrastructure just in time to support the growth needing the capacity. Based on PCWA's 2010 UWMP, buildout of the PCWA's service area is projected to occur beyond 2040. PCWA provides untreated water to three wholesale water supply customers within the PCWA Western Area (Zones 1 and 5): SJWD, SSWD, and City of Roseville. PCWA also provides retail water service to meet other water demands within the Western Area. Additionally, as documented in its 2010 UWMP, PCWA is projecting a recycled water supply and demand of 9,089 AFY in its retail service area by 2040, provided by the cities of Lincoln and Roseville. **Table 4.12.1-8** summarizes the total projected demand included in the 2010 UWMP for all PCWA water supply types and customers in the Western Area based. Because the planning horizon assumed by the land planning authorities throughout Placer County is not always consistent (e.g., projections vary from 2030 to 2050), future land planning updates may identify growth in the Western Area not currently contemplated. To accommodate this potential additional demand, PCWA has established a placeholder "buffer" value of 10,000 AF of annual demand beginning in 2040. This value is also shown in **Table 4.12.1-8** as a separate line item.

In 2012, PCWA prepared a memorandum (2012 PCWA Memo; PCWA, 2012) further clarifying the demand projections documented in the PCWA 2010 UWMP. The 2012 PCWA Memo indicates that the projected water demand for the Sunset Industrial Area (SIA), which includes the project site, was 12,701 AFY (8,086 AFY in Zone 1 and 4,615 AFY in Zone 5). This demand was projected to be served through the Zone 1 Retail Treated Water Demand shown in **Table 4.12.1-8**.

TABLE 4.12.1-8
PCWA SUMMARY OF NORMAL YEAR WESTERN AREA WATER DEMANDS

Water Type by Zone	2015	2020	2025	2030	2035	2040	Buildout
Zone 1 Water Demands							
Retail Treated	32,166	33,854	36,039	38,238	41,309	44,400	69,701
Irrigation	56,295	56,295	56,295	56,295	56,295	56,295	56,295
Wholesale Treated	16,515	20,944	25,374	29,805	31,608	33,410	35,213
Wholesale Untreated	57,967	68,652	79,370	79,411	80,941	82,470	84,000
Subtotal Zone 1 Demand	162,944	179,745	197,078	203,749	210,152	216,575	245,209
Zone 5 Demand	11,038	9,483	7,928	6,373	4,803	3,263	1,699
Zone 1 and 5 Buffer	--	--	--	--	--	10,000	10,000
Total Western Area Demand	173,981	189,228	205,005	210,122	214,955	229,838	256,908
Based on PCWA 2010 UWMP, with math corrected for 2040 and Buildout conditions. Source: West Yost, 2016a (**Appendix E**).							

Potable Water Treatment and Distribution Facilities

As described above Zone 5 only supplies untreated agriculture water; however, treated water can be supplied through Zone 1 infrastructure. Water treatment for Zone 1 is split into two areas: Upper Zone 1 and Lower Zone 1. Upper Zone 1 consists of the City of Auburn and surrounding communities and is served by the Auburn and Bowman WTPs. Lower Zone 1 includes the lower portion of the watershed below Auburn and is currently served by the Foothill and Sunset WTPs. A combined maximum day treatment capacity of 66.00 mgd exists to serve the Lower Zone 1 facilities today, but approximately 62.14 mgd of that capacity is allocated as of first quarter 2016, leaving 3.86 mgd available for future development (Firenzi, 2016).

Currently PCWA is under contract with the City of Roseville to deliver up to 10 mgd from an intertie at Tinker Road, through the City, to PCWA service areas southwest of the City of Roseville. The intertie is at a PCWA tank and distribution pump station into the Lower Zone 1 pressure zone, which also includes pumps and a flow meter into the City's pressure zone. Current deliveries are approximately 2 mgd and made to CAW, which is within PCWA's service area (West Yost, 2016b).

As described in the Water Master Plan (**Appendix H**), current PCWA treatment plant and transmission capacity is limited, but a capital improvement plan has been developed that includes the timeline and budget necessary to construct system wide facilities. Long-term WTP capacity for the Lower Zone 1 would be provided by the construction of the Ophir WTP, proposed to be built on a site just south of the existing City of Auburn WWTP. The construction of the Ophir WTP (previously referred to as the Foothill Phase II WTP and Pipeline Project) was addressed in the *Foothill Phase II WTP and Pipeline Draft and Final EIR* (Ophir WTP EIR, April 2005). The Ophir WTP EIR is incorporated into this document by reference, as described within **Section 1.4** of this EIR. A detailed discussion of both the less-than-significant effects and the significant and unavoidable effects associated with the construction of the Ophir WTP can be found in **Impact 4.12.1-3**. **Table 4.12.1-9** provides the latest documented phasing plan for the Ophir WTP and Related Infrastructure. PCWA is evaluated remaining existing capacity against current growth trends to ensure the phases of Ophir WTP are brought on-line in adequate time for

new demand. This evaluation is being done in cooperation with potential funding partners for the project to ensure their needs for treated water supply are met and the project is adequately financed.

TABLE 4.12.1-9
PCWA OPHIR WATER TREATMENT PLANT AND RELATED INFRASTRUCTURE PHASING PLAN

Phase	Description	Capacity (mgd)
1a	4 mgd package plant connected to 18 inch line in Ophir Road	2.4
1b	Expansion of 4 mgd package plant to 8 mgd plus extend 18 inch line in Ophir Road	8
2	10 mgd expansion of conventional treatment at Ophir site, Werner Tank, and construct 42 and 60 inch pipelines	16.4
3	Expand conventional plant to 22 mgd, construct 42 inch line, Bickford Ranch Tank, pressure reducing station also needs lines by others	30
Source: West Yost, 2015.		

The Ophir EIR evaluated the construction of a new treated water transmission pipeline (ranging from 42 to 60 inches in diameter) that would connect the Ophir WTP to PCWA's existing transmission system near the intersection of Taylor and Rock Springs Road (referred to as Phase I). Phase II of the pipeline segment would convey treated water at a point near the intersection of Taylor and Callison Roads and continue west to a pipeline to be constructed by the City of Lincoln connecting the Sunset 10 mg water storage tanks and the Lincoln Storage Tank farm. Additionally, the Ophir EIR evaluated a new 12 inch treated water transmission pipeline that will connect to an 18 inch pipeline 350 feet east of Lozano Road and continue southwest to the existing Newcastle water transmission system situated in Taylor Road. Portions of this pipeline have already been constructed, including approximately 5,000 feet of 60-inch diameter pipeline within Ophir Road (PCWA, 2014).

Water transmission lines are also planned to convey treated water from the planned Ophir WTP to the Placer Vineyards Specific Plan (PVSP) south of the project site. These proposed water transmission lines were addressed in the EIR for the PVSP, and include a 42-inch water line from Whitney Ranch Parkway/Highway 65 interchange west for approximately 4 miles to the eastern boundary of the ARSP. Currently, it is anticipated that the alignment of the 42-inch line will vary from the alignment addressed in the PVSP EIR in that it will parallel the proposed alignment of Placer Parkway. Construction within the future Placer Parkway alignment was addressed in the Tier 1 Environmental Impact Statement (EIS)/EIR for the Placer Parkway Corridor Preservation Project.

4.12.1.3 REGULATORY SETTING

Federal

Folsom Dam on the American River, from which the City of Roseville draws its surface water supplies, is managed by USBR as part of the CVP. Numerous laws, directives, opinions, and orders affect or otherwise have influence on the management of the CVP. These include, but are not limited to the following:

- **Reclamation Act (1902)**: Formed legal basis for subsequent authorization of the CVP.
- **Rivers and Harbors Act (1935, 1937, 1940)**: First authorization of CVP for construction and provision that dams and reservoirs used first for river regulation, improvement of navigation, and flood control. Second authorization for irrigation and domestic uses. Third authorization for power.
- **Reclamation Project Act (1939)**: Provided for the repayment of the construction charges and authorized the sale of CVP water to municipalities and other public corporations and agencies, plant investment, for certain irrigation water deliveries to leased lands.
- **Water Service Contracts (1944)**: Provided for the delivery of specific quantities of irrigation and M&I water to contractors.
- **Flood Control Act (1944)**: Authorized flood control operations for Shasta, Folsom, and New Melones dams.
- **Water Rights Settlement Contracts (1950)**: Provided diverters holding riparian and senior appropriate rights on the Sacramento and American rivers with CVP water to supplement water which historically would have been diverted from natural flows.
- **Trinity River Act (1955)**: Provided that the operation of the Trinity River Diversion be integrated and coordinated with operation of the other CVP features to allow for the preservation and propagation of fish and wildlife.
- **Fish and Wildlife Coordination Act (1958)**: Provided for integration of fish and wildlife conservation programs under federal water resources developments. Authorized the Secretary of the Interior to include facilities to mitigate CVP-induced damages to fish and wildlife resources.
- **Reclamation Project Act (1963)**: Provided a right of renewal of long-term contracts for M&I contractors.
- **State Water Resources Control Board (SWRCB) Decision 1379 (1971)**: Established Delta water quality standards to be met by both the CVP and SWP.
- **FESA (1973)**: Provided protection for animal and plant species that are currently in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened).
- **SWRCB Decision 1485 (1978)**: Ordered CVP and SWP to guarantee certain conditions for water quality protection for agricultural, M&I, and fish and wildlife use.
- **Secretarial Decision on Trinity River Release (1981)**: Allocated CVP yield so that releases can be maintained at 340,000 AF in normal water years, 220,000 AF in dry years, and 140,000 AF in critically dry years.
- **Corps of Engineers Flood Control Manuals for Shasta (1977), Folsom (1959), New Melones (1982)**: Prescribed regulations for flood control.
- **Corps of Engineers Flood Control Diagrams for Shasta (1977), Folsom (1986), New Melones (1982)**: Outlined descriptions on data on flood potential/ratings.

Central Valley Project Improvement Act (CVPIA)

The CVP Improvement Act (CVPIA; Public Law 102-575, Title XXXIV, 1992) reauthorized the CVP for a wider range of beneficial uses and interests than originally mandated. The CVPIA established that fish and wildlife are recognized as project purposes equal to that of irrigation, power generation, and M&I use. Under the CVPIA, significant quantities (800,000 AFY) of CVP yield are reallocated to meet these new beneficial uses (see CVPIA Section 3406[b][2]).

CVPIA Section 3406(b)(2)

Objectives of the CVPIA include protecting and restoring fisheries and wildlife in the Central Valley, and allocate 800,000 AFY to this purpose; addressing impacts of the CVP on fish and wildlife; enhancing the operational flexibility of the CVP; expanding the use of water transfers; improving water conservation; and addressing the requirements of fish, wildlife, agricultural, municipal, industrial, and power generation water users. The USBR prepared a Programmatic EIS for the CVPIA programs.

Federal/State Coordinated Operations Agreement (COA)

The CVP operated by the USBR and the SWP operated by the DWR, rely on the Sacramento River and the Delta as common conveyance facilities. DWR's primary storage facility is Oroville Dam on the Feather River. Reservoir releases and Delta exports must be coordinated so that both the CVP and SWP are able to retain their portion of the shared water and also jointly share in the obligations to protect beneficial uses. A Coordinated Operations Agreement (COA) between the CVP and SWP was developed and became effective in 1986.

The COA defines the rights and responsibilities of the CVP and SWP regarding water needs of the Sacramento River system and Delta and includes obligations for in-basin uses, accounting, and real-time coordination of water obligations of the two projects. A CVP/SWP apportionment of 75/25 is implemented to meet in-basin needs under balanced Delta conditions, and a 55/45 CVP/SWP ratio is in effect for excess flow conditions. The COA contains considerable flexibility with regard to the manner with which Delta conditions – in the form of flow standards, water quality standards, and export restrictions – are met.

The operation of CVP/SWP is described in a document known as the Operations Criteria and Plan (OCAP; USBR, 2004). As updated in 2004, the OCAP provides a detailed description of the coordinated operations of the CVP and SWP based on historical data and serves as a starting point for planning project operations in the future. The United States Fish and Wildlife Service (USFWS) prepared a formal Biological Opinion (BO), under FESA analyzing the impact of OCAP implementation on FESA-listed species (including the Delta smelt). USFWS then issued a BO for OCAP in 2005 which concluded that CVP/SWP operations did not jeopardize Delta smelt populations. The BO was subsequently invalidated by a federal court (Wanger, J.) and USFWS was ordered to revise its BO. The court also ordered severe restrictions on CVP and SWP pumping in the Delta (Wanger Decision), which took effect in December 2007, pending the USFWS's completion of the new BO.

In December 2008, USFWS released a new BO, which concluded that CVP and SWP operations would jeopardize the continued existence of endangered Delta smelt. USFWS further detailed a "Reasonable and Prudent Alternative" (RPA) to the proposed OCAP protocol that would, according to USFWS, protect the Delta smelt and its habitat from the adverse effects of pumping operations. The RPA would restrict Delta pumping operations and would thus limit deliveries of water to CVP/SWP contractors south of the Delta. The inclusion by the USFWS of RPAs, and their acceptance by the water agencies, avoided FESA findings of jeopardy and adverse modification to the Delta smelt and its habitat.

Since preparation of the 2008 BO, a lawsuit was filed against USBR and the Secretary of the Interior, alleging that USBR violated the National Environmental Policy Act (NEPA) by failing to perform any NEPA

analysis prior to provisionally adopting and implementing the December 15, 2008 BO issued by USFWS regarding the effects of the proposed operations of the CVP and SWP on the Delta smelt and its critical habitat (The Consolidated Delta Smelt Cases). In the Amended Judgment for the Consolidated Delta Smelt Cases issued on October 1, 2014 in accordance with the Ninth Circuit's ruling in *San Luis & Delta-Mendota Water Authority v. Jewell* (747 F.3d 581), the court ordered that USBR comply with its obligations under NEPA and issue a finding of no significant impact or a record of decision (ROD) by no later than December 1, 2015. On January 9, 2015 USBR reinitiated Section 7 consultation with USFWS regarding the Incidental Take Limit for Delta smelt.

In June 2009, the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA) also released a BO on the revised OCAP and requested changes to protect FESA-listed species, including endangered Sacramento River winter-run Chinook salmon, threatened Central Valley spring-run Chinook salmon, threatened Central Valley steelhead, and the threatened Southern Distinct Population Segment (DPS) of North American green sturgeon and Southern Resident killer whales. The RPA developed in connection with this BO would restrict Delta pumping operations, impose Shasta Reservoir storage targets to achieve water temperature requirements in the Sacramento River below Keswick Dam, impose lower American River flow standards, require modified Delta Cross Channel operations, and limit reverse Old and Middle River (OMR) flows. In 2011, NOAA amended its BO. The amended RPA requires the USBR and NMFS to host a workshop no later than November 30 of each year to review the prior water year's operations and to determine whether any measures prescribed in their respective RPAs should be altered in light of information learned from the prior year's operations or research (NMFS' BO, section 11.2.1.2 of the 2009 RPA with 2011 amendments, starting on page 9). The 2014 Annual Science Review marked the fifth annual review (Delta Stewardship Council, 2015).

As described in the WSA (**Appendix E**), in its Hewlett Packard/Campus Oaks Rezone & Master Plan Project WSA (see Appendix of WSA), the City analyzed USBR supply reliability under the USBR CVP OCAP. The analyses indicate that the USBR water supply would be less reliable than provided for in the WFA (expanding the numbers of years when some cut-back in water supply from USBR would occur), although minimum delivery under OCAP is expected to be the same as the minimum WFA supply of 38,900 AFY.

State

Senate Bills 610 and 221

In the year 2001, the California Legislature enacted two pieces of legislation relevant to environmental review of water consumption associated with large development projects. Senate Bill (SB) 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of WSAs for large developments (i.e., more than 500 dwelling units or nonresidential equivalent), such as the ARSP. These assessments, prepared by "public water systems" responsible for serving project sites (in this case, the City itself), address whether existing and projected water supplies are adequate to serve the proposed project while also meeting existing urban and agricultural demands and the needs of other anticipated development in the service area in which the proposed project is located. If the most recently adopted UWMP accounted for the projected water demand associated with the proposed project, the public water system may incorporate the requested

information from the UWMP. If the UWMP did not account for the project's water demand, or if the public water system has no UWMP, the project's WSA shall discuss whether the system's total projected water supplies (available during normal, single-dry, and multiple-dry water years during a 20-year projection) would meet the project's water demand in addition to the system's existing and planned future uses, including agricultural and manufacturing uses.

Where a WSA concludes that insufficient supplies are available, the public water system must provide to the city or county considering the development project its plans for acquiring and developing additional water supplies. Based on all the information in the record relating to the proposed project, including all applicable WSAs and all other information provided by the relevant public water systems, the city or county must determine whether sufficient water supplies are available to meet the demands of the proposed project, in addition to existing and planned future uses. The WSA is required to include (but is not limited to) identification of the existing and future water supplies over a 20-year projection period. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not ascertain the proposed project will be denied approval, but it does require a lead agency to address a water supply shortfall in its project findings.

If the proposed project is approved, additional complementary statutory requirements, created by 2001 legislation known as SB 221 (Government Code Section 66473.7), would apply to the approval of tentative subdivision maps for more than 500 residential dwelling units. This statute requires cities and counties to include, as a condition of approval of such tentative maps, the preparation of a "water supply verification." The verification, which must be completed by no later than the time of approval of final maps, is intended to demonstrate that there is a sufficient water supply for the newly created residential lots. The statute defines sufficient water supply as follows:

> ... the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection period that would meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.

A number of factors must be considered in determining the sufficiency of projected supplies:

- The availability of water supplies over a historical record of at least 20 years;
- The applicability of an urban-water-shortage contingency analysis that includes action to be undertaken by the public water system in response to water supply shortages;
- The reduction in water supply allocated to a specific water-use sector under a resolution or ordinance adopted or a contract entered into by the public water system, as long as that resolution, ordinance, or contract does not conflict with statutory provisions giving priority to water needed for domestic use, sanitation, and fire protection; and
- The amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives.

The SB 610 analysis for the ARSP can be found in **Appendix E** of this EIR.

Safe Drinking Water Quality Regulations

The State Department of Public Health (DPH) establishes "primary" and "secondary" Domestic Water Quality Standards for drinking water supplied by public water systems such as the City. The standards are required by state law to meet or exceed standards adopted by the United States Environmental Protection Agency (EPA). The concentrations of specified constituents are limited to maximum contaminant levels and are established on a constituent basis for bacteriological contaminants (such as coliform), organic chemicals (such as benzene), inorganic chemicals (such as total dissolved solids), and radioactivity (such as gross alpha particle activity). Primary standards are set at levels necessary to protect public health and may not be exceeded. Secondary standards are based on aesthetic criteria, such as taste and odor, and are composed of (1) recommended limits that may be exceeded but are not recommended to be exceeded; (2) upper limits that may be exceeded for a limited duration with prior DPH approval; and (3) short term limits that may not be exceeded. Public water systems also must obtain a domestic water supply permit from DPH that must be amended to reflect changes to the water supply system. The City has obtained such a permit.

The Urban Water Management Planning Act

The Urban Water Management Planning Act (Act) was established in Division 6, Part 2.6 of the California Water Code. The Act became part of the California Water Code with the passage of Assembly Bill (AB) 797 during the 1983-1984 regular session of the California legislature. Subsequent assembly bills between 1990 and 2003 amended the Act. Most recently the Act was amended in 2009 by SBx7-7, which requires a 20 percent reduction in statewide water usage.

The Act was developed due to concerns for potential water supply shortages throughout the State of California. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required as part of the Act to develop and implement Urban Management Plans to describe their efforts to promote efficient use and management of water resources. The City has complied with this Act through the adoption of the City's UWMP, which is described below.

Sustainable Groundwater Management Act (SGMA)

The intent of the Sustainable Groundwater Management Act (SGMA; Water Code § 10720 et seq.) is to "enhance local management of groundwater consistent with rights to use or store groundwater… [and] to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater." The SGMA states that "any local agency or combination of local agencies overlying a groundwater basin may elect to be a groundwater sustainability agency for that basin" (Water Code § 10723). A groundwater sustainability agency will be formed within each groundwater basin to prepare and implement a plan for long-term groundwater sustainability. The sustainability agency for the area has not yet been finalized.

Water Conservation Project Act

The State of California's requirements for water conservation are codified in the Water Conservation Project Act of 1985 (Water Code Sections 11950-11954), as reflected below:

> 11952. (a) It is the intent of the Legislature in enacting this chapter to encourage local agencies and private enterprise to implement potential water conservation and reclamation projects...

Other Applicable Regulations

Other statutes that address water supplies include the California Environmental Quality Act (CEQA; Public Resources Code Section 21151.9), the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code Section 56668[k]), and Planning and Zoning Law (Government Code Section 6532.5).

Local

Water Forum Agreement

The WFA is the result of the efforts of a diverse group of community stakeholders (Water Forum, 2000). The stakeholder group was formed in 1994 with the goal to formulate principles for developing solutions to meet future regional water supply needs. Participants in the Water Forum have developed two coequal objectives:

- Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030.
- Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River.

Water Forum stakeholders have developed an integrated package of actions that will meet these two co-equal objectives. Each element of the package is necessary for a regional solution to work. These elements are as follows:

- Increase surface water divisions;
- Actions to meet customers' needs while reducing diversion impacts on the lower American River in drier years;
- An improved pattern of fishery flow releases from Folsom Reservoir;
- Lower American River Habitat Management, which also addresses recreation in the lower American River;
- Water conservation;
- Groundwater management; and
- Water Forum successor efforts.

PSAs have also been developed that describe in detail how each of the elements will be implemented by the respective purveyors. Purveyors include the City of Roseville, PCWA, SJWD, and other regional water agencies. The PSAs are compiled into a Memorandum of Understanding (MOU) that each stockholder's authorizing body has executed. In return for signing the final WFA, water purveyors receive regional support for water supply projects, including site-specific infrastructure development. A copy of the PSA for the City of Roseville is included as **Appendix T**.

In January 1999, the Sacramento City-County Office of Metropolitan Water Planning published the Draft EIR for the WFA. The WFA EIR addresses the impacts and mitigation measure that the area stakeholders would need to comply with in order to implement the water supply program outlined in the WFA. The Final EIR for the WFA was certified on November 23, 1999. The findings of that EIR, and the accompanying Water Forum Action Plan, outline a program whereby water delivery could be supplied to area stakeholders through the year 2030, provided that a permanent pumping plant is constructed at Auburn and the SRWRP division facilities are constructed. The pumping plant in Auburn has been constructed and is now operated by PCWA. The ASR Program EIR is incorporated into this document by reference, as described within **Section 1.4** of this EIR.

The WFA EIR was not challenged in court, and the certified document constitutes a legally satisfactory analysis of all the issues addressed therein, including cumulative water supply impacts (see Public Resources Code Section 21167.2). The WFA EIR identified and thoroughly evaluated potential impacts on water supplies resulting from implementation of the WFA, including impacts on both the federal CVP run by USBR and the SWP operated by the California DWR.

The WFA EIR listed the flow-related environmental impacts that could occur when implementing water diversions under the WFA and concluded that there was the possibility for environmental impacts in the following areas: groundwater resources, water supply, water quality, fisheries and aquatic habitat, flood control, hydropower supply, vegetation and wildlife, recreation, land use and growth inducement, aesthetics, cultural resources, soils and geology. While mitigation measures were developed, some impacts remained significant even after feasible mitigation measures would be applied. A detailed discussion of both the less-than-significant effects and the significant and unavoidable effects associated with the WFA can be found in **Impact 4.12.1-7**.

More than 15 years have passed since the Water Forum EIR was prepared in 1999. This period has been a particularly dynamic period in the history of water supply operations in the Central Valley and Sacramento-San Joaquin Delta (Delta) involving changes in facilities, regulations, and environmental conditions. The following list identifies the major relevant actions and regulatory changes affecting water supply operations in the American River basin (RBI, 2015).

- 1999 San Joaquin River Agreement (restored flows and exports) and 2012 San Joaquin River Restoration Program Final EIS/EIR and ROD
- Department of Interior: 1999 Final Decision Accounting of CVPIA 3406 (b)(2) and 2001 ROD (allocation of additional water for environmental purposes)
- SWRCB: 2000 Revised Water Right Decision 1641 (revised CVP/SWP requirements to protect Delta water quality)
- USBR and DWR: 2000 CALFED Program ROD (long-term plan for the Delta)
- USBR: 2000 Trinity River Mainstem Fishery Restoration ROD (revised minimum flow regime)
- NOAA NMFS (NOAA Fisheries): 2001 BO for Spring-Run Chinook Salmon and Steelhead
- PCWA: 2002 American River Pump Station Project Final EIR/EIS
- Freeport Regional Water Authority: 2003 Final EIR/EIS for the Freeport Regional Water Project
- USFWS: 2008 Formal Endangered Species Act Consultation on the Proposed Coordinated Operations of the CVP and SWP (i.e., herein referred to as the USFWS BO)

- NOAA Fisheries: 2009 BO and Conference Opinion on the Long-Term Operations of the CVP and SWP (i.e., herein referred to as the NOAA Fisheries BO)
- Water Forum: Lower American River Flow Management Standard (FMS) (ongoing)

Given the multitude of changed water supply/water management conditions within the region since the WFA EIR was adopted, an evaluation was completed to determine if these changed conditions would make the impacts to fisheries resources and water quality from the WFA demands more severe than previously disclosed in the WFA EIR. The Water Supply Effects Analysis, prepared by Robertson - Bryan, Inc. dated November 2015 and included as **Appendix S**, concludes that in all but two cases, the impact conclusions remain the same as originally characterized within the WFA EIR. The two cases where changed circumstances since the preparation of the WFA EIR result in more significant impact conclusions are discussed in detail in **Appendix S** and summarized below and in **Impact 4.12.1-2**.

Impact to Coldwater and Warmwater Species in Lake Natoma (WFA EIR Impact 4.5-3) and Temperature Impacts to Nimbus Fish Hatchery Operations and Fish Production (WFA EIR Impact 4.5-4)

The WFA EIR found the impacts to coldwater and warmwater fish populations in Lake Natoma to be less than significant. The impacts to operations and fish production of the Nimbus Fish Hatchery also were less than significant.

The Water Supply Effects Analysis found that, based on the anticipated minimal changes to Lake Natoma storage, surface elevation fluctuations, and temperatures, the effects of WFA demands in light of changed circumstances would result in a less-than-significant impact to Lake Natoma's warmwater and coldwater fish populations. However, steelhead rearing operations in the Nimbus Fish Hatchery may be exposed to water temperatures near or exceeding adverse effect levels under both Existing Conditions and the No Action – Early Long Term (NA ELT) scenario. Consequently, the effects to seasonal water temperatures, in light of the changed circumstances and WFA demands, may result in additional adverse effects to coldwater fish species production that were not known and considered at the time of the WFA EIR preparation. Therefore, the potential for increased temperatures during June through September, and associated potential for adverse effects to Nimbus Fish Hatchery operations for steelhead, would be considered a new potentially significant WFA-related impact not previously identified in the WFA EIR.

However, the ongoing management of Lower American River resource conditions by USBR/Water Forum organization operations is expected to minimize the potential additional adverse effects to Nimbus Hatchery steelhead production operations. The American River Group process, as stipulated under the NOAA Fisheries BO, involves annually evaluating hydrologic and fisheries resource conditions in the American River basin, and developing the Annual Operations Forecast by May 1 each year to define the forecasted American River operations and implementation of the Minimum Flow Requirements and Water Temperature Objectives of the Lower American River FMS. An Annual Water Temperature Management Plan (Temperature Plan) also is developed by May 1 each year to define the actions to meet the Water Temperature Objectives of the FMS. The FMS Water Temperature Objectives are designed for budgeting of available cold water resources to support juvenile steelhead rearing in the summer. Potential avoidance and minimization measures to reduce the adverse temperature effects to hatchery steelhead production, particularly during extreme drought conditions, also may require earlier seasonal

releases of juvenile fish and/or relocation of fish to alternative hatcheries with suitable water temperatures, as implemented in the past two years.

Impact to Steelhead (WFA EIR Impact 4.5-6)

The WFA EIR found the flow and temperature-related effects to steelhead life stages in the Lower American River to be less than significant.

Similar to potential impacts to the Nimbus Fish Hatchery operations for steelhead described above, the Water Supply Effects Assessment found that the potential for increased temperatures during June through September, and associated potential for adverse effects to steelhead, would be considered a new potentially significant WFA-related impact not previously identified in the WFA EIR. However, as explained above, the annual planning and management process of the American River Group, and oversight of Folsom Reservoir and Lower American River operations, will serve to minimize the potential adverse flow- and temperature-related effects to steelhead.

Groundwater Management Plan

In September 2002, the Legislature enacted, and the Governor signed, SB 1938, which amended then-existing law related to groundwater management by local agencies. The law requires any public agency seeking State funds administered through the DWR for the construction of groundwater projects or groundwater quality projects to prepare and implement a GMP with certain specified components. Prior to the enactment of this statute, there were no required plan components. Requirements include establishing basin management objectives, preparing a plan to involve other local agencies in a cooperative planning effort, and adopting monitoring protocols that promote efficient and effective groundwater management.

AB 3030, the Groundwater Management Act (Sections 10750–10756 of the California Water Code), provides a systematic procedure for an existing local agency to voluntarily develop a GMP. AB 3030 enables water agencies to develop and implement GMPs to manage the groundwater resources in the jurisdiction of the participating parties. The state does not maintain a statewide program or mandate its implementation, but the legislation provides the guidelines and common framework through which groundwater management can be implemented.

The City in participation with PCWA, CAW, and the City of Lincoln completed the SB 1938 and AB 3030 compliant Western Placer County GMP in August 2007 (MWH, 2007). The Plan set basin management objectives and goals that address the basin's groundwater safe yield for the basin, groundwater quality, and conjunctive use as a management strategy. Implementation activities, including a monitoring program, have occurred since 2008.

The City is currently working with other area agencies to comply with the SGMA, described above, which was enacted in 2014. The next key milestone in compliance with the SGMA is the development of a Groundwater Sustainability Agency by June 30, 2017.

City of Roseville Municipal Code (RMC)

Section 14 of the City's Municipal Code contains regulations associated with water rates (Chapter 14.08), water conservation (Chapter 14.09), and installation of water facilities (Chapter 14.08).

City of Roseville General Plan

Roseville's General Plan requires new development areas to:

- Use surface water as the primary source of water supply.
- If surface water is not available from the City's Water Supply Portfolio, the project proponent must acquire additional surface water supplies.

The two preceding statements paraphrase the City's Land Use Element, on page II-52, which states:

> "Any development proposal west of Roseville that does not have a sufficient supply of surface water shall secure additional supplies above what the City currently has available. Development proposals shall also provide financial assistance to incorporate the new source of supply into the City's water supply portfolio (surface water, groundwater and recycled water); and development proposals shall include measures to reduce water demand by implementing the use of conservation best management practices, recycled water and other off-sets."

This language is based on a set of "Guiding Principles" developed for any development proposal west of Roseville. These Guiding Principles originated when the proponents of the WRSP approached the City requesting annexation.

The City of Roseville General Plan contains goals and policies relating to water supply and Distribution. These goals and policies follow:

<u>Public Facilities Element – Water System Goals</u>

Goal 1: Maintain a water system that adequately serves the existing community and planned growth levels, ensuring the ability to meet projected water demand and to provide needed improvements, repairs, and replacements in a timely manner.

Goal 2: Provide water services to all existing and future Roseville water utility customers. The provision of services by another provider may be considered where it is determined that such service is beneficial to the City and its utility customers or the provisions of City services is not feasible.

Goal 3: Ensure that safe drinking water standards are met and maintained in accordance with State Department of Health Services and EPA regulations.

Goal 4: Actively pursue water conservation measures.

Goal 5: Actively pursue supplemental water supplies.

Public Facilities Element – Water System Policies

Policy 1: Secure sufficient sources of water to meet the needs of the existing community and planned growth.

Policy 2: Provide sufficient water treatment capacity and infrastructure to meet projected water demand.

Policy 3: Initiate, upon 75% of treatment plant capacity, expansion studies to determine necessary improvements to meet projected water demand.

Policy 4: Establish a process for monitoring growth trends to anticipate water consumption needs.

Policy 5: Ensure all development provides for and pays a fair share of the cost for adequate water distribution, including line extensions, easements, and plant expansions.

Policy 6: Design the City's water system to maintain a minimum water pressure of 50 psi, while providing adequate water to meet fire demands in the system.

Policy 7: Provide emergency back-up system to add sufficient reliability to the system as determined by the Environmental Utilities Department.

Policy 8: Develop and pursue alternatives to continue delivery of PCWA and SJWD water to Roseville.

Policy 9: Monitor water quality regularly and take necessary measures to prevent contamination.

Policy 10: Develop and implement water conservation standards and measures as necessary elements of the water system.

Policy 11: Develop and implement an ASR program.

City of Roseville Urban Water Management Plan

The City prepared and adopted a 2010 UWMP in August 2011, which superseded the 2005 UWMP. This plan was prepared to comply with the Urban Water Management Planning Act of the California Water Code Division 6, Part 2.6, Sections 10610 through 10657). UWMPs must be developed by urban water providers supplying more than 3,000 customers or supplying more than 3,000 AF of water annually and submitted to the DWR every 5 years. The UWMP describes the availability of water and discusses water use, recycled water use and water conservation. The City is currently in the process of completing the 2015 UWMP update which is due to DWR by June 30, 2016.

City of Roseville Water Conservation Ordinance

In 1991, the City developed and adopted the Roseville Water Conservation and Drought Mitigation Ordinance as documented in the City's Municipal Code Chapter 14.09. This ordinance was updated in

2013 and more recently in May 2015 (Ord. No. 5491). Under this ordinance, the City has authority to declare water shortage conditions and implement drought related mitigation measures.

City of Roseville Water Efficient Landscape Ordinance

The City established a WELO in compliance with the Water Conservation in Landscaping Act of 2006 (AB 1881). This ordinance was approved by the City Council on November 4, 2009 (Ord No. 4786) and amended on November 19, 2014 (Ord. No. 5428).

In July 2015 the State Model WELO was updated in compliance with Governor's Executive Order B-29-2015. The Executive Order called for revising the Model Ordinance to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. All local land use agencies, including the City of Roseville, are required to adopt the model ordinance, or develop an ordinance that is at least as effective by December 31, 2015. The City is currently updating its WELO, to comply with the latest state model WELO, and should be completed in spring 2016.

City of Roseville 2013 Design/Construction Standards

Section 8 of the City's Design/Construction Standards (as amended in 2014), Water System Design (City of Roseville, 2014b), provides criteria for the design of domestic water systems. Compliance with these standards ensures water delivery facilities are properly sized to distribute water to any new customers that would be created as a result of implementing the Proposed Project.

ARSP Water Saving Measures

The ARSP includes water savings measures with the goal of reducing the project's overall water demands for both potable and/or recycled water to the best extent feasible and practicable. The following water conservation measures will be implemented in the ARSP in an effort to reach the City's water conservation goals:

- **Turf Reductions in Residential Areas** – This involves limiting the amount of turf in the front yards of residential properties and using a higher percentage of low-water use plant species in lieu of turf. Typically, about 75 percent of a total residential front yard is assumed to consist of landscaping, with the balance consisting of driveways, planter, or walkways. For the ARSP, limitations will be placed on the landscaped portion of each front yard, allowing up to 42 percent of the total area to be turf, with the remaining landscaped area comprised of low water use plant species that use approximately 70% less water than an average lawn.
- **Turf Reductions in Non-Residential Areas (Parks, Paseos, and Landscape Corridors)** – This involves limiting the use of turf on non-residential parcels within the ARSP, with a focus on water efficiencies at parks, paseos, and landscape corridors. For these areas, landscape design will reduce the area of turf and increase the area of low-water-use plant species, as compared to the design of these features in other specific plan areas. To achieve the desired water conservation, the following criteria will be implemented:

- **Parks –** It is assumed that approximately 80% percent of a typical park's square footage consists of turf with the remaining 20 percent in non-irrigated surfaces. Parks in the project site would have a maximum cumulative total of turf area of 60 percent, with the remaining 20 percent of the area comprised of low water use plant species or other uses. Less than 60 percent is acceptable provided it is compatible with the amenities planned for the park. For purposes of this analysis, 60 percent turf is assumed.
- **Paseos and Landscape Corridors –** It is assumed that paseos and landscape corridors are typically comprised of 80 percent turf area and 20 percent non-irrigated areas. The ARSP's paseos and landscape corridors will have a maximum of 60 percent turf area, with the remaining 20 percent of the irrigated area comprised of low water use plant species or other uses.

- **Smart/Centrally Controlled Irrigation Controllers** – Smart and centrally controlled irrigation controllers restrict irrigation to the times and water application rates that are necessary to maintain landscaping. They account for changes in the demand for water, which varies with weather patterns, seasonal influences, and soil moisture content. For the ARSP, smart irrigation controllers, as defined in the City of Roseville WELO, will be required for residential, commercial, and quasi-public parcels subject to turf reduction measures and centrally controlled irrigation controllers for larger commercial and publicly maintained parcels.
- **Re-circulating Hot Water Systems** – This involves using a re-circulating pump on a residential hot water line system, reducing the time necessary to receive hot water at any hot water faucet throughout the home. This type of system will be included on all residential units to generate additional water conservation.

With full implementation of these measures throughout the project site, it is estimated that the water conservation measures outlined above will reduce the ARSP's overall water demand by approximately 214.3 AFY (Kimley Horn, 2016c; **Appendix G**).

4.12.1.4 IMPACTS

Method of Analysis

For purposes of utilities analysis, the project site is the entire annexation area with the proposed land uses shown in **Figure 2-4**, Land Use Plan. This includes both the ARSP and Urban Reserve parcel, which as described in **Section 2.0**, **Project Description**, has one residential unit allocated to it.

Water Supply

Water Demand

Potable water demands for the Proposed Project were determined utilizing unit water demand factors identified in **Table 4.12.1-6**, above and applying those factors to proposed land uses in the ARSP (**Table 2-1**), and then subtracting recycled water supplies and estimated savings from planned water conservation measures. In calculating water supply, a two percent factor is added to account for water system losses. Roseville has historically used two percent system losses primarily due to the following factors: 1) the age of the distribution system; 2) design and construction standards; and 3) the quality of construction resulting from the level of inspection during installation of the system. As described in detail

in the *ARSP Area Water Conservation Plan* (Kimley Horn, 2016c) included as **Appendix G**, the ARSP has included significant water conservation measures into the Proposed Project. These water conservation measures include:

- Turf reductions in residential and non-residential areas
- Smart/Centrally Controlled irrigation controllers for irrigation uses
- Re-circulating hot water systems for residential units

As shown in **Table 4.12.1-10**, total potable water demand for the Proposed Project is approximately 1,067 AFY.

TABLE 4.12.1-10
ESTIMATED ANNUAL DEMAND, CONSERVED WATER, AND RECYCLED WATER USE FOR THE PROJECT SITE

Land Use	Annual Demand (AFY)
Residential	
LDR	432.7
MDR	420.7
HDR	273.3
Subtotal Residential	*1,126.6*
Mixed Use and Urban Reserve	
Community Commercial – Village District - Residential	35.2
Urban Reserve	0.8
Subtotal:	*36.0*
Non-Residential	
Community Commercial – Village District – Non-Residential	79.4
Community Commercial	69.4
Open Space – Paseos	35.8
Open Space – General	0
Open Space – Preserve	0
Parks and Recreation	74.1
Elementary School	37.2
Public (Fire Station, Utility, etc.)	15.2
Right of Way	0
Subtotal:	*311.1*
Total Metered Demand	1,473.7
Unaccounted for System Losses (2%)	29.5
Total Water Supply Required (AFY)	**1,503.2**
Total Potable Water Conservation (AFY)	214.2
Total Recycled Water Used (AFY)	222.4
Estimated Potable Water Demand (AFY)	**1,067**
Source: West Yost, 2016a (**Appendix E**).	

Water Supply

In the WSA, the potable water demand created by the Proposed Project is initially compared to the City's water supply. If it is determined that the City's water supply does not have adequate surface water supplies to meet the additional demand of the Proposed Project, the potable water demand is compared to the available water supply of the agency under consideration for the acquisition of additional water supplies. For the case of the ARSP, the City is intending to obtain treated surface water supplies from PCWA to serve the Proposed Project through a wholesale agreement. As described in the WSA (**Appendix E**), the water supply source for the Proposed Project will be PCWA's contracted water supply from the MFP. Water obtained through the wholesale agreement would be delivered to the City though the Tinker Intertie and then transported through the City's infrastructure to the project site. In the interim period before the PCWA infrastructure is in place to provide water, the Proposed Project will be supplied using existing City supplies and treatment capacity. As described in **Section 4.12.1.2**, additional treatment and transmission facilities in PCWA's system would ultimately be needed for PCWA to meet the projected ultimate water demands within Lower Zone 1, which includes the City of Roseville and the ARSP. These planned facilities are described in **Section 2.9**, **Off-Site Improvements**, and would be phased to provide the necessary capacity in time to meet the demands.

Water Treatment and Distribution

For analysis of the WTP and the distribution system, wet year water demands during average day and maximum day conditions were compared to the capacity of the Foothill and Sunset WTPs and the ability of existing infrastructure to deliver these additional flows without significantly adversely affecting existing customer service levels.

The analysis of potable water storage and distribution effects is based on a technical study prepared by Kimley Horn for the Proposed Project (*ARSP Area Water Master Plan* included as **Appendix H**). As documented in the Water Master Plan, the methodology used for the hydraulic modeling in the Water Master Plan conforms to that used by the City of Roseville Environmental Utilities Department. Using the City's current design criteria and standards, a hydraulic model has been developed to size the Proposed Project's water infrastructure. This information was then imported into the City's overall water hydraulic model to determine impacts to the City's existing potable water distribution system under both normal year and dry year hydrologic conditions. The model is based on estimated project demands. Peaking factors were used to simulate various operational scenarios such as maximum day plus fire flow demand scenarios and peak hour demand scenarios. Distribution systems must also be sized to provide adequate fire flows at minimum residential pressures that meet or exceed flows specified by the Insurance Services Office (ISO) and California Fire Code. The maximum fire flow demand is 4,000 gpm which is based on several factors such as construction type, square footage and the assumption that these structures have installed fire protection systems. The fire flow demand for single family homes is 1,500 gpm. All fire flow demand shall be maintained at a minimum of 20 psi residual system pressure with a goal of maintaining 50 psi elsewhere in the system (**Appendix E**). Resulting pressures and hydraulic grades were evaluated based upon the water model scenario runs.

Groundwater

Groundwater is not a primary source of supply to serve the ARSP. It is, however part of the City's water supply portfolio for meeting demands in emergency and dry year conditions. ASR allows treated surface water (potable water) to be injected into the aquifer through City wells during normal or wet times when excess water is available, and then the "banked" for later extraction from the same City wells during times of need. The distribution system for the ARSP would include one on-site groundwater well designed with ASR capabilities. The three existing wells on the project site will be demolished as part of the Proposed Project. At a minimum, the ARSP on-site well is projected to have a delivery capacity of 1,500 to 1,800 gpm or 2.16 to 2.59 mgd. The purpose of the ASR Program is to improve the City's water supply reliability by enhancing potable water supply storage capabilities, maintaining groundwater as a sustainable resource, and meet regional conjunctive use program goals. The impact analysis discussion for groundwater incorporates the results of the ASR Program EIR (City of Roseville, 2012a).

Thresholds of Significance

For the purpose of this EIR, a significant impact would occur if the development proposed for the project would do the following:

- Result in insufficient water supplies to serve the project from existing entitlements and resources, such that new or expanded water supplies are required.
- Result in or require the construction or expansion of water treatment, conveyance, and/or storage facilities that would create significant environmental effects
- Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or substantial lowering of the local groundwater table.

Impacts

IMPACT 4.12.1-1	AVAILABILITY OF CITY WATER SUPPLIES TO MEET DEMAND
Applicable Policies and Regulations	Water Supply Assessment (SB610 and 221) Urban Water Management Planning Act Water Conservation Projects Act Water Forum Agreement City of Roseville General Plan Policies Urban Water Management Plan Water Master Plan/Design Standards City of Roseville Water Conservation Ordinance
Significance with Policies and Regulations	Potentially Significant
Mitigation Measures	MM 4.12.1-1 Secure Adequate Water Supply
Significance After Mitigation	Less than Significant

Development of the Proposed Project would include residential, commercial, business professional, and school uses that would require potable water. As described above, net potable water demand for the Proposed Project is approximately 1,067 AFY. This includes adding approximately 29.5 AFY for system losses (2 percent of total demand) and water use reductions based on the proposed use of conservation measures and the use of recycled water for irrigation as appropriate.

As described in detail in the existing setting portion of this section (see **Table 4.12.1-1**) and in the WSA included as **Appendix E**, the City's American River surface water supply contracts total 66,000 AFY and include supply from USBR, PCWA, and SJWD. Pursuant to the City's WFA in normal/wet years the City can access 58,900 AFY of its American River supply, and in driest (critically dry) years, the City's American River supplies may be reduced to 39,800 AFY (see **Table 4.12.1-2**).

In 2013, existing citywide potable water demands were 34,138 AFY. The citywide potable water demand including ARSP would be 35,205 AFY (34,138 AFY + 1,067 AFY). Therefore, under existing plus project conditions, the City has adequate supplies to meet the demands of the Proposed Project during normal/wet years and driest (critically dry) years. Existing supplies exceed current demands plus project potable water demands by 23,695 AFY (58,900 AFY – 35,205 AFY) during normal/wet years and 4,595 AFY (39,800 AFY – 35,205 AFY) during driest years. Much of the unused water supply reflects the fact that some of the development that the City has approved in recent years has not yet built out.

However, because the City's water supply entitlements are allocated to a project at the time they are approved rather than at the time they are constructed, this analysis conservatively bases the availability of water supplies assuming buildout of the City's General Plan and approved specific plans. At buildout of the City's General Plan, citywide potable water demands are estimated to be 58,590 AFY. Development of the ARSP in combination with projected potable water demand for buildout of the City

would be 59,657 AFY (58,590 AFY + 1,067 AFY). Therefore, in normal/wet years, the City's water supply of 58,900 AFY (see **Table 4.12.1-2**) is not sufficient to serve all of the projected demand under full buildout of the General Plan plus the Proposed Project's demand. When compared to the total projected potable water demand of 59,657 AFY, there is a shortage of 757 AFY of water at buildout. Since there is a shortage during normal/wet years, there would be an even greater shortage during driest (critically dry) years due to the additional restrictions under the WFA. Therefore, as concluded in the WSA (**Appendix E**) the City does not currently have adequate surface water supplies to meet the additional demands of the Proposed Project at buildout of the General Plan; this is considered a potentially **significant** impact.

As described in the regulatory setting above, the City's General Plan requires new development areas to acquire additional surface water supplies if surface water is not available from the City's existing water supply entitlements. In accordance with the City's General Plan, the City has identified PCWA as a partner for the acquisition of up to 1,500 AFY of water supplies to serve the Proposed Project. The amount of potable water needed to service the project site (1,067 AFY) has been rounded up to 1,500 AFY to give the City some long-term flexibility with its water supply. **Mitigation Measure 4.12.1-1** requires that an agreement between the City and PCWA be entered into prior to the approval of any building permits to ensure that sufficient water supplies are acquired before the additional demand of the Proposed Project starts to occur. In the unlikely event that the City is unable to enter into an agreement with PCWA for water to serve ARSP, water will have to be obtained through another source such as the proposed SRWRP, described above. If this occurs, additional environmental review would be required. The SRWRP alternative is being considered to serve cumulative conditions in 2035; therefore, additional information on the SRWRP is included within **Impact 4.12.1-8**.

The availability of PCWA water supplies to serve the Proposed Project is assessed in the WSA (**Appendix E**) and **Impact 4.12.1-2**. As discussed therein, the PCWA has sufficient supplies in its 2010 UWMP to accommodate the Proposed Project and City staff has been coordinating with PCWA staff on reaching an agreement. The treated water supply is highly reliable and is expected to have full (100 percent) reliability in all hydrologic conditions (Normal, Single Dry, Multiple Dry water years). As described in **Impact 4.12.1-5**, some improvements are needed to PCWA infrastructure in order to provide the additional water supply for the Proposed Project. The City's unused water supply discussed above will be used to supply the Proposed Project in the interim period between the execution of the agreement between the City and PCWA and the completion of the necessary infrastructure improvements.

Although the injection of water through the ASR program is not anticipated at this time to be needed to serve the Proposed Project due the reliability of the PCWA water supply (100 percent reliability in all hydrologic conditions), the ASR program is in the toolkit of potential water sources if needed by the City and, therefore, is included in this discussion. As described in **Section 2.7.1**, the Proposed Project's water distribution system would include one on-site groundwater well designed with ASR capabilities to augment City water supplies during emergency and drier years. At a minimum, the on-site well is projected to have a delivery capacity of 1,500 to 1,800 gpm or 2,421 to 2,903 AFY. The use of groundwater to augment water supplies would be consistent with City practices and policies; and groundwater is already identified in the General Plan and GMP as a backup source of supply to be used in droughts or emergencies. Potential impacts from the use of groundwater to supplement water supplies are discussed in **Impact 4.12.1-6**. During dry years, the City also has the ability to manage City-wide system demands through implementation of drought stages. As described previously, Section 14.09 of

the Roseville Municipal Code (RMC) identifies "stages" of conservation designed to achieve a specific demand reduction to match available supplies for that year. The RMC lists five drought stages with specific actions water customers can implement to achieve a 10 to 50 percent water reduction. Even if the Proposed Project is required to reduce water usage, the PCWA supply in its full amount would be available to serve the Proposed Project and potentially other areas in the City. As concluded within the WSA (**Appendix E**), pursuant to Water Code section 10910(c)(4), and based on the technical analyses described in the WSA, the City finds that the total projected water supplies determined to be available for the Proposed Project during Normal, Single Dry, and Multiple Dry water years during a 20 year projection will meet the projected water demand associated with the Proposed Project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

With the proposed acquisition of 1,500 AFY of new surface water supplies obtained from PCWA in accordance with the City's General Plan (**Mitigation Measure 4.12.1-1**), there would be sufficient water supplies to serve the Proposed Project in all years (Normal, Single Dry, Multiple Dry water years); therefore, water supply impacts are considered **less than significant**.

IMPACT 4.12.1-2	**AVAILABILITY OF PCWA WATER SUPPLIES TO MEET DEMAND**
Applicable Policies and Regulations	Water Supply Assessment (SB610 and 221) Urban Water Management Planning Act Water Conservation Projects Act Water Forum Agreement Urban Water Management Plan Water Master Plan/Design Standards City of Roseville Water Conservation Ordinance
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required.
Significance After Mitigation	Less than Significant

The City has identified obtaining water from PCWA as the source of water to serve the ARSP and has therefore prepared a WSA for this scenario in compliance with SB 610. The WSA is included as **Appendix E**. In acquiring the additional 1,500 AFY from PCWA, the City would be required to comply with the PCWA's WFA. As described in the WSA, the water supply source for the Proposed Project will be the MFP, which is projected to have 100 percent reliability in all hydrologic conditions (Normal, Single Dry, Multiple Dry water years); therefore, no reductions in supply would occur during dryer years. The only restrictions would be the requirement to reduce demands under the Water Conservation Ordinance commensurate with the reductions for other City customers. Even if City customers are required to reduce water usage, the PCWA supply in its full amount would be available to serve the Proposed Project and potentially other areas in the City, thereby increasing water reliability for existing customers. As

described in detail in the background portion of this section (see **Table 4.12.1-7**) and in the WSA, PCWA has surface water entitlements through water rights and contracts for 254,800 AFY (West Yost, 2015) with an additional 9,089 AFY in recycled water supply. As shown in **Table 4.12.1-8**, the total water demands for the Western Area is projected to be 256,908 AFY at buildout; therefore, there is an anticipated surplus of 10,981 AFY at buildout of the Western Area.

In 2015, PCWA prepared a memorandum (2015 PCWA Memo; PCWA, 2015) documenting the revised water demand projections for the SIA and indicating that, because the revised water demand projections for the SIA are lower than projected for the PCWA 2010 UWMP, the projected potable water demand of the Proposed Project is now considered to be part of the water demand projected for the SIA. This reasoning is summarized in **Table 4.12.1-11**. Much of the difference is caused by the determination that a large portion of the SIA planning area cannot be developed. The reasons for the determination of portions of the SIA being unavailable for development vary. Some of the land is already developed, other land is assumed to be undevelopable due to the higher cost of wetlands mitigation, and the remainder is allocated to right of way for the planned Placer Parkway and for other purposes.

TABLE 4.12.1-11
COMPARISON OF PCWA 2010 UWMP DEMAND PROJECTIONS AND REVISED PROJECTIONS FOR SUNSET INDUSTRIAL AREA

Planning Area	Area, acres	Dwelling Units	Existing and Projected Annual Water Demand, AFY	Existing and Projected Total Annual Water Demand with Losses, AFY [1]
Revised SIA Projection, 2015				
Existing SIA	490	—	1,300	1,404
Formica Plant[2]	209	—	455	491
Existing WPWMA[3]	314	—	48	52
Future Industrial	1,122	—	2,352	2,540
Future Public (WPWMA)	70	—	157	169
Future Landfill (WPWMA)	553	—	9	10
SIA Undevelopable	3,346	—	—	—
Placer Ranch Specific Plan[4]	2,213	5,400	4,500	4,860
Amoruso Ranch Specific Plan[5]	674	2,785	1,100	1,188
Total Revised SIA Projection, 2015	8,991	8,185	9,921	10,714
SIA Water Demand Projection from PCWA 2010 UWMP[6]	8,100	—	11,760	12,701
Difference (Revised minus PCWA 2010 UWMP)	891[7]	8,185	-1,839	-1,987

1 - Includes an 8 percent unaccounted-for system loss factor.
2 - The Formica plant closed in 2006, but the property retains the entitlement to 455 AFY water use (491 AFY including 8 percent unaccounted-for system losses).
3 - WPWMA = Western Placer Waste Management Authority
4 - The application for Placer Ranch Specific Plan has recently been withdrawn.
5 - Proposed Project. Note that projected potable water demand in the 2015 PCWA Memo (Appendix E of the WSA) is greater than projected in **Table 4.12.1-10**.
6 - Sunset Industrial Area (SIA) as documented in 2012 PCWA Memo.
7 - Formica Plant and Proposed Project had not been included in previous SIA planning documents.
Source: West Yost, 2016a.

As indicated in **Table 4.12.1-11**, the revised water demand projection for the SIA, including the Formica Plant and the Proposed Project, is approximately 1,987 AFY less than had been included in the PCWA 2010 UWMP. As detailed in the 2010 UWMP, PCWA has sufficient water supplies to meet future demands in all conditions; therefore, PCWA will have sufficient supply to meet the Proposed Project's water demand (PCWA, 2015). This is considered a **less-than-significant** impact.

IMPACT 4.12.1-3	IMPACT ON AMERICAN RIVER AND DELTA ASSOCIATED WITH THE DIVERSION OF THE AMOUNT OF SURFACE WATER NEEDED FOR PROJECT
Applicable Policies and Regulations	Water Master Plan Water Forum Agreement City/USBR Contracts
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

As described above, total potable water demand for the project site is 1,067 AF, which will be met through the acquisition of 1,500 AFY of treated surface water from PCWA. As indicated previously within the Regulatory Section above, the WFA EIR certified in November 1999 addressed the impacts and mitigation measure that the area stakeholders, including the City of Roseville and PCWA would need to comply with in order to implement the water supply program outlined in the WFA.

Given the multitude of changed water supply/water management conditions within the region since the WFA EIR was adopted (See **Section 4.12.1.3**), a Water Supply Effects Analysis was completed to determine if these changed conditions would make the impacts to fisheries resources and water quality from the WFA demands more severe than previously disclosed in the WFA EIR. This analysis is included in **Appendix S** of this EIR. The Delta-related impacts that were re-analyzed are the 17 individually numbered impacts for Fisheries Resources and Aquatic Habitat and the 2 individually numbered impacts for Water Quality addressed within the WFA EIR and listed below:

Fisheries Impacts

Folsom Reservoir and Lake Natoma

- Impacts to Folsom Reservoir Coldwater and Warmwater Species (WFA EIR Impacts 4.5-1 and 4.5-2).
- Impact to Coldwater and Warmwater Species in Lake Natoma (Impact 4.5-3) and Temperature Impacts to Nimbus Fish Hatchery Operations and Fish Production (Impact 4.5-4).

Lower American River

- Impact to Fall-run Chinook Salmon (WFA EIR Impact 4.5-5).
- Impact to Steelhead (WFA EIR Impacts 4.5-6).
- Flow- and Temperature-Related Impacts to Splittail (WFA EIR Impact 4.5-7).
- Flow- and Temperature-Related Impacts to American Shad (WFA EIR Impact 4.5-8) and Striped Bass (WFA EIR Impact 4.5-9).

Other CVP Reservoir Storage

- Impacts to Coldwater and Warmwater Species in Shasta Reservoir (WFA EIR Impacts 4.5-10 and 4.5-11), Trinity Reservoir (WFA EIR Impacts 4.5-12 and 4.5-13), and Keswick Reservoir (WFA EIR Impacts 4.5-14).

Sacramento River

- Flow-Related Impacts to Sacramento River Fisheries (WFA EIR Impacts 4.5-15).
- Temperature-Related Impacts to Sacramento River Fisheries (WFA EIR Impacts 4.5-16).

Delta

- Impacts to Delta Fish Populations (WFA EIR Impacts 4.5-17).

Water Quality

- Lower American River and Folsom Reservoir Water Quality (WFA EIR Impact 4.4-1)
- Lower Sacramento River and Delta Water Quality (WFA EIR Impact 4.4-2)

In all but two cases (WFA EIR Impacts 4.5-3 and 4.5-4 and WFA EIR Impact 4.5-6), the Water Supply Effects Analysis confirmed that the analysis and conclusions in the WFA EIR are still valid under the changed conditions and that no new or substantially more severe significant findings would occur. As such the mitigation measures identified within the WFA EIR for these impacts are still valid and this impact is considered **less than significant**. A list of the mitigation measures applicable to these impacts is included in **Appendix U** of this document. The two cases where changed circumstances since the preparation of the WFA EIR result in more significant impact conclusions are discussed in detail in **Appendix S** and summarized below.

Impact to Coldwater and Warmwater Species in Lake Natoma (WFA EIR Impact 4.5-3) and Temperature Impacts to Nimbus Fish Hatchery Operations and Fish Production (WFA EIR Impact 4.5-4)

The WFA EIR found the impacts to coldwater and warmwater fish populations in Lake Natoma to be less than significant. The impacts to operations and fish production of the Nimbus Fish Hatchery also were less than significant.

The Water Supply Effects Analysis found that, based on the anticipated minimal changes to Lake Natoma storage, surface elevation fluctuations, and temperatures, the effects of WFA demands in light of changed circumstances would result in a less-than-significant impact to Lake Natoma's warmwater and coldwater fish populations. However, steelhead rearing operations in the Nimbus Fish Hatchery may be exposed to

water temperatures near or exceeding adverse effect levels under both Existing Conditions and NA ELT scenario. Consequently, the effects to seasonal water temperatures, in light of the changed circumstances and WFA demands, may result in additional adverse effects to coldwater fish species production that were not known and considered at the time of the WFA EIR preparation. Therefore, the potential for increased temperatures during June through September, and associated potential for adverse effects to Nimbus Fish Hatchery operations for steelhead, would be considered a new potentially significant WFA-related impact not previously identified in the WFA EIR.

However, the ongoing management of Lower American River resource conditions by USBR/Water Forum organization operations is expected to minimize the potential additional adverse effects to Nimbus Hatchery steelhead production operations. The American River Group process, as stipulated under the NOAA Fisheries BO, involves annually evaluating hydrologic and fisheries resource conditions in the American River basin, and developing the Annual Operations Forecast by May 1 each year to define the forecasted American River operations and implementation of the Minimum Flow Requirements and Water Temperature Objectives of the Lower American River FMS. An Annual Water Temperature Management Plan (Temperature Plan) also is developed by May 1 each year to define the actions to meet the Water Temperature Objectives of the FMS. The FMS Water Temperature Objectives are designed for budgeting of available cold water resources to support juvenile steelhead rearing in the summer. Potential avoidance and minimization measures to reduce the adverse temperature effects to hatchery steelhead production, particularly during extreme drought conditions, also may require earlier seasonal releases of juvenile fish and/or relocation of fish to alternative hatcheries with suitable water temperatures, as implemented in the past two years.

Proposed Project's Specific Contribution to WFA EIR Impact 4.5-3 and 4.5-4

The Water Forum and USBR will continue to provide oversight for implementing the FMS-related annual planning and management actions for coldwater pool management to reduce the potential adverse temperature effects to Nimbus Hatchery operations. The incremental effect of the water demand for Proposed Project to the potentially increased water temperatures released to the Nimbus Hatchery would be exceedingly small, if even measurable. In addition, in receiving municipal water service from the City, the Proposed Project's use of surface water from the American River, like all of the City's other surface water uses, will be subject to CVP allocation cutbacks and City-imposed mandatory water conservation measures when such measures are imposed. Consequently, given the existing annual water temperature planning and management actions by the Water Forum and USBR, the effect of the Proposed Project on potentially increased water temperatures released to the Nimbus Hatchery is a **less-than-significant** impact.

Impact to Steelhead (WFA EIR Impact 4.5-6)

The WFA EIR found the flow and temperature-related effects to steelhead life stages in the Lower American River to be less than significant.

Similar to potential impacts to the Nimbus Fish Hatchery operations for steelhead described above, the Water Supply Effects Assessment found that the potential for increased temperatures during June through September, and associated potential for adverse effects to steelhead, would be considered a new potentially significant WFA-related impact not previously identified in the WFA EIR. However, as

explained above, the annual planning and management process of the American River Group, and oversight of Folsom Reservoir and Lower American River operations, will serve to minimize the potential adverse flow- and temperature-related effects to steelhead.

Proposed Project's Specific Contribution to WFA EIR Impact 4.5-6

Similar to the discussion of the Proposed Project's contribution to WFA EIR Impacts 4.5-3 and 4.5-4 above, the incremental effect of the water demand for Proposed Project to the potentially increased water temperatures released to the Nimbus Hatchery would be exceedingly small, if even measurable. Moreover, in receiving municipal water service from the City when developed, water uses for the Proposed Project will be subject to CVP allocation cutbacks and City-imposed mandatory water conservation measures when such measures are imposed. Consequently, given the existing annual water temperature planning and management actions by the Water Forum and USBR, the effect of the Proposed Project is a **less-than-significant** impact.

IMPACT 4.12.1-4	CAPACITY OF WATER TREATMENT SYSTEM TO MEET POTABLE WATER DEMAND
Applicable Policies and Regulations	Water Master Plan City Improvement Standards
Significance with Policies and Regulations	Near-term – Less than Significant Cumulative - Significant
Mitigation Measures	Near-term – None Required Cumulative – None Available
Significance After Mitigation	Near-term – Less than Significant Cumulative - Significant and Unavoidable

Water treatment for the Proposed Project depends on the water supply source to be utilized. As described in **Section 2.7.1**, the Proposed Project will depend on treated surface water delivery to the City under a wholesale/retail agreement with PCWA for 1,500 AFY. PCWA would treat and transport surface water to the existing Tinker Intertie at the northern boundary of the City. As described in **Impact 4.12.1-5**, some improvements are needed to PCWA infrastructure in order to provide the additional water supply for the Proposed Project. The City will provide water supply to the Proposed Project in the interim period between the execution of the agreement between the City and PCWA and the completion of the necessary infrastructure improvements.

Peaking factors are used to calculate water demand expected under varying future water demand conditions such as maximum day and peak hour periods. The resulting demand conditions for maximum day use is used to evaluate and size water delivery facilities while the peak hour peaking factor is used to evaluate storage capacity needs. Maximum Day Demands (MDDs) are developed by applying the MDD factor (2.0) to the Average Day Demand (ADD) estimates. The 2.0 factor is consistent with the City of Roseville Design Standards published in January of 2013.

City of Roseville Water Treatment Plant

As described in detail in the background portion of this section, the City's existing Barton Road WTP has a rated capacity of 100 mgd. As documented above, the existing citywide potable water demand including the Proposed Project is 35,205 AFY (34,138 AFY + 1,067 AFY). This equates to an average day treatment demand of approximately 31.4 mgd. Using the maximum day peaking factor of 2.0 described above, a WTP capacity of 62.8 mgd would be required under current demands plus the Proposed Project demands. The Barton Road WTP currently has a capacity of 100 mgd and therefore currently has available capacity sufficient to serve existing demands plus the additional needs of the Proposed Project. However, the Proposed Project is planned to be served long-term by PCWA's proposed Ophir WTP. As described in **Section 4.12.1.2**, PCWA intends to have Ophir WTP on-line in time for new demand, including demand of the Proposed Project. Under agreement between PCWA and the City of Roseville, currently available capacity at the Barton Road WTP may be made available for the Proposed Project on an interim basis to allow funding of Ophir WTP at a later date, subject to Ophir WTP being on-line in time for the Barton Road WTP to serve other planned demands. Consequently, near-term impacts are considered **less than significant**.

PCWA Water Treatment System

The ARSP would require PCWA to treat an additional 1,500 AFY or 1.3 mgd of water to meet Proposed Project buildout water demands. Using the maximum day peaking factor of 2.0 described above, 2.6 mgd of treatment capacity would be needed to serve build out of the Proposed Project.

As described in detail in the background portion of this section, the Western Area is currently served by the Foothill and Sunset WTPs. Constructed maximum-day treatment capacity of 66.00 mgd exists today, but approximately 62.14 mgd of that capacity is allocated as of first quarter 2016, leaving 3.86 mgd available for future development (Firenzi, 2016). Therefore, under existing conditions the Foothill and Sunset WTPs have the capacity to meet ARSP demands. Long-term WTP capacity for the Foothills/Sunset/Ophir Area would be provided by the construction of the future Ophir WTP.

As shown in **Table 4.12.1-9**, at buildout the Ophir WTP would be constructed in phases reaching a maximum capacity of 30 mgd. The construction of the Ophir WTP (previously referred to as the Foothill Phase II WTP and Pipeline Project) was addressed in the Foothill Phase II WTP and Pipeline EIR (Ophir WTP EIR). The Ophir WTP EIR is incorporated into this document by reference, as described within **Section 1.4** of this EIR. The findings of the Ophir WTP EIR were that construction-related activities (including site grading) would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions, which would adversely affect air quality. These impacts to air quality were determined to be significant and unavoidable. However, impacts to the remaining issues analyzed by the EIR were found either to be less than significant or would be reduced to less than significant through the implementation of adopted mitigation measures.

Because the ARSP would contribute to the need to develop the Ophir WTP, which would result in significant environmental impacts, cumulative impacts are considered **significant and unavoidable**. There are no additional feasible mitigation measures that could be imposed on the Proposed Project to further mitigate these short-term impacts from construction of the Ophir WTP.

IMPACT 4.12.1-5	CONSTRUCTION OR EXPANSION OF WATER CONVEYANCE FACILITIES
Applicable Policies and Regulations	Water Master Plan City Improvement Standards California Building Code
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

Water conveyance facilities for the Proposed Project depends on the water supply source to be utilized. As described in **Section 2.7.1**, the Proposed Project will depend on treated surface water delivery to the City under a wholesale/retail agreement with PCWA for 1,500 AFY. Additionally, the City will provide water supply the Proposed Project in the interim period between the execution of the agreement between the City and PCWA and the completion of the necessary infrastructure improvements.

City of Roseville Potable Water Facilities

The City will be the water purveyor for the Proposed Project. The City will own, operate, and maintain the transmission and distribution system within the project site.

The Proposed Project includes utility infrastructure required to provide and maintain an acceptable level of service to the project site. The pipe diameter sizes range from 12 to 24 inches and will be supplied to the project site via a 24-inch main line extended from the south property line from the proposed CSP Area. Connections with proposed and existing adjacent neighborhoods and specific plans would be provided at the southern termination of Westbrook Boulevard and the eastern terminations of Roads "B" and "D". The distribution system for the Proposed Project would also include one on-site groundwater well within P/QP parcel AR-55 designed for both injection and extraction that would be included as part of the City's ASR Program to augment water supplies during "drier" years and as a mechanism to provide operational flexibility. At a minimum, the on-site well is projected to have a delivery capacity of 1,500 to 1,800 gpm or 2.16 to 2.59 mgd. The water transmission and distribution system would be constructed and installed in phases to coincide with development entitlements and would be designed to accommodate buildout of the Proposed Project. The actual pipe sizes required to convey the flows from the CSP to the Proposed Project are identified in the *ARSP Area Water Master Plan* by Kimley–Horn (W*ater Master Plan*; **Appendix H**). **Figure 2-14** in **Section 2.0**, **Project Description**, provides an overview of the planned potable water distribution system to serve project site. Potential environmental effects that could occur as a result of constructing these on-site water conveyance facilities are addressed in this EIR, including **Section 4.1**, **Land Use and Agriculture**; **Section 4.4**, **Air Quality**; **Section 4.8**, **Vegetation and Wildlife**; **Section 4.9**, **Cultural and Paleontological Resources**; and **Section 5.0**, **CEQA Considerations**.

The potable water transmission and distribution system for the Proposed Project would connect to planned infrastructure within the CSP Area which will connect to the City's existing water transmission system via a planned 24-inch pipeline along Blue Oaks Boulevard within the WRSP Area. Infrastructure for the CSP Area, including off-site pipelines to the City's existing water transmission system, was planned and sized to accommodate flow from the project site and evaluated within the CSP Final EIR (April 2011). Potable water demand calculated for the Proposed Project as part of the WSA (**Appendix E**) is less than the flows assumed in the Creekview Master Water Study (Appendix H-2 of the CSP Final EIR). Within the Creekview Master Water Study, the projected average daily water demand from the Proposed Project was 939.9 gpm. As described above, the current projected water demand from the Proposed Project is 1,067 AFY; this equates to approximately 661 gpm. Therefore, the potable water demand from the Proposed Project is less than the assumed demand within the Creekview Master Water Study and no upsizing of planned infrastructure is necessary.

In summary, the proposed on-site water transmission and distribution system and the proposed off-site water transmission system in the CSP Area and WRSP Area have been sized to serve the anticipated water demand generated by the project site. These facilities would be constructed in public roads and right-of-ways (ROWs). The physical impacts of associated on-site construction activities are analyzed in this EIR. As described above, no upsizing of planned infrastructure within the CSP Area or WRSP Area is necessary to convey potable water to the Proposed Project. Additionally, an analysis of the City's existing infrastructure was completed and included in Appendix E of **Appendix H** (Kimley-Horn, 2016b). As concluded therein, no upgrades to City infrastructure are required due to pressure drops or increased velocity directly associated with the addition of Proposed Project demands. Therefore, there would be no additional impacts beyond those described in the other issue area sections of this EIR. Impacts of the Proposed Project on the City's water transmission and distribution systems would be **less than significant**.

PCWA

As described above, the amount of potable water needed to serve the project site is approximately 1,067 AFY; however, this amount has been rounded up to 1,500 AFY to give the City some long-term flexibility with their water supply under the various water supply options. This equates to approximately 1.3 mgd ADD and 2.7 mgd MDD. Surface water obtained through the wholesale agreement would be delivered to the City though PCWA's existing infrastructure through the Tinker Intertie and then transported through the City's infrastructure to the project site. As described in **Section 4.12.1.2**, currently PCWA is under contract to deliver up to 10 mgd to west Placer County from its Lower Zone 1 system via the Roseville water system. Deliveries to the Roseville water system are made at the Tinker Intertie. Current deliveries to CAW are approximately two mgd. With deliveries for the Proposed Project, a total of 12.7 mgd would need to be delivered through the intertie, when CAW is taking its full contract amount of 10 mgd. An analysis of PCWA's distribution system was completed and included as Appendix D of **Appendix H** (Kimley-Horn, 2016b). As concluded therein, PCWA is able to provide the City of Roseville with the 2.7 mgd required for Proposed Project, however, additional infrastructure will be required. PCWA reviewed the technical memorandum and agrees with the recommendations contained therein (PCWA, 2016). The additional infrastructure includes:

- New, self-contained pump, adjacent to the existing Tinker Pump Station, capable of delivering 2.7 mgd at a similar discharge head to the current 10 mgd pump station;
- New pipeline connection into the existing fluoride feeder station or construct new feeder stations inside new pump building; and
- Construct approximately 800 feet of 24-inch diameter pipeline along Tinker Road.

As shown on **Figure 2-21**, the improvements are completely within the Tinker Pump Station and Tinker Road ROW. These areas are already paved and developed; therefore, sensitive environmental resources including biological and cultural resources, are not present and impacts from construction of the necessary improvements, including but not limited to those associated with Geology and Soils, Vegetation and Wildlife, and Cultural Resources are not anticipated. Because Tinker Road will be repaved to existing conditions and the additional infrastructure at the Tinker Pump Station is consistent with existing uses, operation of the necessary improvements would not result in impacts associated with Land Use and Agriculture, Noise, Hazardous Materials, Public Utilities, Hydrology, and Aesthetics. During construction temporary increases in air pollutant and greenhouse gas emissions and noise would occur; however, these impacts are anticipated to be minimal and short-term. Impacts from the construction and operation of the additional infrastructure at the Tinker Pumps Station and Tinker Road ROW are considered to be **less than significant**.

Additional treatment and transmission facilities in PCWA's system would ultimately be needed for PCWA to meet the projected ultimate water demands of Zone 1 in the Western Area, which includes the City of Roseville and the project site. Based on PCWA's 2010 UWMP, build out of the PCWA's service area is projected to occur beyond 2040. Therefore, potential impacts of the construction and operation of these additional facilities are discussed in the cumulative analysis within **Impact 4.12.1-8**.

IMPACT 4.12.1-6	**CONSTRUCTION OR EXPANSION OF WATER STORAGE FACILITIES**
Applicable Policies and Regulations	Water Master Plan City Improvement Standards California Building Code
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

The amount of water storage necessary to serve the project site is provided in the *Water Master Plan* included as **Appendix H**. Estimated operational water demand, fire protection demand, and any emergency demand were used to calculate the amount of potable water storage needed to serve the ARSP. Based on these calculations, it was determined that approximately 2.5 mg of potable water storage is needed for the ARSP as a stand-alone project.

Under all the water supply options, water storage for the project site would be accomplished at the City's proposed Westside Tank and Pump Station site located within the WRSP immediately south of the PGWWTP. The Westside Tank and Pump Station site was anticipated to accommodate up to 10 mg of storage and pumping capacity: 6 mg for the WRSP Area and up to 4 mg for the MOU Remainder Areas (Sierra Vista and Creekview). An additional 2 mg of storage will be needed for the ARSP project, bringing the Westside Tank capacity to 12 mg.

Although the Westside Tank and Pump Station is now proposed to accommodate up to 12 mg of storage and pumping capacity (2 mg more than anticipated in the WRSP EIR), the storage tanks and associated facilities will still be contained within the 5.1-acre parcel designated within the WRSP Area and analyzed within the WRSP EIR. Construction of the upsized tanks will require the same construction equipment and general duration as that of the 10 million gallon tank; therefore, impacts from construction (i.e. noise, air quality, etc.) would be substantially similar to those disclosed in the WRSP EIR. Additionally, the increase in capacity of the water storage tanks is not anticipated to increase any operational impacts. Although the size of the tanks would be slightly larger, as a described in the WRSP EIR, the potable water tanks would include a fenced area surrounding the tanks and would be located approximately 200 feet from the Centerline of Phillip Road behind pump equipment and a recycling drop-off area. Along the west side of Phillip Road, a 20-foot-wide landscape corridor is proposed, with low shrubs and trees and an open fence adjacent to the PGWWTP and tank site. Once the trees along Phillip Road mature, the tank would become less visible (City of Roseville, 2004b). This impact is **less than significant**.

IMPACT 4.12.1-7	**GROUNDWATER DEPLETION OR INTERFERENCE WITH GROUNDWATER RECHARGE COULD RESULT IN LOWERING OF GROUNDWATER TABLE**
Applicable Policies and Regulations	City of Roseville General Plan Water Forum Agreement Groundwater Management Plan
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

A full discussion of potential impacts to groundwater recharge from the development of impervious services is provided in **Impact 4.13-2**.

Use of Groundwater during Dry Years

Development of the Proposed Project would increase the demand on water supplies. As described above, total potable water demand for the Proposed Project is 1,067 AF, which will be met through the acquisition of 1,500 AFY of treated surface water from PCWA. The treated water supply is highly reliable and is expected to have full (100 percent) reliability in all hydrologic conditions (Normal, Single Dry,

Multiple Dry water years). Therefore, the use of groundwater during Single Dry and Multiple Dry water years is not anticipated to be needed to serve the Proposed Project. However, because groundwater is in the toolkit of potential water sources if needed by the City who will be serving the Proposed Project on an interim basis, use of groundwater during dry years is conservatively discussed below.

During Single Dry and Multiple Dry water years, City water demand would be met using surface water, recycled water, and groundwater supplies along with demand reduction activities such as mandatory water conservation efforts. In all year types, groundwater may also be used as an emergency backup for recycled water supplies as is current City policy.

When a well first begins extracting groundwater from an aquifer, groundwater is initially extracted from groundwater storage. The result is a localized cone of depression that fluctuates with operation of the well. When extraction decreases, the aquifer typically recharges and returns to its pre-extraction condition. Over time, a well can also induce an incremental decline in regional groundwater elevations. Cones of depression with a larger aerial extent can form in areas where multiple groundwater extraction wells are in operation. The use of groundwater, although relatively infrequent, could affect aquifers in the area by altering groundwater elevations, which could in turn, affect recharge condition, change aquifer storage characteristics, result in localized well impacts, or cause areas of poorer quality groundwater to shift.

As discussed in **Section 4.12.1.2**, based on the historical hydrologic record the Water Forum used for their analysis (and for the WFA restrictions), the 58,900 AFY contract surface water supply is assumed to be available to the City in about 83 percent of the years. In the remaining 17 percent of years, supply quantities ranging from 54,900 AFY to 39,800 AFY of surface water would be available per the WFA. Thus, in drier and driest years, supplemental supplies (conservation, groundwater, or other supplies) potentially totaling up to 19,100 AFY (the difference between the normal/wet year supply and the driest year supply) would be needed to make up for the deficiencies in drier or critically dry years (West Yost, 2016a).

TABLE 4.12.1-12
WATER SUPPLIES VERSUS DEMANDS, BUILDOUT DEMAND CONDITIONS (WITH PROPOSED PROJECT)

Demand Condition	Potable Water Demand, AFY	Supply Surplus, AFY				
		100% of CVP	75% of CVP	50% of CVP	25% of CVP	0% of CVP
Normal	59,657	3,843	(-4,157)	(-12,157)	(-20,157)	(-28,157)
Stage 1: 10% Reduction	53.691	9,809	1,809	(-6,191)	(-14,191)	(-22,191)
Stage 2: 20% Reduction	47.725	15,775	7,775	(-225)	(-8,225)	(-16,225)
Stage 3: 30% Reduction	41,760	21,740	13,740	5,740	(-2,260)	(-10,260)
Stage 4: 40% Reduction	35,794	27,706	19,706	11,706	3,706	(-4,294)
Stage 5: 50% Reduction	29,828	33,672	25,672	17,672	9,672	1,672
Total Available Supply	--	63,500	55,500	47,500	39,500	31,500

Source: West Yost, 2016a (**Appendix E**)

It is important to note that if the City is able to accomplish the recommended reductions in demand through more stringent conservation measures outlined in the RMC, groundwater would not be needed to supplement supplies. This is demonstrated in **Table 4.12.1-12**. However, to ensure a highly reliable water supply for the City, this analysis assumes only a 20 percent reduction through conservation. This is equivalent to a reduction in water demands of 11,932 AFY at buildout of the City plus the project (20 percent of the surface water supply requirement of 59,657 AFY).

This assessment assumes that of the 17 years out of 100 that would require some level of conservation, only 10 require groundwater pumping after a 20 percent conservation level had been achieved. The estimated amount of groundwater per year needed to augment surface water supplies would range from 0 to 16,225 AFY, with 16,225 AFY of groundwater needed to meet demands in a zero USBR delivery year with 20 percent demand reductions in force (West Yost, 2016a). Conservatively assuming the City would need the maximum amount of groundwater supplies for all 10 years, the total groundwater demand would be 162,250 AF for the 100-year analysis period. The amount of banked groundwater obtained through fallowing Reason Farms is estimated to be 296,194 AF (banking assumed to occur in 94 years of 100 years for a total of 3,151 AFY banked). After subtracting both the amount of groundwater used for emergency backup recycled water supply and the amount used in dry years from the amount of banked groundwater, 133,724 AF would remain in the groundwater basin. **Table 4.12.1-13** summarizes these groundwater impacts under the Water Forum Scenario. Additionally, with the abandonment of the three existing wells onsite, the actual amount of water banked each year would be greater. Therefore, the City has sufficient groundwater supplies if needed during dry years resulting in a **less-than-significant** impact.

TABLE 4.12.1-13
GROUNDWATER SUPPLY NEEDS AT BUILDOUT CONDITIONS

Groundwater Use	Groundwater Demand (AFY)	Groundwater Over Life of Project (100 years)	Comment
Supply to supplement surface water during dry years	16,225	162,250	Groundwater assumed to be required in 10% of all years.
Recycled water emergency backup supply	11	220	Assumes 1.8 mgd for a period of two days under emergency conditions when recycled water is not available. It is further assumed emergency conditions would occur once every five years for a total groundwater need of 220 AFY for the life of the project (100 years).
Total Groundwater Needs	16,236	162,470	
Banked Groundwater from fallowing Reason Farms	3,151	296,194	Assumes banking occurs in 94 of 100 years.
Net Groundwater Banked		133,724	

Use of Proposed ASR Well

Local groundwater elevation and migration was addressed in the ASR Program EIR (City of Roseville, 2012a), included herein by incorporated by reference into this EIR as discussed in **Section 1.4**. As

discussed within the ASR Program EIR, based on review of the available groundwater elevation and migration data and data gathered during the Phase II Pilot test, no adverse groundwater gradient impacts are anticipated as a result of ASR Operations. The Proposed Project will meet its stated purpose by closely monitoring and tracking (i.e. banking) injection and extraction water, regardless of migration, to ensure no net impacts to the aquifer and therefore increased groundwater supply reliability (a stated project purpose). No mitigation was determined to be required. As part of the City's ASR Program, the ASR well proposed as part of the Proposed Project would be subject to the same level of monitoring and tracking as the rest of the ASR wells to continue to ensure no net impacts to the aquifer would occur. Therefore, this is considered a **less-than-significant** impact.

IMPACT 4.12.1-8	CUMULATIVE WATER SUPPLY AND WATER TREATMENT IMPACTS
Applicable Policies and Regulations	Water Supply Assessment (SB610 and 221) Urban Water Management Planning Act Water Conservation Projects Act Water Forum Agreement City of Roseville General Plan Policies Urban Water Management Plan Water Master Plan/Design Standards City of Roseville Water Conservation Ordinance
Significance with Policies and Regulations	Significant
Mitigation Measures	None Available
Significance After Mitigation	Significant and Unavoidable

As described in **Section 5.6**, the geographic area/scope of the cumulative analysis for water supply, distribution, and storage considers the potential environmental effects of supplying water to the cumulatively considerable development in the City of Roseville (i.e. buildout of general plan including approved specific plans, ARSP, and Placer Ranch area) as well as the regional water demands generated in Sacramento County, South Placer County, and Western El Dorado County under the provisions of the WFA.

Water Supply

Development of the Proposed Project, along with other foreseeable future development within the City of Roseville (which includes buildout of the City's existing General Plan, the SVSP Area, the CSP Area, and Hewlett Packard/Campus Oaks Project), would exceed the City's currently contracted surface water supplies. This is a **significant** impact. Total cumulative surface water demands with the Proposed

Project are estimated at 64,377 AFY (West Yost, 2016a)[5]. This is 5,477 AFY more than the City's WFA limitation on diversions from the American River in wet/normal years of 58,900 AFY, but 1,623 AFY less than the City's total normal/wet year water supply contracts of 66,000 AFY. As described previously, in accordance with the City's General Plan, the City has identified PCWA as a partner for the acquisition of up to 1,500 AFY of water supplies to serve the Proposed Project. The amount of potable water needed to service the Proposed Project (1,067 AFY) has been rounded up to 1,500 AFY to give the City some long-term flexibility with its water supply.

In addition to the City's full use of its WFA allocation of surface water, it is likely that future water supply will come from one or both of the following sources: agreement with PCWA for additional water supply and/or new surface water diversions from the Sacramento River. Because the City's surface water supply under the WFA is insufficient to meet all demands during drier water year-types, the City's cumulative buildout demand (defined in this context to go beyond the current General Plan boundary) also would require groundwater withdrawals in years when the surface supply is projected to be insufficient to fully meet water demands.

Approach to Cumulative Water Supply Impact Assessment and Past, Present, and Foreseeable Projects and Regulations

The cumulative analysis for water supply, distribution, and storage considers the potential environmental effects of supplying water to the Proposed Project in addition to regional water demands generated in Sacramento County, South Placer County, and Western El Dorado County under the provisions of the WFA. The analysis also considers other past, present, and reasonably foreseeable future projects and regulations that govern regional water supply operations. In particular, the CVP and SWP control the major storage reservoirs in the Central Valley, and CVP/SWP operations are integrated and responsive to the water demands imposed by their contractors and other non-project agricultural and M&I demands. Therefore, all regional surface water diversions incrementally affect regional reservoir storage and flow conditions in the Central Valley. In turn, changes in reservoir storage and flow conditions can result in other indirect impacts such as changing groundwater levels and groundwater quality, when water supply uses shift from surface water to groundwater during periods of drought. Other surface water-dependent environmental resources that are indirectly affected by changes in surface storage and flows include fisheries and aquatic resources habitat, water quality, recreational opportunities (e.g., reservoir access, river rafting), and hydropower power generation. Finally, the cumulative water supply impact assessment also considers the reasonable certainty of future cumulative water supply availability for the Proposed Project as well as the other reasonably foreseeable or probable projects that will make incremental demands on the same water supplies and resources.

Future urban growth will result in additional demands for surface water and groundwater in the City of Roseville and region. Future water demands, as developed from community General Plan scenarios and other land use projections, are considered in the water supply operations model used for CVP/SWP planning purposes. For example, the operations modeling by USBR for the WFA EIR recognized future cumulative demands of major metropolitan areas and programs including the WFA purveyors, East Bay

[5] Total water demand includes buildout of the City's existing General Plan and the following development projects: SVSP, CSP, WSP, Pearl Creek Apartments, WP Phase 4, Fiddyment Ranch SPA 3, Hewlett Packard/Campus Oaks Project, and the Proposed Project.

Municipal Utility District supplemental supply from the Freeport Regional Water Authority project, and CVP/SWP future water demands. However, the analysis and CEQA processes on several large water supply projects have not been completed yet. Additionally, there has been no comprehensive assessment of the future cumulative conditions that addresses new federal rules to protect endangered species, which directly and indirectly influence regional water supplies through obligations imposed on the integrated CVP/SWP operations. Climate change also may result in additional uncertain effects to future water supply conditions and CVP/SWP operations. In short, the CVP/SWP system is facing an unprecedented level of uncertainty that makes it impossible for CEQA lead agencies such as the City to predict the future without a large amount of speculation. The sources of such uncertainty are discussed below.

The following summarizes the major past, present and reasonably foreseeable future water supply projects and regulations that are considered in this cumulative assessment of the additional water demand of the Proposed Project:

- Sacramento River Water Reliability Study (SRWRS): Proposed new surface water diversion (up to approximately 88,000 AFY) on the Sacramento River upstream of the confluence with the lower American River. The SRWRP was originally conceived as a joint project between the City of Sacramento, SSWD, PCWA, the City of Roseville, and several other agencies. The project is now being conceived as a project that could include an even greater number of stakeholders. The City's participation in this project to divert up to 7,100 AFY was not assessed in the WFA EIR. Use of the SRWRP was considered within the WRSP EIR (2004) and the PVSP Supplement to the Final EIR (2007) incorporated by reference into this EIR. Although the City and its partners were planning at one time to release a Draft EIR/EIS for the SRWRS in 2009, that effort was suspended at the time of the economic slowdown.
- El Dorado Water and Power Authority (EDWPA): Proposed new surface water diversion (40,000 AFY) from the American River basin upstream of and from Folsom Reservoir to serve El Dorado County, including the El Dorado Irrigation District and Georgetown Divide Public Utility District (GDPUD) service areas (GDPUD withdrew from the EDWPA Supplemental Water Rights Project but its service area remains within the project site). CEQA compliance for the EDWPA project, and associated operations modeling, are currently underway. A Draft EIR for the project was circulated in July 2010 for public comment. The project will require approval by the SWRCB, whose actions in response to EDWPA's proposal cannot be predicted with certainty.
- Bay Delta Conservation Plan (BDCP) / California Water Fix: Comprehensive effort to develop a restoration program to improve Delta conditions for aquatic species and provide increased water supply reliability for CVP/SWP Delta export operations. A Draft EIR/EIS for the project was made available for public review from December 13, 2013 through July 29, 2014. A partially Recirculated Draft EIR/Supplemental Draft EIS (Water Fix RDEIR/SDEIS) that was recently published for public review on July 10, 2015. The preferred alternative identified in the Water Fix RDEIR/SDEIS (Alternative 4) involves water being conveyed from the north Delta to the south Delta through tunnels fed by three fish-screened intakes. As discussed in the Water Fix RDEIR/SDEIS, the identification of Alternative 4 as the preferred CEQA alternative is tentative only, and is subject to change as DWR and the CEQA responsible agencies, as well as the NEPA Lead Agencies, receive and consider public and agency input on the Water Fix RDEIR/SEIS. Therefore, it is possible that the final version of the Water Fix may differ from the preferred

alternative described in the Water Fix RDEIR/SEIS. Consequently, it is not possible to predict what the final version of the Water Fix will consist of at this time; it may or may not include a major new isolated conveyance facility (e.g., a "Peripheral Canal") intended to reduce the extent to which both the CVP and the SWP will have to continue relying on pumps in the south Delta that, while putting water into the Delta Mendota Canal (federal) and the California Aqueduct (state), cause harm to the Delta smelt and other threatened or endangered species. Depending on its final form, the Water Fix may require the USFWS and the National Oceanographic and Atmospheric Administration – NMFS (NOAA Fisheries) to revisit the terms of recently adopted BOs for the Delta smelt (USFWS) and various salmonid species (NOAA Fisheries), which are discussed below.

- Contra Costa Water District (CCWD) Expanded Los Vaqueros Reservoir: This project, which was completed in fall 2012, expanded the reservoir's capacity of the reservoir from 100,000 AF to 160,000 AF. The dam was increased in height by 34 feet, and is now 226-feet high. The additional water storage will help ensure high-quality water deliveries to customers, reliability during drought and protections for Delta fisheries, and the environment.
- City of Stockton Delta Water Supply Project: Surface water diversion (up to 126,000 AFY) from the Delta to meet Stockton M&I demand through 2050. Operations modeling and partial CEQA compliance was completed in 2005. In late 2005, the City of Stockton certified an EIR that provided "project level" coverage for an initial phase of 33,600 AFY and "program level" coverage for a second phase of up to the remaining total amount of 126,000. The City completed construction of its new 30 mgd drinking WTP, and intake and pump station facility in 2012. According to the EIR prepared for the Stockton General Plan, this initial amount of water should, along with other sources, be sufficient to serve Stockton's water demands through approximately the year 2035.
- PCWA American River Water Rights Extension Project (WRE Project): The purpose of the WRE Project is to extend PCWA's existing Water Right Permits 13856 and 13858 through the year 2043 to allow PCWA additional time to put water allocated under these permits to full beneficial use. The WRE Project includes PCWA's long-standing WFA commitment to make additional environmental releases to the Lower American River in drier years through implementation of a long-term water transfer. A NOP was released on May 18, 2015 announcing the preparation of an EIR by the PCWA.
- Water legislation: At the end of the 2009 legislative session, stakeholders representing a variety of water users, environmental organizations, local governments, and others engaged in intense negotiations over legislation that could affect the operations of the CVP and SWP. The legislation includes language that (i) creates a new governance structure for "the Delta," (ii) expresses an intention to augment the CVP and SWP by building new "storage" facilities, (iii) provides funding for ecosystem restoration and physical facilities, (iv) imposes aggressive conservation goals on water users throughout the state, and (v) includes commitments to certain water users. Currently staff from the DWR is developing regulations and criteria to guide implementation and compliance. Additional legislation continues to be considered to reinforce the intent of this new legislation. This legislation is further addressed in **Section 4.12.1.3**.
- New groundwater legislation: In September 2014, a three-bill package known as the SGMA was signed. The legislation allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs. This legislation is further addressed in **Section 4.12.1.3**.

- USBR CVP M&I Water Shortage Policy (WSP): The WSP would be used by USBR to define water shortage terms and conditions for applicable CVP water service contractors, as appropriate; determine the quantity of water made available to CVP water service contractors that, together with the M&I water service contractors' drought water conservation measures and other non-CVP water supplies, would assist the M&I water service contractors in their efforts to protect public health and safety during severe or continuing drought; and provide information to CVP water service contractors for their use in water supply planning and development of drought contingency plans. The USBR released the Final EIS for the WSP on September 10, 2015.

Finally, scientific research to date indicates that observed climate change is likely to result in changes in regional climate conditions that may adversely affect water supply conditions in the Central Valley, and thus considered in this assessment of future cumulative conditions. A detailed discussion of regulations regarding climate change is in **Section 4.5**, **Climate Change and Greenhouse Gas Emissions**. Although there is much uncertainty regarding the timing, magnitude, and nature of potential climate changes to water resources, the DWR chose to include 22 alternative climate scenarios in the evaluation of future strategies in its 2013 Water Plan Update (DWR, 2013a). These include 12 climate scenarios identified by the Governor's Climate Action Team (CAT) for future climate change, five scenarios repeating historical climate with a severe 3-year drought, and five scenarios repeating historical climate with a warming temperature trend. Each of the climate scenarios has separate estimates of future precipitation and temperature. Collectively these estimates provide planners with a range of precipitation and temperature that might be experienced in the future, and they are used with other factors to estimate future water demands.

Water Supply Scenarios Considered to Meet City's Cumulative Buildout Water Demand

Two scenarios have been identified for securing additional water supplies to meet the buildout demand under future cumulative conditions. "Scenario 1" would consist of the full utilization of the City's American River supply allocated by the WFA, with an additional 10 mgd of water acquired through an agreement with PCWA. Because the City's WFA allocation is subject to CVP deficiencies under drier year types, the additional water demands under future cumulative conditions may require groundwater pumping in years when the City receives less than a full surface water allocation. As described previously, the City's ASR program allows the City to extend its system capacity by storing treated surface water (potable water) in the aquifer for use when it is needed, such as during a drought or to offset peak demand. While this is in the City's toolkit for potential future water sources to meet the water demands, the City is not actively utilizing the ASR program at this time.

For Scenario 1, it is assumed that contractual agreements with PCWA would provide additional surface water supply that is allocated under the WFA, or is otherwise already developed (i.e., PCWA's contracts for M&I water from PG&E). The WFA provides a framework for providing surface water and groundwater supplies to the region through 2030. A portion of the water supplies provided to the region are proposed to be obtained from the American River through contracts subject to the WFA requirement. Deliveries from the American River, which provides a source of surface supply, include water that is delivered to CVP customers, including the City, SJWD, PCWA, and others. Water delivery could be supplied to area purveyors through the year 2030, provided that additional Sacramento River diversion facilities are constructed to serve PCWA's full WFA allocation.

"Scenario 2" would consist of the City participating in the SRWRS to divert additional water from the Sacramento River. At the time the SRWRS Project was initiated, the City's future participation was based on a perceived need for diversion capacity up to 7,100 AFY to meet future water demands exceeding the City's current buildout demand, and thus fully exercise its combined USBR (CVP), PCWA, and SJWD contracts totaling 66,000 AFY via some form of transfer agreement. However, if additional water is provided for one or more developments through a contractual arrangement with PCWA, described above for Scenario 1, additional surface water from the SRWRS may not be necessary for many years into the future. Therefore, it is assumed that the City would participate in the SRWRS only if a substantial need for additional surface water existed. Therefore, this EIR considers the effects of the City diverting its full allocation from the SRWRS, as previously planned. Similar to Scenario 1, due to CVP cutbacks to the City's WFA allocation in drier year types, Scenario 2 also would require groundwater pumping in years when the City receives less than a full surface water allocation in order to meet the City's cumulative demand.

Scenario 1 Impact Assessment: Water Supply Provided Through Agreement with PCWA

The City is in discussions with PCWA for up to 10 mgd of whole surface water supplies. PCWA has indicated that it would be possible to provide the City with water from the Ophir WTP Project to serve future development. Transmission lines could be extended from Sierra College Boulevard west, through ROWs, and connect to the Placer Ranch area and project site west of Highway 65. As described in **Section 4.12.1.2**. PCWA prepared and approved the Ophir WTP EIR in 2005 that covered construction of a new WTP and associated transmission lines. Subsequently, Placer County prepared and approved the PVSP EIR in 2007[6], which also covered the Ophir WTP, but also proposed and analyzed an alternative route for the associated transmission lines that would transport water to the PVSP Area. This alternative alignment was anticipated to extend through the central portions of the Placer Ranch area and the project site. Currently, it is anticipated that the alignment of the 42-inch line will vary from the alignment addressed in the PVSP EIR in that it will parallel the proposed alignment of Placer Parkway. Construction within the future Placer Parkway alignment was addressed in the Tier 1 EIS/EIR for the Placer Parkway Corridor Preservation Project, which included archaeological and biological surveys of the segment.

Cumulative Impacts of Water Utility Infrastructure Construction to Meet Cumulative Demands

As described above, impacts that would result from construction of infrastructure necessary to treat and deliver additional PCWA water from the proposed Ophir WTP to the City of Roseville were disclosed in the Ophir WTP EIR and PVSP EIR. These EIRs are incorporated by reference, as discussed in **Section 1.4**, concluded that there would be potential environmental impacts in the following areas: agricultural resources, aesthetics/light and glare, hydrology and water quality, biological resources, geology and soils, cultural resources, traffic/transportation, air quality, noise, public services, and hazards/hazardous materials. Mitigation measures were developed to reduce all potential impacts to less-than-significant levels with the exception of the following impact to Air Quality, which would remain significant and unavoidable: Direct construction related air emissions (dust from earthmoving and NO_x from construction vehicle exhaust).

6 Placer County approved an amendment to the EIR and MMRP in 2012.

Because cumulative development would require the development of infrastructure to treat and deliver water, which would result in significant unavoidable impacts, the project's contribution towards the need to construct water delivery infrastructure and potable water treatment for the Proposed Project is conservatively considered to be cumulatively considerable and thus **significant**.

Indirect Impact of Surface Water Deliveries to Meet Cumulative Demand

Under Scenario 1, the water demand associated with buildout of the City's General Plan and the Proposed Project would be supplied by existing and assured sources of surface water allocated under its WFA, and groundwater to make up shortfalls in surface water deliveries during drought years. An EIR was prepared for the WFA that addresses impacts and mitigation measures resulting from implementation of the water supply program outlined in the WFA. The cumulative impacts assessed in the WFA EIR considered the City's full diversion needs of 58,900 AFY of American River water under normal / wet year-types, and up to 39,800 under the driest year-types, along with the other cumulative water demands and system CVP/SWP operations known at the time the EIR was prepared in 1999. Because under Scenario 1, the City's cumulative demand would be met by supplies previously allocated and assessed under the WFA EIR, the WFA EIR provides a reasonable assessment of the incremental indirect effects of meeting the Proposed Project's estimated water demands under the future cumulative condition. Although 2030 conditions will likely differ from those projected in the WFA EIR and Water Supply Effects Analysis (**Appendix S**), many of the future actions that will change the 2030 conditions (e.g., full implementation of the USFWS and NOAA Fisheries BOs; Water Fix implementation, and EDWPA implementation) cannot be accurately characterized today. Therefore, the 2030 conditions remain somewhat uncertain in many ways, including CVP/SWP operations. In light of such uncertainty, the City has concluded that the WFA EIR continues to provide a meaningful characterization of 2030 conditions for the purposes of assessing cumulative impacts, and the ARSP project-related contribution to such cumulative impacts.

The WFA EIR listed the flow-related environmental impacts that could occur when implementing water diversions under the WFA and concluded that there was the possibility for environmental impacts in the following areas: groundwater resources, water supply, water quality, fisheries and aquatic habitat, flood control, hydropower supply, vegetation and wildlife, recreation, land use and growth inducement, aesthetics, cultural resources, soils and geology. While mitigation measures were identified and adopted, some impacts remained significant even after feasible mitigation measures would be applied. The following presents the future significant cumulative impacts identified in the WFA EIR, which represents the impacts that would occur as a result of cumulative development in the region, including buildout of the City of Roseville pursuant to its existing General Plan, full development of the project site and development of the cumulative projects and/or development levels identified above.

<u>WFA EIR Significant and Unavoidable Cumulative Impacts</u>

- Water Supply
- Decrease in deliveries to SWP customers
- Decrease in deliveries to CVP customers
- Water Quality
- Sacramento River and Delta Water Quality
- Fishery Resources and Aquatic Habitat

- Impacts to Folsom Reservoir's warm water fisheries
- Impacts to Fall-run Chinook salmon
- Flow and temperature related impacts to splittail (February-May)
- Impacts to Shasta Reservoir's and Trinity Reservoir's warmwater fisheries
- Temperature related impacts to Sacramento River fishery resources
- Impacts to Delta fish populations
- Hydropower Supply
- Reduced CVP hydropower capacity and generation
- Increased energy requirements for diverters pumping from Folsom Reservoir (economic impact)
- Recreation
- Impacts on Lower American recreation opportunities (rafting and boating)
- Reduced Folsom Reservoir boating opportunities
- Reduced availability of Folsom reservoir swimming beaches
- Cultural Resources
- Physical deterioration of cultural resources in Folsom Reservoir

The water demand created by the Proposed Project, which is estimated to be approximately 1,067 AFY, would represent 0.27 percent of the total WFA delivery agreements.

Consequently, the diversion of additional surface water in wet year-types to meet the Proposed Project's demand would contribute negligibly to the overall cumulative impacts assessed in the WFA EIR. Even so, the City conservatively assumes that the Proposed Project's incremental contributions to the above referenced significant unavoidable effects are themselves cumulatively considerable and thus **significant**.

Scenario 2 Impact Assessment: Water Supply Provided Through New Sacramento River Diversion

The second scenario identified to provide water supplies to meet the future cumulative water demand of the City's urban growth areas consist of the full utilization of the City's allocation of American River under the WFA and participation in the SRWRS to divert additional water from the Sacramento River. The SRWRP was originally conceived as a joint project between the City of Sacramento, SSWD, PCWA, the City of Roseville, and several other agencies. The USBR and the PCWA, on behalf of PCWA, SSWD, and the Cities of Roseville and Sacramento, entered into a Memorandum of Agreement to share the cost of the development of a feasibility study for the SRWRS Project. If approved and constructed, the SRWRS would provide water treatment and storage facilities having capacity of 255 mgd (equivalent to 395 cfs) to meet diversion and delivery requirements of PCWA, SSWD, and the Cities of Sacramento and Roseville. Transmission systems would deliver treated water to and interconnect with the existing PCWA, SSWD, Roseville, and Sacramento distribution facilities. As described above, the SRWRS is now being conceived as a project that could include an even greater number of stakeholders; however, as additional information is unavailable, this analysis assumes that the future SRWRP will have a similar scope to what was previously proposed and analyzed.

There are four primary alternatives under consideration by the SRWRS. These alternatives were analyzed in the final version of the *SRWRS Initial Alternatives Report* (Alternatives Report) dated March 2005. According to the Alternatives Report, the Elverta Diversion Alternative includes the construction of

a joint diversion for PCWA, SSWD, and the Cities of Sacramento and Roseville. It would pump water from the Sacramento River to be treated at a proposed Elverta Water Treatment Facility. Under this alternative, new diversion facilities would be constructed near the existing Natomas Mutual Water Company's Elkhorn Diversion. Additionally, the water treatment facility, storage, and pumping facilities would be located near the river with transmission lines connecting to the existing Cooperative Transmission Pipeline/Northridge Transmission Pipeline in Antelope, which serves the SSWD, as well as extend north with service to Roseville and PCWA.

The Elverta Diversion Alternative would construct a water treatment facility on approximately 90 to 100 acres, located approximately one mile east of the Sacramento River pump station on Elverta Road. According to the Alternatives Report, the water treatment facility would "comprise conventional treatment processes, including a grit basin, flocculation/sedimentation basins, filters, clear tank, clear well, backwash water basin, electrical building, chemical building, operations building, solids handling area, and a storm water detention/habitat conservation program area." In order to accommodate future drinking water regulations, space has also been reserved for an advanced oxidation process. The pipeline associated with this alternative is proposed to traverse along Elverta Road approximately 5.5 miles before turning north along Sorrento Road/Pleasant Grove Road. After approximately 2.5 miles, the pipeline will turn east along Riego Road/Baseline Road and connect with the Placer Vineyards Project in Placer County. At Fiddyment Road, the pipeline would head north to serve the City of Roseville and other Placer County growth areas served by PCWA.

Direct Impacts of Water Utility Infrastructure and SRWRS Construction to meet Cumulative Demand

According to the preliminary findings of the Alternatives Report, implementation of the SRWRS as described above could result in the following environmental effects.

Biological Resources

The California Native Plant Society (CNPS) and the California Natural Diversity Database (CNDDB) were queried to identify all State and Federally listed species that could occur within the area of study. The Alternatives Report identified significant terrestrial species impacts due to habitat loss through the fragmentation and elimination of wildlife habitat. Additionally, impacts to vernal pools could result from treated water pipelines traversing wetland habitat that has the potential to impact fairy shrimp and California tiger salamander, which are federally threatened species.

There would be impacts directly associated with diversion of water from the Sacramento River through pumping and conveyance of water through associated pipelines to the water treatment facility. According to the Alternatives Report, there will be long-term operational impacts to fisheries and riparian habitat. Specifically, water flows and temperature could be altered in a way that would result in alterations to anadromous fish spawning and rearing. Aquatic habitat availability may increase or decrease depending on temperature fluctuations and flow rates in the area of the pumping station. Flow rates and temperature fluctuations could decrease reproductive activities as well as impacts to maturation of cold water fisheries, such as anadromous species.

Hydrology/Water Quality

The Alternatives Report recommended additional analysis to identify any potential effects. Potential impacts could include a reduction in downstream dilution of pollutants. Potential water quality issues are considered to be relatively minor; however, due in part to the relatively lower water quality of the Sacramento River in comparison to the water in the Lower American River. Additional analysis would identify the potential for operations to violate a federal, state, or local water quality guidelines or standards.

Recreation

The pump station would protrude directly into the Sacramento River resulting in restrictions to recreation in the vicinity of the diversion. Implementation of this alternative would result in potential impacts to the quality of recreation.

Land Use

Implementation of the proposed alternative may require coordination with the Sacramento International Airport to resolve potential conflicts with existing or planned land uses in the area. Although not discussed in the Alternatives Report, the Proposed Project would also permanently remove approximately 100 acres of agricultural land from production for water treatment and storage facilities. Operation of the water treatment facility would also entail operation of machinery and equipment that could have visual and noise effects. In addition, various chemicals would be used and water materials produced that could prove hazardous. However all such activities would be carried out in strict adherence with established regulations for their use (Agricultural, 80 acre minimum parcel size) by Sacramento County, and removed from any developed areas that could be exposed to any of the effects of the proposed facility.

While mitigation measures will be developed as part of the future environmental review, it is expected that some impacts identified above will remain significant even after feasible mitigation measures are applied.

In addition to summarizing the potential environmental effects disclosed in the Alternatives Report, the PVSP Revised Draft EIR (2007), incorporated by reference into this EIR (see **Section 1.4**), and included a discussion of off-site infrastructure impacts and mitigation which are also applicable to the Elverta Diversion Alternative. The PVSP Revised Draft EIR concluded that there was the possibility for environmental impacts from the construction of the off-site utilities in the following areas: aesthetics, hydrology and water quality, biological resources, geology and soils, transportation, noise, and hazards. Mitigation Measures were developed to reduce all potential impacts to less-than significant levels with the exception of potential impacts to habitat for special-species. Additionally, the PVSP Revised Draft EIR evaluated the cumulative contribution to impacts of the new Sacramento River diversion on the CVP and State Water Projects. As discussed in the PVSP Revised Draft EIR, the diversion of the 35,000 AFY CVP entitlement had no impacts on flood control, potentially significant impacts on hydropower, significant impacts on Delta water quality, and significant impacts on water supply reliability.

Therefore, based on available information, future significant cumulative impacts are conservatively expected as a result of implementation of the SRWRS in the following issue areas:

- Biological Resources

- Hydrology and Water Quality
- Recreation
- Land Use

Cumulative impacts in the resource areas listed above are expected to occur as a result of cumulative development in the region under Scenario 2, including buildout of the City of Roseville pursuant to its existing General Plan, full development of the Proposed Project, and development of the cumulative projects and/or development levels identified above. To date these effects have not been fully evaluated in a certified or adopted CEQA document. Because under Scenario 2 cumulative development could require the treatment of water from the SRWRS Project, the construction of which is expected to result in significant unavoidable impacts, the contribution associated with construction of water delivery infrastructure and potable water treatment for ARSP is conservatively considered to be cumulatively considerable and thus **significant**.

Indirect Impact of Surface Water Deliveries to Meet Cumulative Demand:

The following discussion presents the significant future cumulative impacts that would occur as a result of cumulative water demands from development in the region, including buildout of the City of Roseville pursuant to its existing General Plan, full development of the ARSP, and development of the cumulative projects and regulations identified above.

Additional surface water diversions to meet new regional water demands (e.g., EDWPA, City of Stockton) will result in reduced Delta inflow. In response to reduced flows, it can be expected that CVP/SWP operations will respond to the reduced water supply and ensure compliance with OCAP operational requirements and environmental commitments.

As identified above, the WFA EIR cumulative impact analysis fully addressed the City's WFA allocation of 58,900 AFY from the American River and use of groundwater in dry years when surface water allocations would be reduced, as well as the other approximately 351,000 AFY of wet-year demands from the American and lower Sacramento River by other WFA purveyors. Additionally, the operations modeling and impact analyses for the WFA EIR considered PCWA and City of Sacramento diversions under the Sacramento River. Consequently, the future significant cumulative impacts identified in the WFA EIR (and listed above under Scenario 1) provide a reasonable characterization of the potential cumulative impacts of the City's full buildout water demand including the SRWRS Project, particularly since most of the City's water supply will continue to be provided from the American River basin. The following provides additional analysis that considers the potential effects of other foreseeable projects:

- SRWRS and Other Major Water Supply Projects*:* Additional demands for Central Valley surface water supplies such as SRWRS, City of Stockton, the EDWPA Supplemental Water Project, City of Stockton's Delta Water Supply Project, and the proposed expansion of Los Vaqueros Reservoir by the CCWD will incrementally reduce the water supply available to meet agricultural and M&I demands. In particular, the integrated CVP/SWP operations during drier year types will be appropriately responsive to the reduced supply to comply with environmental water release requirements (i.e., reservoir storage targets, in stream flows, and Delta flow requirements). CVP/SWP operations during periods of low water supply availability would be expected to result

in incrementally reduced deliveries to agriculture, followed by junior water rights holders and contractors, and finally by senior contractors and/or water rights holders. The City of Roseville is a USBR contractor for 32,000 AFY of CVP water supplies and contracts for MFP water for the remaining 34,000 AFY.

- EDWPA: The additional 40,000 AFY demand by EDWPA in the upper American River basin could incrementally reduce water supplies available to other WFA purveyors. However, as noted above, CVP operations would be expected to be responsive to ensure, to the extent possible, that the deliveries to other contractors would be honored. In the event that, in order to accommodate a new diversion of 40,000 AFY from the American River system, the USBR might have to reduce deliveries to CVP Contractors in the Lower American River Basin, such a possibility might lead to the acceleration of renewed pursuit of the SRWRS by some or all of its proponents (PCWA, City of Sacramento, SSWD, and Roseville).
- USFWS and NOAA Fisheries BOs: While the requirements of the new BOs have not been fully integrated into CVP/SWP operations, the respective RPAs are designed to prevent the extinction and aid recovery of special-status fish populations in the Delta and upper watersheds. Therefore, it is expected that the future cumulative conditions for fisheries populations and habitat would be improved relative to the current baseline condition. However, the implementation of the BOs is expected to require additional in stream flows and limit Delta exports, thereby reducing water supply availability for agricultural and M&I uses.
- BDCP/ California Water Fix: As noted above, the purpose of the Water Fix is to promote water flow and habitat restoration actions to contribute to the recovery of endangered and sensitive species and their habitats in the Delta, while improving water supply reliability for Delta exports. However, the ability of the Water Fix to achieve the program goals set forth is uncertain at this time.

Based on the assessment of impacts presented in the WFA EIR, which provide a reasonable characterization of potential adverse indirect effects of agricultural and M&I demands in the Central Valley, the additional future projects and regulations can be expected to result in the following additional effects:

- *Water Supply Reliability:* Additional water demands and deliveries associated with SRWRS and other projects, and the potential for reduced water supplies resulting from implementation of the BOs, would collectively reduce water supply reliability for agricultural and M&I uses. Because the effectiveness of the Water Fix to improve water supply reliability is uncertain, this significant cumulative impact assessed in the WFA EIR is considered to remain **significant**.
- *Fisheries and Aquatic Resources:* Improvements to in-stream flow and habitat conditions are expected through the CVP/SWP implementation of the BOs. It is uncertain whether the previously identified future significant cumulative conditions identified in the WFA EIR would be improved to the point of becoming less than significant. Therefore, for the purposes of this EIR, the cumulative conditions are considered to remain **significant**.

The water demand created by the Proposed Project, which is estimated to be approximately 1,067 AFY, would represent 0.27 percent of the total WFA delivery agreements and a very minor fraction of the combined consumptive water use from the greater Central Valley water supplies. Consequently, the diversion of surface water to meet the demand of the Proposed Project would contribute negligibly to the

overall cumulative impacts identified herein. Buildout of the City would result in the use of additional groundwater in drier year types when surface water deliveries of American River water under the WFA are reduced. However, as noted above for Scenario 1, as urban development continues the City's ability to use groundwater in drier year types will increase but is not expected to impact the sustainability of the Sub-basin. Additionally, as described in **Impact 4.12.1-6**, use of the City's ASR Program in drier year types would not result in impacts to the aquifer. Additional detail regarding these potential indirect water supply impacts of cumulative City demand would be developed when CEQA compliance for the SRWRS Project is completed.

The potential mitigation measures that may be available to reduce the SRWRS-related contributions to significant impacts are unknown at this time. Because demands from the Proposed Project will contribute to overall City demands under the cumulative scenario, the City conservatively assumes that the project's incremental contributions to the above-referenced significant unavoidable cumulative impacts under this scenario are themselves cumulatively considerable and thus **significant.**

Potable Water Treatment

The Proposed Project's impacts to the Barton Road WTP and PCWA WTPs are discussed in **Impact 4.12.1-4**. The analysis within **Impact 4.12.1-4** considered the buildout of the City of Roseville and PCWA's Western Area currently served by the Foothill and Sunset WTPs. Under cumulative conditions, there is insufficient treatment capacity for buildout of PCWA's Western Area. To address this shortfall, PCWA has planned the development and operation of the Ophir WTP. Because the Proposed Project would contribute to the need to develop the Ophir WTP, which would result in significant environmental impacts, long-term impacts are considered **significant and unavoidable**.

4.12.1.5 MITIGATION MEASURES

MM 4.12.1-1 Secure Adequate Water Supply (Impact 4.12.1-1)

Prior to the approval of building permits, proponents of the Proposed Project will provide their proportionate share of required funding to the City for the acquisition and delivery of treated potable and recycled water supplies to the Proposed Project area. Additionally, prior to the approval of building permits, the City shall enter into agreement with PCWA to acquire water supplies of sufficient quantity to serve the ARSP as described in the EIR and WSA. The identified source would need to be legally available and sufficient to meet the demand of the Proposed Project, consistent with the WFA and City policies and California Water Code Section 10910 et seq. and Government Code Section 66473.7 subject to a completed environmental review, approved by the agency with jurisdiction over the source, and funded.