# 4.8 – Hydrology and Water Quality

This section of the Draft EIR identifies the hydrological resources, the existing drainage conditions, and the surface and groundwater quality in the Redevelopment Plan Area. This section also evaluates the potential impacts with respect to flooding, drainage, erosion, water quality, and water supply, and identifies appropriate mitigation measures to lessen potential impacts resulting from implementation of the City's Redevelopment Plan.

## 4.8.1 EXISTING SETTING

### REGIONAL SURFACE HYDROLOGY

Surface watersheds are those land areas that catch rain or snow and drain to specific marshes, streams, rivers, lakes, or the groundwater table. There are several watersheds in Sacramento County, including: the Lower Sacramento, the Lower American, the North Fork of the American, the Upper Butte, the Upper Yuba, the South Fork of the American, and the Upper Cosumnes. The largest watershed in the County is the Lower Sacramento Watershed, which covers approximately 27,000 square miles and drains the Sacramento Valley, the Modoc Plateau, and parts of the Cascade Range and Sierra Nevada Range. The Lower Sacramento Watershed is one of the largest watersheds in the United States and covers most of northern California. The main tributaries in the Lower Sacramento Watershed are the Feather, Yuba, Pit, and American Rivers. The Lower American, North Fork American, South Fork American, and Upper Cosumnes watersheds are adjacent to the Lower Sacramento Watershed. In addition to the natural hydrologic processes of rainfall runoff, snowmelt, and base flow from groundwater, the flows in the Sacramento River are greatly affected by reservoir releases, water diversions, irrigation return flows, and diversions through bypasses. Both the Sutter and Yolo bypasses have the capacity to carry larger volumes of water than the Sacramento River channel, and are used to prevent flooding during wetter years and higher flows.

### SURFACE WATER RESOURCES

The major source of surface waters in the vicinity of the Plan Area is the American River and Lake Natoma. Three major river systems are located within the vicinity of the Plan Area, The American River, the Sacramento River, and the Cosumnes River. While only the American River lies immediately adjacent to and within the Plan Area, the Sacramento River and the Cosumnes River are potential water supply sources for the Plan Area.

#### American River, Folsom Reservoir, and Lake Natoma

The American River drainage basin encompasses approximately 1,900 square miles. The American River makes up a portion of the Plan Area's northern boundary and flows westward from the crest of the Sierra Nevada Mountains above Lake Tahoe, to the American River's confluence with the Sacramento River in the City of Sacramento. Folsom Reservoir is the principal reservoir in the American River basin with a storage capacity of 975,000 acre-feet (AF). Several smaller reservoirs upstream of Folsom Reservoir contribute an additional 820,000 AF of storage capacity. Nimbus Dam impounds Lake Natoma downstream of Folsom Dam and regulates releases from Folsom Reservoir to the lower American River. Mean annual flow in the lower American River is 3,300 cubic feet per second (cfs); the design capacity of the channel for flood flows is 115,000 cfs.

#### Sacramento River

The Sacramento River drainage basin upstream of the Planning Area encompasses approximately 23,500 square miles and produces an average annual runoff of about 17,000,000

acre-feet (AF) at the Freeport gauging station (below the confluence with the American River). Principal reservoirs on the mainstream and tributaries to the Sacramento River and controlling flows in the lower Sacramento River include Lake Shasta, Trinity Lake, Lake Oroville, and Folsom Reservoir. Based on the 30-year record of data for the period 1968–1998, which spans a variety of water year types, individual monthly average flows have ranged from a low of 4,500 cubic feet per second (cfs) in October 1978 to a maximum of 87,000 cfs in January 1997. The average monthly flow for the 30-year period ranges between 13,000 cfs and 40,600 cfs with the lowest flows occurring in October and peak flows in February. (EDAW, 2006)

## Cosumnes River

The Cosumnes River watershed extends from its headwaters, at an elevation of approximately 7,500 feet on the western slope of the Sierra Nevada, to the confluence with the Mokelumne River, approximately 10 miles south of Sacramento County Water Agency (SCWA) Zone 40. The Cosumnes River is the last major river on the western slope of the Sierra Nevada with no major dams. Minor dams on the river are used for recreational and agricultural irrigation purposes. (EDAW, 2006)

### Cosumnes River Studies

The University of California, Davis has collaborated with the Cosumnes River Preserve, the United States Fish and Wildlife Service (USFWS), and other non-profit organizations to create a university/agency/foundation partnership with the purpose of advancing watershed science to support more effective and sustainable watershed restoration practices and addressing the information needs of adaptive management in the North Delta and the Cosumnes and Mokelumne River watersheds. A number of studies were conducted in a wide range of disciplines, including hydrology, geology, engineering, ecology, and wildlife biology. The focus of the studies was to identify the interaction between regional groundwater elevations and surface water flows in the Lower Cosumnes River.

According to the studies, declining flows on the Cosumnes River may be linked to decreasing base-flows and the overall decline of groundwater tables; however, unequivocal proof of this relationship is difficult due to the limited amount of historical records on ground- and surface-water conditions in Sacramento County. Based on projected land uses and water use conditions in Sacramento County, groundwater levels tend to decline for approximately 20 years due to groundwater pumping that exceeds the level of groundwater recharge. However, groundwater recharge (mainly from stream recharge and subsurface boundary inflows) responds to the lowering of groundwater levels and eventually reaches a quasi-equilibrium position, in which groundwater levels stabilize. Under the quasi-equilibrium condition, groundwater levels fluctuate in response to hydrologic conditions (i.e., wet and dry years), with the long-term average levels remaining the same. Excessive groundwater pumping beyond identified sustainable limits results in a continuous groundwater level decline. However, the results of the baseline conditions indicated that this would not occur even under the projected level of groundwater pumping under cumulative 2030 conditions. (Cosumnes River Task Force)

Existing groundwater elevation and topographic data indicate Deer Creek and the Cosumnes River are not in direct hydraulic connection with the underlying or adjacent unconfined groundwater system for the majority of their reaches through the central portion of Sacramento County. In these reaches, depletions from Deer Creek and the Cosumnes River due to seepage occur under unsaturated flow conditions. Under unsaturated flow conditions, the seepage rate is different to the elevation of the unconfined regional groundwater surface. Consequently, although operation of the NVWF may have estimated impacts up to 5 feet on groundwater

elevations underlying and adjacent to Deer Creek and the Cosumnes River, these impacts will not affect depletions due to seepage from either Deer Creek or the Cosumnes River for the majority of their reaches (UC Davis, Center for Watershed Sciences (2005).

Biological resource impacts resulting from the cumulative pumping proposed as part of the Water Forum Agreement (WFA) and the Zone 40 Water Supply Master Plan (WSMP) were addressed in the EIR for the Water Forum (State Clearinghouse Number 95082041), which was certified by the Sacramento County Board of Supervisors in 1999 and the certified 2002 Zone 40 WSMP FEIR, which is publicly available for review at the Sacramento County Department of Environmental Review and Assessment, located at 827 7th Street Room 220, Sacramento CA. 95814. After publication of the WSMP, SCWA, the Nature Conservancy (TNC), and the Southeast County Agricultural Water Authority (SCAWA) began to negotiate an agreement regarding the management of Cosumnes River water resources. The Framework Agreement for the Management of Water and Environmental Resources Associated with the Cosumnes River Corridor (November 16, 2004) was a collective effort by the SCWA, TNC, and the SCAWA to sustain and/or restore the agricultural, fishery, riparian forest, and perennial marsh resources of the Cosumnes River corridor through the appropriate allocation and management of these resources. The Framework Agreement recognizes that elements of the 2002 Zone 40 WSMP provide a foundation for a broader, more integrated regional water management plan and also outlines seven elements of the water resources management program for the Cosumnes River Corridor (Zone 40 WSMP Final EIR, p. 3-1).

Additionally, in response to comments received in the Draft EIR for the Zone 40 WSMP, SCWA directed the preparation of the Cosumnes River Hydrologic Analysis (CRHA) to provide a more refined numerical approach simulation tool to evaluate the localized effects of regional groundwater operation and effect of potential Cosumnes River flow enhancement alternatives on local and regional groundwater. The CRHA includes several model refinements including, but not limited to, an update of the Sacramento County IGSM data files, an update of streambed and aquifer characteristics data, use of groundwater from an additional 25 wells adjacent to the Cosumnes River, and the simulation of nine additional ungaged watersheds and modification of four ungaged watersheds that were part of the original model. The CRHA was led by the SCWA and the Sacramento County Department of Environmental Review and Assessment (DERA), with participation: by the University of California at Davis (UCD), TNC, SCAWA, the Nature Heritage Institute, the California Department of Water Resources, and the City/County Office of Metropolitan Water Planning. Several meetings were held with the participants to ensure that the CRHA used the best and most recent available information, the appropriate level of detail, and that the application of the Sacramento County IGSM adequately addressed the issues of concern (2002 Zone 40 WSMP FEIR, p. 3-8).

### Precipitation

The temperatures and winds throughout Sacramento County are virtually isolated from the effects of the ocean in the cool season. In the absence of storm systems, the low-level wind field is generally dominated by downslope drainage flow off the colder Sierra Nevada mountain range. Under the influence of a strong inversion and with little mixing, shallow radiation fog forms readily overnight. The fog depth generally ranges from 200 feet in the lower portion of the valley, to only 10 or 20 feet in the Northern Sacramento Valley areas. An up-valley wind will usually develop and mix the fog out by late morning, but can persist through much of the daytime hours in the portions of the season where daylight is very short and diffuse and upslope flow is never realized (December through February). Clearing becomes more difficult each day, as the fog layer itself reflects solar energy that might otherwise be heating the ground. The influence of a given Pacific shortwave on the populated areas of the Central Valley varies

greatly and is a function of the magnitude of the high pressure that tends to exist over the Western U.S. coast relative to the pressure falls being produced by the shortwave.

In weaker storms, dry dense air near the surface can be left undisturbed by the south-southeast flow in areas like the northern and western portions of the valley, including the I-5 corridor north of Redding. This can produce local wet bulb cooling and snow down to 100-200 foot elevations. Light rain often begins in the Southern Sacramento Valley with moderate to heavy banded precipitation forms ahead of the upper cold front over the ridges of the coastal range and move east over the valley. Light rain often begins in the Northern San Joaquin Valley as rainfall rates level off in the Northern Sacramento Valley. With the passage of the upper cold front, winds shift from south-southeast to west-southwest.

According to the National Weather Service, the annual average precipitation for Sacramento County, the City of Rancho Cordova, and the Redevelopment Plan Area ranges from 15 to 20 inches. There is very little snow that falls in the Sacramento Valley, so it is not considered a climatic feature of the valley floor. More characteristic of the valley is the dense fog occurring in mid-winter. Fog usually occurs in the morning hours, and may continue for several days in a row if atmospheric conditions are stagnant.

## Drainage and Flooding

The Plan Area contains both natural waterways and constructed features such as drainage channels that convey surface water. Flows in the Plan Area primarily drain in a northern direction into the American River. Major drainage/flood control features in the Plan Area include detention basins, channels, levees along the American River and Folsom Dam.

The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP). The National Flood Insurance Program works with local units of government to assist them in education, technical assistance, and flood plain management. In addition, FEMA produces Flood Insurance Rate Maps (FIRM), which contain historic, meteorologic, hydrologic, and hydraulic data, to determine open-space conditions, flood plain control and management, and potential development constraints. In addition, FIRM maps illustrate both 100- and 500-year floodplains and the Base Flood Elevation (BFE), which is the elevation associated with the flood having a one-percent annual chance of being equaled or exceeded in any given year. In addition, FIRM maps generally include:

- Common physical features, such as major highways, secondary roads, lakes, railroads, streams, and other waterways.
- Special Flood Hazard Areas.
- Base (1 percent annual chance) flood elevations or depths.
- Flood insurance risk zones.
- Areas subject to inundation by the 0.2 percent annual chance flood.
- Areas designated as regulatory floodways.
- Undeveloped coastal barriers.

It is important to note that the term "100-year flood" is misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1- percent chance of

being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most Federal and state agencies, is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance. A structure located within a special flood hazard area shown on an NFIP map has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage. The Sacramento County Department of Water Resources has prepared its Local Floodplain Management Plan (2001), which is required for a community to participate in the NFIP. The Plan is reviewed annually by DWR to update factual data and to fully comply with the NFIP. The 100-year floodplain, streams, and the American River are depicted in **Figure 4.8-1.** As illustrated, the only portion of the Redevelopment Area that falls within the 100-year flood plain is the proposed parks and open space portion that is adjacent to the American River.

Current efforts by the FEMA and the U.S. Army Corps of Engineers (USACE) have identified a 500-year floodplain for the Sacramento and San Joaquin River Basins. The 500-year floodplain is the area in which there is a 0.2 percent chance that this area will be inundated each year. Approximately half of the Plan Area is located within this 500-year floodplain.

### American River Levees

The Sacramento Area Flood Control Agency (SAFCA) manages a number of levees along the American River and the Sacramento River in order to control stormwater flows and to prevent major flooding events from impacting residences and properties in the vicinity. Two levees are located in the vicinity of the Plan Area. The Cordova Meadows Levee is approximately 5,000 feet long and is located within 0.1 miles of the Plan Area to the west. The Sunriver Levee is approximately 1,500 feet long and is located within 0.22 miles to the northeast of the Plan Area.

### Folsom Dam

Folsom Dam was constructed in 1950 for the purposes of electrical power generation and to reduce flood flows in the American River to a flow rater that could be safely carried by the downstream levees. The dam was designed according to historic flow records and statistical analysis that predicted the size and frequency of large floods. According to SAFCA, the Sacramento area has experienced larger and more frequent floods since construction of the dam than before the Folsom Dam was constructed. This has occurred due to additional stormwater flows from upstream of Folsom Dam and not the construction of the dam itself. As flows have been higher than predicted, the risk of failure for Folsom Dam is increased. Folsom Dam exceeded its normal flood control storage capacity in 1986, causing partial collapse of several area levees downstream from the dam. (SAFCA, 2006)

The Sacramento County General Plan, Safety Element included a depiction of the Folsom Dam Failure Flood Area, an estimated inundation area if Folsom Dam were to fail completely. According to the figure, all of the Plan Area north of US-50 would be inundated in this event. There are planning efforts underway by the U.S. Army Corps of Engineers to improve the flood capacity of Folsom Reservoir and there have been improvements made to security at Folsom Dam to minimize the treat of an intentional act of sabotage.

## GROUNDWATER RESOURCES

The Central Valley contains the largest basin-fill aquifer system in the state. The valley is in a structural trough about 400 miles long and from 20 to 70 miles wide and extends over more than 20,000 square miles. The trough is filled to great depths by marine and continental sediments,

which are the result of millions of years of inundation by the ocean and erosion of rocks that form the surrounding mountains. Sand and gravel beds in this great thickness of basin-fill material form an important aquifer system. From north to south, the aquifer system is divided into the Sacramento Valley, the Sacramento-San Joaquin Delta, and the San Joaquin Valley groundwater basins, based on the various characteristics of the corresponding surface-water basins. These groundwater basins are further divided into subbasins. The Sacramento Valley Groundwater Basin and South American (or Central Area) Subbasin underlie the Redevelopment Plan Area.

The Sacramento Valley Groundwater Basin is formed primarily of sand and gravel with significant amounts of silt and clay, all of which have been eroded mainly from older rocks at the boundaries of the valley. The environments in which the continental sediments were deposited varied, although most were deposited in fluvial environments with resulting beds and lenses composed of fine-grained materials, such as silt and clay. In most parts of the valley, fine-grained materials compose 50 percent or more of the aquifer system. The most extensive clay bed, which is informally named "E-clay", consists primarily of Corcoran Clay. Because beds of silt and clay do not readily transmit water under natural conditions, they act as barriers to vertical flow and cause differences in hydraulic head with depth.

The South American Subbasin is bounded on the east by the Sierra Nevada Mountains, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers. As part of the South American Subbasin, Rancho Cordova covers a shallow unconfined aquifer system, known as the water table aquifer, approximately 200 hundred feet below ground surface, and a deeper confined groundwater aquifer system ranging from a few hundred feet to over 2,000 feet below ground surface. The deeper aquifer system that becomes confined with depth is separated from the shallow aquifer by a discontinuous clay layer, not completely impermeable.

Prior to urban development, the Sacramento Valley groundwater aquifer system was under steady-state conditions in which natural recharge balanced natural discharge. Groundwater in the shallow part of the aquifer system flowed from areas of high altitude at the valley margins, where most of the recharge took place, down gradient to discharge into rivers and marshes near the valley axis. Under predevelopment conditions, streams emanating from the Coast and Cascade Ranges and the Sierra Nevada Mountain Range primarily recharged the aquifer system. Most of the recharge was in the northern and eastern parts of the Sacramento Valley. Precipitation falling on the valley floor during the rainy season provided only a small part of the total recharge. For the most part, precipitation evaporates or transpires through plants. In the Sacramento Valley groundwater aquifer system, precipitation was also carried by the Sacramento and the San Joaquin Rivers, and then drained to San Francisco Bay or the Tulare Basin.

Hydraulic head is a measurement used to indicate the amount of energy in groundwater per unit weight flowing through an aquifer. Under predevelopment conditions in the Sacramento Valley, the hydraulic head in the shallow unconfined aquifer was greater where water entered the aquifer system at the valley margins than the hydraulic head in the deeper confined groundwater aquifer. Thus, groundwater moved downward. Conversely, the head gradient was reversed where water left the aquifer. Typically, as water discharged to surface-water bodies, the hydraulic head in the unconfined aquifer was less than the hydraulic head in the confined aquifer. Here, the difference in hydraulic head created upward movement of the groundwater toward rivers and marshes. Precipitation that fell on the valley floor, and that was not lost to evapotranspiration, recharged the shallow water table aquifer and moved down the head gradient toward the rivers and surrounding marshes. Upward vertical flow from the

confined aquifer was impeded by confining clay beds, which caused a pressure head in the deeper parts of the aquifer system. Because of the pressure head, wells that penetrated the deep aquifer in low-lying areas near rivers and marshes flowed during the early years of valley development, and did not require additional groundwater extraction.

By the early 1960's, urban development and agricultural activities had lowered groundwater elevations and altered groundwater flow patterns in the Sacramento Valley Groundwater Basin. Because the magnitude of the withdrawals caused hydraulic heads in the confined parts of the aquifer system to fall far below the elevation of the water table, the vertical hydraulic gradient was reversed over much of the Sacramento Valley. As a result, much of the water in the upper unconfined zone of the aquifer system that flowed laterally toward the rivers under predevelopment conditions, instead, began flowing downward through the confining beds into the lower confined aquifer. Concurrent with an increase in surface-water imports in the early 1970's, groundwater withdrawals in the aquifer system decreased, which allowed groundwater levels in many areas to recover in the confined part of the aquifer system, in some cases to pre-1960 levels. With few exceptions, the groundwater flow patterns in the aquifer system today are similar to those in the mid 1970's (USGS, 1995).

As mentioned above, there is a potential for some vertical movement of groundwater between the shallow and deeper aquifer systems. Generally, the movement of groundwater occurs when a head differential exists between the aquifer systems. For instance, if heavy pumping in the deeper aquifer reduces the pressure head, then groundwater from the shallow aquifer will be induced to recharge the deeper aquifer. Conversely, if groundwater levels are decreased (by increased pumping) in the shallow aquifer, then the potential exists for the upward movement of groundwater to recharge the shallow aquifer. Groundwater recharge within the Rancho Cordova area occurs from a combination of three main sources: stream recharge (primarily from the Cosumnes and American Rivers); subsurface inflows from adjacent areas; and percolation of rainfall and applied water. However, due to soil characteristics within the Rancho Cordova area, groundwater recharge capabilities are considered low.

## WATER QUALITY

### Surface Water Quality

The following waterways in or near the Plan Area are identified as impaired waterways by the State Water Resources Control Board under Section 303d of the Clean Water Act:

- American River (mercury and unknown toxicity)
- Elder Creek (chlorpyrifos and diazinon)
- Morrison Creek (diazinon)
- Sacramento River (diazinon, mercury and unknown toxicity)

Chlorpyrifos and diazinon are organophosphorus pesticides used for urban and agricultural pest control, while the source of mercury for the Sacramento and American rivers is associated with abandoned mines within their watersheds. Morrison Creek has been included in the Total Maximum Daily Load (TMDL) Report for Diazinon and Chlorpyrifos Impaired Urban Creeks in Sacramento County (September 2004). The Sacramento River water quality issues with diazinon have been addressed in a TMDL for the Sacramento and Feather rivers.

Water quality sampling has been conducted for Morrison Creek (near Bradshaw Road) during dry weather and wet weather conditions for 2003 and 2004 associated with the Sacramento County Coordinated Monitoring Program. Wet weather sampling has identified low levels of

conventional inorganic minerals, but has shown elevated levels of coliform bacteria, total suspended solids and several polycyclic aromatic hydrocarbons (byproducts of combustion and are contained in asphalt sealants).

### Groundwater Quality

The thickness of the aquifer saturated with freshwater (water with less than 1,000 milligrams per liter dissolved-solids concentration) in the aquifer system varies greatly and depends, for the most part, on the depth to and permeability of the rocks that underlie continental deposits. In the Plan Area, the base of freshwater generally coincides with the base of continental deposits. The several isolated lenses of saline water that are within the freshwater zone may be evaporation residues or estuarine water that was trapped by subsequent sedimentation. The depth to the base of freshwater is as much as 2,500 feet in some portions of the Sacramento Valley.

Freshwater is available throughout the Central Valley. The concentration of dissolved solids in the groundwater reflects the general character of water in the streams that recharge the aquifer system. Dissolved-solids concentrations in the streams, in turn, are directly related to the type of rocks that form the geologic conditions of the area. Thus, groundwater in the Sacramento Valley has generally lower dissolved-solids concentrations than other sub-regions in the Central Valley. In general, dissolved-solids concentrations increase as the depth increases in the aquifer system. Therefore, the deeper wells are likely to produce water with larger dissolved-solids concentrations than the shallower wells in the aquifer system.

#### Groundwater Contamination

As discussed in Section 4.3, Hazards and Human Health, the United States Environmental Protection Agency (EPA) has designated the Inactive Rancho Cordova Test Site as a Superfund Site as N-nitrosodimethylamine (NDMA), trichloroethylene (TCE), and ammonium perchlorate have been detected in groundwater plumes emanating from former McDonnell Douglas and Aerojet operations. The reader is referred to Section 4.3 Hazards for a discussion on the Aerojet groundwater contamination and monitoring and remediation efforts currently ongoing.

## WATER SUPPLY

The following information is a summary of technical data provided in the Water Supply Evaluation for the City of Rancho Cordova General Plan (EDAW, 2006), which is provided in **Appendix C**. This Water Supply Evaluation was prepared to identify water supply needs of the proposed General Plan under buildout of proposed land uses within the General Plan Planning Area. This work involved consultation with the current public and private water purveyors in the Plan Area as well as requests for formal consultation regarding water supply availability by the City consistent with State CEQA Guidelines Section 15083.5. Information specifically pertaining to the Redevelopment Plan Area was taken from the EDAW report and used in this analysis.

### Water Service Providers in the Planning Area

There are two water purveyors within the Redevelopment Plan Area, Golden State Water Company (GSWC) and California-American Water Company (Cal-Am) (see **Figure 4.8-2**). Urban Water Management Plans (UWMP) for both water purveyors were obtained and used in this evaluation. The UWMPs identified the purveyor's existing and projected future water supplies and projected water demands through 2030 within each of their service areas.

Sacramento County Water Agency (SCWA)

While SCWA's service area (Zone 40) does not encompass any part of the Plan Area, SCWA provides water to both GSWC and Cal-Am, which is then used within the Plan Area. SCWA's water supplies include surface water and groundwater resources that would, over the long-term, be conjunctively used to ensure that adequate groundwater levels are maintained throughout the Central Sacramento Groundwater Basin (Basin) and that both surface water and groundwater supplies are adequate to meet projected demands through 2030.

SCWA is a groundwater appropriator and intends to continue to extract groundwater to meet its customer demands within the limits of the negotiated sustainable yield of the Central Basin. SCWA has secured and is in the process of securing surface water entitlements that would allow SCWA to meet its projected 2030 water demands (see below). Because SCWA intends to continue pumping groundwater, it has secured most of its surface water rights, has secured rights to beneficial reuse of remediated groundwater within its service area, and is proceeding with development of several water supply treatment and conveyance facilities, SCWA water supplies are considered to have a high reliability of being delivered (see **Appendix C**).

GSWC has an agreement for replacement water supplies; 5,000 acre feet per year (afy) for diversion at the Folsom South Canal, and up to an additional 10,200 afy through SCWA Zone 40 facilities. SCWA has also indicated that it anticipates entering into an agreement with Cal-Am to provide replacement water supplies and is currently planning on providing 5,000 afy. However, a separate replacement water supply agreement does not currently exist between SCWA and Cal-Am. The highest priority use for remediated groundwater is for replacement water for GSWC and Cal-Am. Once replacement water supply obligations are met (maximum of 20,200 afy combined for GSWC and Cal-Am), SCWA would use excess replacement water supplies (approximately 15,000 afy) to serve new growth and development in areas outside the Plan Area. New growth outside the Plan Area would not directly impact the availability of SCWA water supplies to Cal-Am and GSWC because GSWC's and Cal-Am's agreements to receive replacement water supplies have priority over SCWA's delivery of replacement water supplies to new development (EDAW, 2006).

*Water Supply Sources*

**Table 4.8-1** summarizes current and planned SCWA water supplies for Zone 40.

TABLE 4.8-1
AVERAGE ANNUAL CURRENT AND PLANNED WATER SUPPLIES FOR SCWA ZONE 40
THROUGH YEAR 2030

| Source | Water Supply (afy) |
|---|---|
| **U.S. Bureau of Reclamation** (CVP Supply (SMUD 1, SMUD 2, and Fazio Water) | 45,000 |
| Appropriative Water Supplies[1] | 14,586 |
| Wholesale Water Agreement to serve the portion of Zone 40 that lies within the County of Sacramento's American River POU | 9,300 |
| Other Water Transfer Supplies[2] | 5,200[2] |
| Zone 40 Groundwater[3] | 40,900 |
| Recycled Water (current use)[4] | 4,400 |

| Source | Water Supply (afy) |
|---|---|
| Total Water Supplies | 114,186 |

*Source: EDAW, 2006*

*Notes: afy = acre-feet per year; CVP = Central Valley Project; POU = Place of Use; SMUD = Sacramento Municipal Utility District*

1 *This reflects the expected long term average yield and not the contract amount.*

2 *This is an estimate of water that would be purchased only in dry and critically dry water years, e.g. years when rainfall and hence water supplies are below and substantially below average, and is not included in the total supply calculation.*

3 *Long-term annual average supply.*

4 *A master plan by Sacramento Regional County Sanitation District 1 is currently underway to evaluate the potential of expanding deliveries of recycled water.*

As noted in **Table 4.8-1**, these water supply sources consist of the following:

*Surface Water*

- *Appropriative Water Rights* – SCWA has submitted an application to the SWRCB for the appropriation of water from the American and Sacramento Rivers. This water is considered "intermittent water" that typically would be available during the winter months of normal or wet years (e.g. years when rainfall and hence water supply are greater than average). This water could be used to meet system demands and possibly for future groundwater recharge through recharge percolating groundwater basins or direct injection of surface water into the aquifer. Based on water supply modeling (i.e., Calsim II) performed for the Zone 40 WSMP and the Freeport Regional Water Authority for the FRWP project, the maximum, minimum, and average annual use of appropriative water are projected to be 71,000 acre-feet (AF), 0 (acre-feet) AF, and 21,700 AF, respectively. In close to 30% of the years, 12,000 AF or less of appropriative water is projected to be used. The contract amount is based on the maximum water supply requirement of 71,000 afy.

- *Sacramento Utility District (SMUD) 1 Assignment* - Under the terms of a three-party agreement (SCWA, SMUD, and the City of Sacramento), 15,000 acre-feet per year (afy) of SMUD's Central Valley Project (CVP) contract water to SCWA for municipal and industrial use. This CVP contract assignment is complete.

- *SMUD 2 Assignment* - SMUD's PSA directs SMUD to assign a second 15,000 afy of surface water to SCWA for municipal and industrial uses and for SCWA to construct groundwater facilities necessary to provide water to meet SMUD's dry-year water shortage demand of up to 10,000 afy at its cogeneration facility. This CVP contract assignment is complete.

- *CVP Water Public Law 101-514* - In April 1999, SCWA obtained a CVP water service contract pursuant to Public Law 101-514 that provides a permanent water supply of 22,000 afy with 15,000 afy allocated to SCWA.

Based on modeling performed for the Zone 40 (SCWA) Water Supply Master Plan, the maximum, minimum, and average annual use of CVP (SMUD 1, SMUD 2, and Fazio) water were projected to be 45,000 AF, 8,700 AF, and 38,000 AF, respectively. The 45,000 AF maximum reflects the firm supply of CVP water in most years. Lesser amounts result from CVP deficiencies or cutbacks in dry years as per the terms of the municipal supply contract.

*Groundwater*

Over the long-term average, SCWA's extraction of groundwater would not exceed 40,900 afy. However, during drought years when surface water availability is limited, groundwater production would increase to 70,000 afy to make up for the reduction in surface water deliveries (i.e., drought year cut backs). SCWA's source of groundwater supply comes from the Central Basin through a series of extraction wells and groundwater treatment plants. **Table 4.8-2** summarizes historic and projected groundwater pumping in Zone 40.

TABLE 4.8-2
HISTORICAL AND PROJECTED GROUNDWATER PUMPING IN SCWA ZONE 40

| Basin Name | Pumping by Year (afy) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Central Sacramento Zone 40 | 20,022 | 22,306 | 22,949 | 22,745 | 25,790 | 34,125 | 28,837 | 40,470 | 31,324 | 39,097 |

*Source: EDAW, 2006*
*Notes: afy = acre-feet per year. Projected groundwater pumping based on modeling performed for the Urban Water Management Plan and Zone 40 WSMP. Long-term average annual groundwater supply of 40,900 afy agreed to in the WFA used for planning purposes. The decrease in groundwater extractions in 2015 and 2025 are a result of increased surface water treatment capacity coming on-line.*

### *Existing SCWA Water Agreements*

SCWA has entered into agreements that require the provision of water to other area water purveyors and interests. These are summarized below:

#### *Aerojet and Boeing*

The Aerojet and Boeing agreements transfer ownership of remediated groundwater (associated with clean-up activities, see Section 4.4 [Hazards and Human Health]) to SCWA to be used as a replacement water supply for groundwater capacity lost by SCWA, Golden State Water Company (GSWC), and California-American Water Company (Cal-Am) as a result of past groundwater contamination.

#### *Golden State Water Company*

SCWA's agreement with GSWC specifies delivering 5,000 afy of replacement to their intake facilities on the Folsom South Canal. GSWC's need for additional replacement water (i.e., water amounts greater than 5,000 afy) would be determined annually in a meet-and-confer session with SCWA. Regardless of demonstrated need, GSWC's maximum allocation of replacement water supply in any year could not exceed 15,200 AF (less the 5,000 afy delivered to GSWC at the Folsom South Canal).

#### *California-American Water Company*

Currently, no separate replacement water supply agreement exists between SCWA and Cal-Am. However, it is the intent of SCWA to negotiate such an agreement. During negotiations SCWA has been working cooperatively with the City of Sacramento to investigate ways to deliver Place of Use (POU) surface water (or replacement water in dry years) to Cal-Am's service area that lies within the POU (this includes up to 5,000 afy of either POU or replacement water). This would allow groundwater currently being extracted in the POU area to be imported into areas affected by groundwater contamination.

*Memorandum of Agreement (MOA) for Management of Water and Environmental Resources Associated with the Lower Cosumnes River*

Under the terms of this agreement, SCWA would provide 5,000 afy of remediated groundwater or provide a contribution of capital towards the purchase of an alternative supply for the Cosumnes River Flow Augmentation Project. In any year that water is not required to fulfill the objectives of the Cosumnes River Augmentation Project SCWA reserves the right to use the 5,000 AF of water for other purposes. Remediated water would be conveyed down the Folsom South Canal for delivery to the Cosumnes River from October through December. This water would be delivered though facilities constructed as part of the Eastern County Water Supply Project.

## Golden State Water Company

Golden State Water Company (GSWC) serves the eastern portion of the Plan Area. GSWC owns and operates the Cordova System, a water treatment and conveyance system that serves GSWC's service area. GSWC relies on both surface and groundwater to meet water demands within its service area. GSWC is projecting buildout within its service area by 2020.

Current (2005) water demands in the Cordova System are estimated at 16,413 afy with future (year 2030 buildout) water demands projected at 20,829 afy. The Cordova System obtains its water supply from three sources: surface water, local groundwater, and replacement water under a settlement agreement with Aerojet. In general, GSWC's supply is expected to be 100% reliable through 2030. This reliability is a result of a highly reliable surface water supply from the American River, implementation of the settlement agreement prescribing priority uses for SCWA replacement water supplies, and historically reliable groundwater supply from the Central Basin (see **Appendix C**).

### *Water Supply Sources*

Existing and planned water supply sources for GSWC are described in **Table 4.8-3**.

TABLE 4.8-3
CURRENT AND PLANNED WATER SUPPLIES FOR THE GSWC CORDOVA SYSTEM (AFY)

| Source | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Surface water from the American River[1] | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| SMUD Water Transfer[2] | 5,000 | 0 | 0 | 0 | 0 | 0 |
| Aerojet Replacement Water via Folsom South Canal[3] | 0 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| GSWC Untreated Groundwater[4] | 8,116 | 7,450 | 4,500 | 4,500 | 4,500 | 4,500 |
| Aerojet Replacement Water through SCWA[5] | 0 | 2,068 | 5,999 | 6,314 | 6,329 | 6,329 |
| Recycled Water | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 18,116 | 19,518 | 20,499 | 20,814 | 20,829 | 20,829 |

*Source: EDAW, 2006*
*Notes: afy = acre-feet per year; GSWC = Golden State Water Company; SCWA = Sacramento County Water Agency; SMUD = Sacramento Metropolitan Municipal Utility District*
*[1] GSWC American River Rights*

[2] *Under this water transfer from SMUD, GSWC is entitled to divert up to 10,000 afy from the American River through July 29, 2007, and for additional years upon request. However, GSWC plans to use only 5,000 afy of this entitlement because of limited surface-water treatment capacity and its desire to maintain its groundwater rights through the Aerojet replacement-water operations.*

[3] *Aerojet replacement-water obligation.*

[4] *Based on GSWC's maximum annual extractions before 2005 and projected changes to groundwater supply through 2030.*

[5] *SCWA would recapture, treat, and deliver groundwater to GSWC up to an additional 10,200 afy of groundwater discharged by Aerojet into the American River. Please note that GSWC is relying on a total of 11,329 afy of replacement supplies from SCWA. For amounts greater than 10,000 afy, GSWC and SCWA would need to negotiate the provision of these supplies on a yearly meet-and confer basis.*

As noted in **Table 4.8-3**, these water supply sources consist of the following:

### *Surface Water*

Pre-1914 American River Water Rights – GSWC possesses a pre-1914 appropriative right to divert up to 10,000 afy from the American River via the Folsom South Canal at a maximum withdrawal rate of 20 cubic feet per second (cfs) or 13 million gallons per day (mgd). Appropriative surface water rights initiated prior to 1914 are not subject to the Water Commission Act and successor laws relating to water right permitting requirements, and thus do not require a permit from the State Water Resources Control Board. In 1994, GSWC entered into an "Agreement for Reallocation of Water under Co-Tenancy Agreement" with the City of Folsom to lease 5,000 afy of its water rights to the City of Folsom. The company preserved 5,000 afy of the remaining water right which is diverted from the Folsom South Canal for use within the Cordova System. During the last 20 years, GSWC has used as much as 4,784 afy of this entitlement.

### *Groundwater*

GSWC pumps groundwater for the Cordova System from 15 production wells located in the Central Basin. The Cordova System has a total normal-year capacity of 21,669 gpm (31,500 afy). In some areas of the basin, groundwater has been impaired by contaminants, including volatile organic compounds (VOCs), perchlorate, and N-nitrosodimethylamine (NDMA) from Aerojet's rocket propellant manufacturing and testing facility located immediately east of the Cordova System. Groundwater contamination forced GSWC to decommission some wells. However, decommissioning the wells has not lowered GSWC's overall system production capacity because non-contaminated groundwater wells have been modified to increase their rated capacity.

It has been predicted that by 2015 all but two of GSWC's wells would experience contamination levels that may cause their inactivation. The two remaining wells, Wells 17 and 23, are not expected to be affected by contamination until at least 2032. These wells have a combined production capacity of 3,100 gallons per minute (gpm).

Groundwater lost as a result of contamination would be replaced by Aerojet under its replacement water obligations. Approximately 5,000 afy of remediated groundwater would be discharged to the American River system. This water would be wheeled through, and withdrawn from, the Folsom South Canal: GSWC's current surface water point of diversion. Up to an additional 10,200 afy of remediated groundwater could be delivered to GSWC via SCWA's FRWP and Central WTP.

**Table 4.8-4** presents the projected groundwater pumping volumes by the Cordova System. As a result of changes in groundwater quality, the groundwater supply for the Cordova System is expected to decrease between 2005 and 2015.

TABLE 4.8-4
GSWC'S PROJECTED GROUNDWATER PUMPING VOLUMES BY CORDOVA SYSTEM (AFY)

| Basin Name | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Central Sacramento | 8,116 | 7,450 | 4,500 | 4,500 | 4,500 | 4,500 |

*Source: EDAW, 2006*
*Note: afy = acre-feet per year*

*Existing Water Supply Infrastructure*

The Cordova System's distribution facilities have been designed with several interconnections to neighboring water purveyors for emergency purposes. GSWC maintains three 6-inch interconnections with the Cal-Am's distribution system on the west side of the Cordova System, and a 12-inch interconnection with the City of Folsom's distribution system at the eastern edge of the Cordova System. In addition, the Cordova System has five water storage reservoirs with a total capacity of 9.5 million gallons; one additional reservoir with additional 5.0 million gallons of storage capacity is scheduled to be online in spring 2006. Water treatment occurs at the Coloma Water Treatment Plant (WTP) and the Pyrites WTP.

California-American Water Company (Cal-Am)

Cal-Am is a privately owned water purveyor that provides urban water supply to portions of Rancho Cordova located near Sunrise Boulevard and Douglas Road. Cal-Am purchases wholesale water from SCWA. Cal-Am's Northern Division consists of nine distinct water systems forming one operational entity that is the largest private water operation in Sacramento County with a total of about 43,100 connections serving an estimated 170,500 people. The 9 systems are not all contiguous, but are surrounded by numerous other utilities. The 9 systems that comprise the Northern Division include: Antelope, Arden, Lincoln Oaks, Parkway, Suburban/Rosemont, Sunrise, West Placer, Isleton and Walnut Grove. The Sunrise system is also known as Security Park; however, it is referred to as Sunrise in the Cal-Am's Urban Water Management Plan (UWMP). Suburban/Rosemont systems provide water to a portion of the Plan Area. The Sunrise system is located within the vicinity but is southeast of the Plan Area.

Current (2005) water demands in the Plan Area is estimated at 14,286 afy with future (year 2025) water demands projected at 14,429 afy. Cal-Am operates more than 100 groundwater wells in the Northern Division (inside and outside the Central Basin) for a total theoretical capacity of approximately 100,000 afy. It should be noted that while Cal-Am's system could pump up to 100,000 afy of groundwater, it is highly unlikely that Cal-Am would undertake such an aggressive groundwater pumping scenario in the Central Basin because of its commitments to adhere to the negotiated sustainable yield of the Central Basin (i.e., 273,000 afy). Furthermore, this pumping capacity is for Cal-Am's Northern Division, of which some service areas are located outside the Central Basin. While all Cal-Am service areas, except for Isleton and Walnut Grove, have interties with other neighboring water purveyors; it is unknown what amount of Cal-Am's groundwater pumping capacity is available to exclusively serve the Suburban/Rosemont service area within the Plan Area. Nonetheless, the presence of intertie connections between service areas at a minimum indicates that sufficient emergency groundwater reserves are available within its system. Further, groundwater currently pumped to serve the Northern Division and projected future pumping amounts are considered to have a high reliability of being delivered because Cal-Am has historically pumped a reliable supply of groundwater from its system. Cal-Am would tailor the Northern Division's water supply mix during dry and very dry years in

cooperation with the Sacramento Groundwater Authority and the Central Sacramento Groundwater Forum determinations as to how much surface water would be available under conjunctive use programs in any given year. Cal-Am projects that they would be able to use as much as 23,300 af of imported surface water supplies during normal years. In a very dry year, or the third year of a multiple dry year scenario, Cal-Am projects 100% of the Division's total water supply would be groundwater.

Similar to the other water purveyors that rely on groundwater from the Central Basin, Cal-Am's groundwater wells within the Sunrise and Suburban/Rosemont service area could at some future point become impaired by the local contamination problem associated with past operations at Aerojet. Cal-Am has however has not entered into an agreement with SCWA for replacement water supplies. However, it is SCWA's intention to enter into an agreement for replacement water supplies with Cal-Am; and as a result, SCWA has planned for approximately 5,000 afy of replacement water supplies allocated to Cal-Am. Although Cal-Am has not relied upon replacement water supplies to meet future demands in its UWMP, water supplies potentially lost from groundwater contamination (up to 5,000 afy) and replaced by SCWA are considered to have a high reliability of being delivered.

### *Water Supply Sources*

Projected water demands and sources of water supply for Cal-Am are shown in **Table 4.8-5**.

TABLE 4.8-5
SUMMARY OF CURRENT AND PROJECTED WATER DEMAND AND SOURCES OF WATER SUPPLY (AFY) FOR CAL-AM

| Year | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|
| Cal-Am Groundwater | 43,600 | 33,650 | 34,180 | 33,550 | 33,910 |
| Wholesale Surface Water Supply Purchases | | | | | |
| Placer County Water Agency | 140 | 1,360 | 2,720 | 4,080 | 5,440 |
| SCWA | 2,420 | 3,500 | 3,500 | 4,000 | 4,000 |
| Citrus Heights Water District | 20 | 9,000 | 9,000 | 9,500 | 9,500 |
| City of Sacramento | 1,440 | 3,000 | 3,100 | 3,250 | 3,340 |
| **Total Projected Supply** | **47,620** | **50,510** | **52,500** | **54,380** | **56,190** |
| | | | | | |
| Sunrise Service Area Demands[1] | 48 | 48 | 48 | 48 | 48 |
| Suburban/Rosemont Service Area Demands | 14,286 | 14,322 | 14,358 | 14,394 | 14,429 |
| Total Water Demand[2] | 14,334 | 14,370 | 14,406 | 14,442 | 14,477 |
| **Percentage of Projected Supply** | **30.0%** | **28.4%** | **27.3%** | **26.5%** | **25.7%** |

*Source: EDAW, 2006*
*Notes: afy = acre-feet per year; Cal-Am = California-American Water Company; SCWA = Sacramento County Water Company*
*[1] Sunrise Service Area is located outside the Plan Area. It is the only other service area within the vicinity for Cal-Am*
*[2] Estimated demands for the Cal-Am service area are based on projected population growth and percentage of water use for service areas within the City of Rancho Cordova General Plan Planning Area compared to the total Northern Division service area.*

### *Sunrise Service Area*

Citizens Utilities (a private water utility provider which was later purchased by Cal-Am) purchased the Sunrise service area (also known as Security Park) from McDonnell Douglas in the early 1980s. It consists of approximately 2.8 square miles of land located immediately north of

Douglas Road and east of Sunrise Boulevard, approximately 1.5 miles east of Mather Airport. Presently, this area is mostly undeveloped, serving approximately 20 commercial customers. The system includes five groundwater wells, only one of which is in regular use, with other wells available as needed for backup. The Sunrise Service area accounts for less than 0.1% of the Northern Division's production and sales and it is located outside the Plan Area.

*Suburban Service Area*

The Suburban service area consists of two systems, the Suburban system and the Rosemont system. These systems lie adjacent to each other and span the north and south sides of U.S. Highway 50 about 9 miles east of downtown Sacramento. The western portion of the Plan Area lies within the Suburban service area. There are approximately 17,000 customers in the entire Suburban/Rosemont area, which are served via 8 groundwater wells for the Rosemont sub-area and 20 wells within the Suburban sub-area. In all, the Suburban service area accounts for approximately 30% of the Northern Division's production.

## 4.8.2 REGULATORY FRAMEWORK

### FEDERAL

### Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual State or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such State or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain Federal or State projects from regulation under this Section: subparagraph (r); and,

- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The California State Water Resources Control Board and RWQCBs that enforce State of California statutes are equivalent to or more stringent than the Federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters including Morrison Creek, and other creeks in the Plan Area. In the Plan Area the RWQCB is responsible for protecting surface and groundwaters from both point and non-point sources of pollution. Water quality objectives for all of the water bodies within the Plan Area were established by the CVRWQCB and are listed in its Basin Plan.

National Pollutant Discharge Elimination System Permit Program (NPDES)

NPDES was established under the Clean Water Act to address municipal and industrial discharges to surface waters. This includes regulations for point-source discharges (e.g., wastewater treatment plant effluent discharges) and non-point discharges associated with stormwater. In general, NPDES permit provisions consist of discharge restrictions and limitations (including numeric and narrative) intended to protect beneficial uses of the receiving water as well as maintenance of public health and safety.

Phase 1 of NPDES permitting program for municipal discharges of stormwater for urban areas where the population exceeded 1000,000, industrial activity stormwater discharges and general construction activity discharges (disturbance of 5 acres or greater) was established in 1990. Phase 2 of NDPES (2003) addresses municipal discharges of urban areas of less than 100,000 in population as well as for construction activities that disturb 1 acre or greater.

### Federal Emergency Management Agency (FEMA)

Sacramento County is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years although such a flood may occur in any given year. The County is occasionally audited by the DWR to insure the proper implementation of FEMA floodplain management regulations.

## STATE

### Senate Bill (SB) 610 and Assembly Bill (AB) 910

During the 2001 regular session of the State Legislature, SB 610 and AB 910 – Water Supply Planning, were signed and became effective January 1, 2002. SB 610 amends Public Resources Code section 21151.9, requiring any EIR, negative declaration, or mitigated negative declaration for a qualifying project to include consultation with affected water supply agencies (current law applies only to NOPs). SB 610 also amends the following: Water Code 10656 and 10657 to restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resource's Water Code section 10910 to describe the water

supply assessment that must be undertaken for projects referred under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies would be given 90 days from the start of consultation in which to provide a water supply assessment to the CEQA lead agency; Water Code section 10910 would also specify the circumstances under which a project for which a water supply assessment was once prepared would be required to obtain another assessment. AB 910 amends Water Code section 10631, expanding the contents of the urban water management plans to include further information on future water supply projects and programs and groundwater supplies.

### Senate Bill (SB) 221

SB 221 adds Government Code section 66455.3, requiring that the local water agency be sent a copy of any proposed residential subdivision of more than 500 dwelling units within 5 days of the subdivision application being accepted as complete for processing by the city or county. It adds Government Code section 66473.7, establishing detailed requirements for establishing whether a "sufficient water supply" exists to support any proposed residential subdivisions of more than 500 dwellings, including any such subdivision involving a development agreement. When approving a qualifying subdivision tentative map, the city or county must include a condition requiring a sufficient water supply to be available. Proof of availability must be requested of and provided by the applicable public water system. If there is no public water system, the city or county must undertake the analysis described in section 66473.7. The analysis must include consideration of effects on other users of water and groundwater.

### Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act governs the coordination and control of water quality in the state, and includes provisions relating to non-point source pollution. The California Coastal Commission, pursuant to the coastal act, specified duties regarding the federally approved California Coastal Management Program. This law requires that the State Water Resources Control Board, along with the California Coastal Commission, regional boards, and other appropriate State agencies and advisory groups, prepare a detailed program to implement the State's non-point source management plan on or before February 1, 2001. The law also requires that the State Board, in consultation with the Commission and other agencies, submit copies of prescribed State and regional board reports containing information related to non-point source pollution, on or before August 1 of each year.

### State Water Resources Control Board

The State Water Resources Control Board (SWRCB) is responsible for the establishment and implementation of statewide water quality policy and delegates some of this responsibility to the nine regional water quality control boards in the state. SWRCB has established the state's non-degradation policy as well as the State Implementation Policy of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries.

### Regional Water Quality Control Board, Central Valley Region

The RWQCB Central Valley Region provides planning, monitoring, and enforcement techniques for surface and groundwater quality in the Central Valley region. A basin plan provides more specific information for specific waterways within the region, in terms of establishing monitoring techniques to control pollutant levels within the waterways. The RWQCB also monitors storm water quality from construction activities through a National Pollutant Discharge Elimination System (NPDES) permitting process.

### Central Valley Regional Water Quality Control Plan (Basin Plan)

The Central Valley Regional Water Quality Control Basin Plan covers all the drainage basin areas for the Sacramento and San Joaquin rivers, extending approximately 400 miles from the California-Oregon border to the headwaters of the San Joaquin River. This plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved. The Sacramento River is the only waterway in the vicinity of Rancho Cordova that currently has water quality objective studies occurring.

### National Pollutant Discharge Elimination System (NPDES)

The City of Rancho Cordova, along with the cities of Citrus Heights, Folsom, and Galt, and the County of Sacramento, operate under a National Pollutant Discharge Elimination System (NPDES) renewed in December 2002 to discharge urban runoff from Municipal Separate Storm Sewer Systems (MS4s) in their municipal jurisdictions (NPDES No. CAS082597). The permit requires that the City impose water quality and watershed protection measures for all development projects. The intent of the waste discharge requirements in the NPDES Permit is to attain water quality standards and protection of beneficial uses consistent with the Basin Plan. The NPDES permit prohibits discharges from causing violations of applicable water quality standards or result in conditions that create a nuisance or water quality impairment in receiving waters.

A key component of the NPDES permit is the implementation of the Stormwater Quality Improvement Plan (SQIP) for the City, which consists of six Minimum Control elements (public education and outreach, public involvement and participation, detection and elimination of illicit discharges, construction stormwater control, postconstruction stormwater control for new development and redevelopment, and pollution prevention/good housekeeping for municipal operations. The City has identified a range of Best Management Practices (BMPs) and measurable goals to address the stormwater discharges in the City. As part of the SQIP, there are several regulations/procedures in place that implement the SQIP that include the Grading and Erosion Control Ordinance (Chapter 16.44 of the existing County Code) and construction standards. A key component of this compliance is implementation of the SQIP new development element that requires stormwater quality treatment and/or BMPs in project design for both construction and operation. Postconstruction stormwater quality controls for new development requires use of control measures set forth in the Guidance Manual for On-Site Stormwater Quality Control Measures (City of Sacramento and County of Sacramento, 2000). This includes use of regional water quality control features (e.g., detention basins) for large developments (over 100 acres), use of treatment-control measures (swales, filter strips, media filters and infiltration), housing keeping practices (e.g., spill prevention, proper storage measures and clean-up procedures).

## LOCAL

### Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) was formed in 1989 by the California Legislature to coordinate regional flood control. SAFCA is a joint powers agency, combining the efforts of the City of Sacramento, the counties of Sacramento and Sutter, the American River Flood Control District, and Reclamation District 1000. The main goal of the agency was to provide for 200-year flood protection levels.

SAFCA's activities are funded from development fees and annual assessments imposed on benefiting properties in three separate districts in Sacramento and Sutter Counties. SAFCA District 3 provides funding for capital improvements to Folsom Dam, the levees along the American River (including those within the Plan Area), and the levees and related flood control facilities along Morrison Creek and its tributaries in South Sacramento County.

### Sacramento County Water Agency Urban Water Management Plan and Zone 40 Master Plan

Every urban water supplier that provides water to more than 3,000 customers or supplies more that 3,000 AF/yr is required to prepare and adopt an Urban Water Management Plan (UWMP) that describes the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The SCWA is responsible for developing the UWMP for Sacramento County. Additionally, the UWMP identifies and quantifies, to the extent practicable, the existing and planned sources of water available to the supplier and the reliability of the water supply and vulnerability to seasonal or climatic shortages.

The Zone 40 Master Plan is prepared by the SCWA with the Water Forum Agreement as its foundation. The Master Plan provides a flexible plan of water management alternatives, which can be implemented and revised as availability and feasibility of water supply sources change in the future. The current Zone 40 Master Plan (December 2002) reflects the changes from the 1987 Master Plan in the pattern of water demand growth, treatment for water quality, expansion of the original service area, and in the availability of potential sources of surface water supplies.

### Sacramento County Department of Water Resources Local Floodplain Management Plan

The Sacramento County Water Agency has established the Local Floodplain Management Plan (2001). The Local Floodplain Management Plan area has mapped the County's surface waterways and has mapped the Redevelopment Plan Area as part of the Morrison Creek Stream Group. The Floodplain Management Plan outlines policies and mitigation measures for minimizing impacts from new development within most areas of Sacramento County.

### Sacramento Coordinated Water Quality Monitoring Program

The Sacramento Coordinated Water Quality Monitoring Program (CMP) is a cooperative voluntary program initiated and implemented by the Sacramento Regional County Sanitation District (SRCSD), the City of Sacramento (City), and the County of Sacramento Water Resources Division (County). These three public agencies are responsible for the management of all municipal wastewater and most storm water in the Sacramento urban area within Sacramento County. The CMP was established in July 1991 through a Memorandum of Understanding between these entities. The fundamental purpose of the CMP is to develop high-quality data to aid in the development and implementation of water quality policy and regulations in the Sacramento area.

The Ambient Monitoring Program (Ambient Program) is the primary water quality monitoring element of the CMP. Sampling under the Ambient Program began in December 1992 and continues at present on a monthly basis. Additionally, episodic storm events are sampled in coordination with the Sacramento Storm Water Program. Five river sites are now monitored under the Ambient Program, three on the Sacramento River (at Veteran's Bridge near Alamar Marina, at Freeport Bridge, and at River Mile 44 downstream of the Sacramento metropolitan area) and two on the American River (at Nimbus Dam and at Discovery Park near the confluence with the Sacramento River). The monitoring sites have been selected to provide

water quality data upstream and downstream of the influence of urban inputs from the Sacramento community.

The historic emphasis of the Ambient Program has been on trace metals, monitoring total recoverable and dissolved metals using clean techniques and low detection limits. Other parameters monitored under the Ambient Program include: organophosphate pesticides (diazinon, chlorpyrifos), total and fecal coliform bacteria, fecal streptococci, total organic carbon, dissolved organic carbon, pH, temperature, dissolved oxygen, hardness, total suspended solids, and electrical conductivity. Annual reports have been produced each year of the CMP. The 2004-2005 Annual Report for the Sacramento CMP presented the results of Ambient Program monitoring completed through December 2005.

The Sacramento CMP and the Sacramento River Watershed Program (SRWP) are being coordinated at several levels. The SRWP monitoring program (which started as a complete program in June 1998) has been developed in coordination with a number of ongoing monitoring efforts, including the CMP Ambient Monitoring Program. The CMP sampling team will take samples for analysis by the SRWP at four of the five CMP sampling sites. The analytical results produced by the CMP will be combined with other data collected under the SRWP.

The CMP and SRWP have cooperated in the joint sponsorship of the State of the (Sacramento River) Watershed 1997 conference held in October 1997 in Sacramento. This second annual conference was highlighted by awards given to local organizations which distinguished themselves in watershed stewardship. The CMP is a contributor to the November 1998 State of the (Sacramento) River conference which is being sponsored by the Sacramento River Preservation Trust.

The CMP Steering Committee annually reviews the Program and considers appropriate adjustments. At its August 1998 meeting, the Steering Committee decided to add several trace organic constituents to the Ambient Program. The trace organics to be monitored include: diazinon, chlorpyrifos, carbofuran, malathion, methyl parathion, polynuclear aromatic hydrocarbons (PAHs), pentachlorophenol, and 2,4,6-trichlorophenol. The basis for selection of these constituents is listing of upstream waters on the 1998 303(d) impaired waters list, identification as a constituent of concern by the Sacramento Storm Water Program, or identification as a constituent of potential concern by the Sacramento Regional County Sanitation District. Specialized laboratories capable of producing data at pre-established low detection levels will be contracted to perform this monitoring.

Public outreach and education efforts will continue at the local level. The CMP monitoring effort will continue to be coordinated closely with the activities of the Sacramento River Watershed Program.

### Water Forum Agreement

The Water Forum is a diverse group of business and agricultural leaders, citizens groups, environmental groups, water managers, and local governments in Sacramento County. The Water Forum was developed to address water related issues facing the Sacramento region, which include water shortages, environmental degradation, groundwater contamination and reliability, and economic prosperity. The Water Forum resulted in the establishment of principles to guide regional development and the development of the Water Forum Agreement (WFA). The comprehensive WFA allows the region to meet its needs in a balanced way through implementation of seven elements. The elements include detailed understandings among stakeholders on how this region will deal with key issues, which include groundwater

management practices, water diversions, dry year water usage, water conservation measures, and the protection of the Lower American River. The understandings were included in the Memorandum of Understanding for the Water Forum Agreement, which created the overall political and moral commitment to the WFA. The WFA established the following two main coequal objectives: "Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030" and "Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River."

The Sacramento Metropolitan Water Authority Groundwater Committee and the Sacramento Water Forum Groundwater Negotiation Team jointly developed the Groundwater Management Element of the WFA. The purpose of the groundwater management element is to protect the viability of groundwater resources for current and future uses. Through the creation of a publicly accountable governance structure, with respect to all groundwater users, the element requires the monitoring of total water withdrawn from the groundwater basin and the promotion of groundwater use in conjunction with surface water supplies to maximize the availability of both. To achieve the objectives of the WFA, the Groundwater Management Element addresses both conjunctive use and sustainable yield.

Conjunctive use is the planned management and use of both groundwater and surface water in order to improve the overall reliability of the region's total water supply. For instance, in wet years when ample supplies of surface water are available, groundwater pumping may be reduced or ceased, with only surface water used, which would result in the groundwater basin being replenished in wetter years. In dryer years when surface water is in shorter supply, the water that accumulated during wetter years would be pumped for use, with surface water diversions being reduced or eliminated entirely. It should be noted that additional surface water diversions are required to implement the conjunctive use program. Conjunctive use is also expressed in acre-feet per year (Af/yr), and according to Zone 40 Master Plan estimates, an average of 76,300 Af/yr of surface water is needed to sustain the conjunctive use program.

As defined above, sustainable yield is the amount of groundwater that can be safely pumped from the groundwater basin over a long period of time while maintaining acceptable groundwater elevations and avoiding undesirable effects. Sustainable yield requires a balance between pumping and basin recharge and is expressed as the number of acre-feet of water per year, which can be pumped from the basin on a long-term average basis.

The Baseline Report (existing conditions) used for the WFA and the current Sacramento County Water Agency (SCWA) Zone 40 Master Plan provided a basis for the WFA definition of a sustainable yield for each of the three Sacramento County groundwater basins.

The agreed upon long-term average annual limit (sustainable yield) for each of the three geographic sub-areas of the groundwater basin within Sacramento County are 131,000 acre-feet (AF) for the North Area (north of the American River), 273,000 AF for the Central Area (which includes the Rancho Cordova Planning Area between the American and Cosumnes Rivers), and 115,000 AF for the Galt Area (south of the Cosumnes River). Any proposed water supply project must satisfy the groundwater conditions specified in the WFA for the 2030-projected level of development. Additionally, the WFA predicted that the projected pumping in the Central Area (273,000 AF/yr) would result in the cone of depression in the Rancho Cordova area stabilizing at approximately 50 feet below existing levels.

### Water Forum Successor Effort Element

The WFA was signed by forty stakeholder organizations and agencies in April of 2000 and provided the establishment of the Water Forum Successor Effort (WFSE), which is responsible for overseeing, monitoring and reporting on the implementation of the WFA. The WFSE Element of the WFA is composed of representatives of the stakeholder organizations that are WFA signatories. The WFSE continues the interest-based collaborative process that was used in developing the WFA. The WFSE has no independent governing or regulatory authority. One of the objectives of the WFSE is to continue a public process designed to provide all community interests the opportunity to participate in developing a groundwater management program which takes into account local needs and circumstances. The Sacramento County Department of Water Resources (DWR) entered into a Memorandum of Understanding (MOU) with the Sacramento City-County Office of Metropolitan Water Planning to act on behalf of the WFSE. The MOU for the WFSE calls for the following:

- Identify and convene stakeholders representing all segments of the community that have an interest in developing a groundwater management plan.

- Conduct an educational effort among the stakeholders to establish a common understanding of the groundwater basin conditions.

- Negotiate a groundwater management program, including identification of basin management objectives and some form of governance, if appropriate.

As stated above, the WFA is not a decision-making body and it holds no governing or regulatory authority. The recommendations of the WFA are presented to the WFSE for review and approval and forwarded to the relevant agencies for implementation.

#### Storm Water Management and Discharge Control Ordinance

Adopted from the County upon incorporation, the Storm Water Management and Discharge Ordinance is designed to protect and enhance the quality of water bodies, watercourses, and wetlands consistent with the Federal Clean Water Act, the Porter-Cologne Water Quality Control Act, and the NPDES permit. Sacramento County is provided the overall authority by this ordinance to protect the quality of storm water and establish enforcement procedures and penalties for violations of the ordinance. Together, with the Sacramento County Department of Water Resources, the City of Rancho Cordova is responsible for reducing the discharges of pollutants and prohibiting non-storm water discharges.

### Grading and Erosion Control Ordinance

As discussed above, the City of Rancho Cordova adopted the existing Sacramento County General Plan to guide development in the city. The City also adopted the Sacramento County Department of Water Resources (DWR) Grading and Erosion Control Ordinance (Chapter 16.44 of the existing County code), which establishes administrative procedures, minimum standard of review, and implementation and enforcement procedures for controlling erosion, sedimentation and other pollutant runoff from new development projects. The ordinance also addresses grading, filling, land excavation, construction activities and drainage as they relate to a particular project. The ordinance applies to any development project resulting in the excavation of 350 cubic yards of soil or more. The ordinance also ensures compliance with the City's National Pollutant Discharge Elimination System (NPDES) Permit, which is issued by the California Regional Water Quality Control Board (CRWQCB). The City of Rancho Cordova is

co-permittee on a NPDES Permit along with Sacramento County and the cities of Sacramento, Folsom, Galt, and Citrus Heights, and Elk Grove. The ordinance requires a separate permit for work on each site unless sites are contiguous, have the same ownership, and are included in the approved plan. The ordinance sets forth performance standards and a permit can be denied, based on the following findings:

1) The applicant has failed to provide sufficient or adequate plans, information or other data necessary to allow determinations respecting compliance with the provisions of Chapter 16.44 or Sacramento County Specifications;

2) The environmental review has not been completed, or other provisions of this code or of state law pertaining to environmental review have not been satisfied, or the activity will have significant adverse environmental impacts, which cannot be substantially mitigated. Where the activity will have significant adverse impacts, the Administrator may approve the permit in accordance with Chapter 16.44, Title 20, and CEQA (1970).

3) The proposed activity will violate provisions of Chapter 16.44, Sacramento County Specifications, or state or federal laws, and such violation cannot be resolved by the imposition of conditions pursuant to Section 16.44.170.

4) The proposed activity will adversely affect surrounding properties and public rights-of-way, the water quality of watercourses, and existing drainage (SCC 102 Section 3, 1995; SCC Section 2, 1993).

## 4.8.3 IMPACTS AND MITIGATION MEASURES

### STANDARDS OF SIGNIFICANCE

A hydrologic or water quality impact of the proposed Redevelopment Plan would be considered significant if it would result in any of the following actions, which are based on Appendix G of the State CEQA Guidelines, and include the following criteria:

1) A violation of any water quality standard or waste discharge requirement;

2) A substantial depletion of groundwater supplies or substantial interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

3) A substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, and/or environmental harm on- or off –site;

4) A substantial increase in the rate or amount of surface runoff during construction and after construction in a manner that would result in flooding on- or off –site;

5) Discharge of storm water from material storage areas, vehicle or equipment refueling stations, vehicle or equipment maintenance areas (including washing), waste handling, hazardous materials handling or storage, delivery areas or loading docks, or other outdoor work areas;

6) Discharge of storm water that would impair the beneficial uses of the receiving waters or areas that provide water quality benefit;

7) Discharge of storm water that would cause significant harm to the biological integrity of the waterways and water bodies;

8) A contribution of runoff water exceeding the capacity of existing or planned storm water drainage systems;

9) A substantial additional source of polluted runoff;

10) Any other action that substantially degrades water quality;

11) Placement of housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map;

12) Placement of structures within a 100-year flood hazard area that would impede or redirect flood flows;

13) Exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam.

## METHODOLOGY

The hydrology and water quality analysis is based on a review of published information, reports, and plans regarding regional hydrology, climate, geology, water quality, and regulations. Relevant documents include: the City of Rancho Cordova Draft Water Supply Evaluation for the Rancho Cordova General Plan (2006); the SB610 Water Supply Assessment (WSA) for the proposed Rio del Oro Specific Plan Project (2005); the Sacramento County Water Agency (SCWA) Zone 40 Water Supply Master Plan (February 2005), Draft Environmental Impact Report, Technical Appendices, and Final Environmental Impact Report; the Water Forum Agreement (2000); the Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region: the Sacramento River Basin and the San Joaquin River Basin (revised September 2004); the Sacramento County General Plan Update Environmental Impact Report (1993); the Sacramento County Storm Water Quality Improvement Plan (2003); the Local Floodplain Management Plan for the County of Sacramento (2001); and the City of Rancho Cordova Storm Water Management and Discharge Control Ordinance (Ordinance No. 41-2004). Information was also obtained from private and governmental agencies as well as Internet web sites. Agencies consulted include: the Sacramento County Water Agency, the Sacramento County Department of Water Resources, and the Central Valley Regional Water Quality Control Board.

## PROJECT IMPACTS AND MITIGATION MEASURES

### Surface Water Quality Impacts

**Impact 4.8.1** Implementation of the proposed Redevelopment Plan could result in the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. This is considered a **less than significant** impact.

The Redevelopment Plan does not describe any specific redevelopment activities at this time. However, funds provided by the Redevelopment Plan could result in new redevelopment projects within the Plan Area that could include construction, residential, commercial, and landscaping activities that could potentially affect surface water quality in the Plan Area. Direct and indirect surface water quality impacts could occur from the following general land use and redevelopment activities:

- *Construction* – Grading and vegetation removal activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). During precipitation events, soil erosion can impact the surface runoff by increasing the amount of silt and debris carried by runoff. In addition, refueling and parking of construction equipment and other vehicles onsite during construction may result in spills of oil, grease, or related pollutants that may discharge into Plan Area drainages. Improper handling, storage, or disposal of fuels and hazardous materials or improper cleaning of machinery close to area waterways could cause water quality degradation.

- *Residential* – Residential activities often involve the conventional maintenance of yards, i.e. using fertilizers, herbicides, pesticides, fungicides, and other chemicals in and around the home that can enter storm water runoff. In addition, motor vehicle operation and maintenance introduces oil, anti-freeze, and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants from cleaners and waxes into residential runoff. Uncontrolled pet and animal waste from yards, trails, and stream corridors can enter storm water runoff or flow directly into stream channels.

- *Commercial* – Commercial businesses often provide conventional maintenance of landscaped areas and use fertilizers, herbicides, pesticides, and other chemicals, which can enter into storm water runoff. Motor vehicle operation and maintenance also contributes oil, anti-freeze, and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants into storm water runoff. Auto mechanic shops, farm and hardware supply stores, salvage yards, dry cleaners, graphic and photographic processing shops, recycling businesses, mining and aggregate operations, as well as other commercial and industrial businesses can potentially contribute concentrated quantities of hazardous substances directly or indirectly into storm water runoff, as well as groundwater, if not properly maintained and monitored.

- *Recreation* – Parks and golf courses often practice conventional landscaping methods and maintain recreation areas using fertilizers, herbicides, pesticides, and algaecides, which can enter into storm water runoff or flow directly into stream channels

Overall, runoff from urban development typically contains oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients from fertilizers and animal waste, sediment, pesticides, herbicides, and other pollutants. Also, sizable quantities of animal waste from pets (e.g., dogs, cats, and horses) contribute bacterial pollutants into surface and source waters. Precipitation during the early portion of the wet season displaces these pollutants into the storm water runoff, resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons would occur during the first five inches of seasonal rainfall.

The amount and type of runoff generated by development and redevelopment within the Redevelopment Plan Area would be greater than that under existing conditions due to increases in impervious surfaces. There would be a corresponding increase in urban runoff

pollutants and "first flush" roadway contaminants such as heavy metals, oil, grease, as well as an increase in nutrients (i.e., nitrates and phosphates), and pesticides and herbicides from landscaped areas. These constituents would result in water quality impacts to onsite and offsite drainage flows and to downstream area waterways, including the American, Consumnes, and Sacramento Rivers.

As described in further detail in Section 4.10, Biological Resources, surface waters provide for a variety of functions for plants and animals, including a water source, habitat, foraging, cover, and migration and movement corridors. Adverse impacts to surface waters can cause detrimental harm to the organisms that rely upon these waters, and to the biological integrity as a whole.

As previous noted, the City of Rancho Cordova, along with the cities of Citrus Heights, Folsom, and Galt, and the County of Sacramento, operate under a NPDES permit for municipal discharges to surface waters (NPDES No. CAS082597). The permit requires that the City impose water quality and watershed protection measures for all development projects. The intent of the waste discharge requirements in the NPDES Permit is to attain water quality standards and protection of beneficial uses consistent with the Basin Plan. The NPDES permit prohibits discharges from causing violations of applicable water quality standards or result in conditions that create a nuisance or water quality impairment in receiving waters. A key component of the NPDES permit is the implementation of the Stormwater Quality Improvement Plan (SQIP) for the City, which consists of six Minimum Control elements (public education and outreach, public involvement and participation, detection and elimination of illicit discharges, construction stormwater control, postconstruction stormwater control for new development and redevelopment, and pollution prevention/good housekeeping for municipal operations. The City has identified a range of Best Management Practices (BMPs) and measurable goals to address the stormwater discharges in the City. As part of the SQIP, there are several regulations/procedures in place that implement the SQIP that include the Grading and Erosion Control Ordinance (Chapter 16.44 of the existing County Code) and construction standards. A key component of this compliance is implementation of the SQIP new development element that requires stormwater quality treatment and/or BMPs in project design for both construction and operation. Postconstruction stormwater quality controls for new development requires use of control measures set forth in the Guidance Manual for On-Site Stormwater Quality Control Measures (City of Sacramento and County of Sacramento, 2000). This includes use of regional water quality control features (e.g., detention basins) for large developments (over 100 acres), use of treatment-control measures (swales, filter strips, media filters and infiltration), housing keeping practices (e.g., spill prevention, proper storage measures and clean-up procedures).

Grading plans for future redevelopment projects within the Plan Area are required to comply with the City's Land Grading and Erosion Control Ordinance and Storm Water Management and Discharge Control Ordinance (Ordinance No. 41-2004) in order to help minimize erosion and eliminate water quality degradation. These plans are also required to be consistent with the City's NPDES permit, which includes the provisions of the County-wide NPDES, which was adopted upon incorporation.

All new and redevelopment construction projects are required by the City and the Regional Water Quality Control Board to implement a Storm Water Pollution Prevention Plan (SWPPP) and perform monitoring of discharges to storm water systems. BMPs for construction activities identified in the City's Erosion and Sediment Control Ordinance, include, but are not limited to, the following:

- Access points to the construction site shall have a Stabilized Construction Access;

- The preservation of existing vegetation shall be done in accordance with Preservation of Existing Vegetation, and Silt Fence;
- Perimeter protection along property lines shall have Preservation of Existing Vegetation, or Silt Fence;
- Slopes greater than 3 percent shall be temporarily seeded and slopes greater than 3:1 shall have Hydroseeding and Geotextiles, Plastic Covers, and Erosion Control Blankets installed;
- The toe of all slopes shall have Silt Fence and/or Fiber Roll;
- Disturbed soil areas behind the curb or back of walk (or curb) shall have Straw Mulch, Soil Binders or Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats in conjunction with Hydroseeding. Surface treatments shall extend to the greater of 6 meters (20 feet) or to the top of slope;
- Roadway Subgrades shall have Fiber Roll, Silt Fence, or Sediment Trap;
- Dead end streets, to be extended in the future, shall have Preservation of Existing Vegetation, Hydroseeding, Sediment Trap or other applicable BMP to minimize the transport of sediment onto or from the improved surface;
- Projects include detention basins shall have a Sediment Basin.

Strict adherence to the City's Land Grading and Erosion Control Ordinance, Storm Water Management and Discharge Control Ordinance, and NPDES permit requirements as well as adherence to project-specific SWPPPs would reduce impacts to surface water quality associated with the Redevelopment Plan to a level that is considered **less than significant**.

Mitigation Measures

None required.

### Groundwater Quality Impacts

**Impact 4.8.2** Implementation of the Redevelopment Plan could result in the degradation of groundwater quality resulting from urbanized runoff and other pollutants entering the groundwater system. This is considered a **less than significant** impact.

The Redevelopment Plan does not proposed any specific redevelopment activities at this time. However, funds provided by the Plan could result in future redevelopment projects within the Plan Area. These projects could potentially include the construction of additional impervious surfaces. Any new impervious areas could generate substantial additional amounts of urbanized runoff over existing levels in undeveloped parcels within the Plan Area. Urbanized runoff includes oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), household pollutants, nutrients (i.e., fertilizers), and chemicals from landscaped areas. In areas where there is current development within the Plan Area, there would be little or no increase in pollutants or runoff, provided that the lot coverage is consistent with current uses.

The storm water from future redevelopment projects in the Plan Area would be channeled to storm water detention and conveyance facilities that are subject to the NPDES Storm Water permit program discussed under **Impact 4.8.1.** The NPDES permit program requires that a Storm Water Pollutant Prevention Plan (SWPPP) be prepared specifying the use of BMPs to reduce erosion of disturbed soils and potential water quality impacts. Implementation of the construction and operational BMPs and the construction of the filtration and removal facilities, would minimize the project's pollutant runoff from reaching the groundwater resources.

Except for a few small vacant parcels, the Plan Area is currently developed and already consists of large areas of impervious surfaces. Redevelopment activities initiated as a result of the Redevelopment Plan would not add any significant amount of new impervious surfaces to the area. Therefore, this impact would not worsen the existing condition of the site by any appreciable amount. Strict adherence to the City's NPDES permit would ensure that the Redevelopment Plan's potential groundwater quality related impacts would be **less than significant.**

Mitigation Measures

None required.

## Flooding

**Impact 4.8.3** Implementation of the proposed Redevelopment Plan would alter drainage conditions and storm water runoff rates throughout the Plan Area, which could result in potential flooding impacts. This is considered a **potentially significant** impact.

Except for those parcels that make up Hagan Park in the northwestern portion of the Plan Area, the Plan Area is not located within the 100-year floodplain as identified in **Figure 4.8-1**. Except in the case of extreme flooding during a 500-year event, redevelopment in the Plan Area would not result in additional people or structures within area at risk for flooding. Current 500-year floodplain predictions by FEMA and the U.S. Army Corps of Engineers identifies that portions of the Plan Area would be inundated in the event of a 500-year flood. Failure of either the Cordova Meadows Levee or the Sunriver Levee could potentially result in the inundation of properties within the Plan Area. Complete failure of Folsom Dam would result in the majority of the Plan Area being inundated. The Plan Area is projected to increase in population by 6,087 and employment by 3,844, resulting in more people within the inundation area for these events than previously resided and/or worked there. However, such an event has an extremely low probability of occurring and is not considered to be a reasonably foreseeable event.

The Redevelopment Plan does not propose any specific redevelopment activities at this time. However, funding provided by the Redevelopment Plan could result in future redevelopment projects that could include new parking lots, driveways, sidewalks, and gutters. These facilities provide a physical conveyance for site-specific surface water flows and channels for the handling of water generated from storm events, but can also increase the occurrence of flooding if not properly designed and maintained. Large storms can produce extreme flows that cause bank cutting, sedimentation of ephemeral drainages and debris buildup in storm water drainage systems. The majority of the Plan Area is developed and currently contains various stormwater drainage systems, all of which drain to the north into the American River. Inadequate design of any new infrastructure installed as result of the Redevelopment Plan could disrupt flows in the stormwater systems and cause flooding within the Plan Area and upstream to the south. Additionally, certain construction activities such as stockpiling of materials on project

sites could result in material being accidentally placed or moved into stormwater facilities. Obstructions in the stormwater drainage system could lead to localized flooding in the event of a major storm. This would result in a significant impact.

Mitigation Measures

The following mitigation measures will be adopted by the City Council in connection with the adoption of the Redevelopment Plan as measures that will apply to all development in the Project Area until the General Plan is adopted:

**MM 4.8.3a** The Agency shall require that redevelopment projects do not result in new or increased flooding impacts on adjoining parcels or upstream and downstream areas. Redevelopment projects shall comply with the following requirements:

- Vehicle access to the buildable area of all parcels shall be at or above the 10-year storm even elevation. Creation of lots whose access will be inundated by flows resulting from a 10-year or greater storm shall not be allowed.

- All projects must incorporate runoff control measures to minimize peak flows and/or assist in financing or otherwise implementing Comprehensive Drainage Plans, if one is available.

**MM 4.8.3b** The Agency shall require that redevelopment projects do not result in new or increased flooding impacts or changes in the 100-year floodplain level for areas both upstream and downstream of the project area.

Implementation of the above mitigation will ensure that implementation of the proposed project will result in **less than significant** impacts associated with flooding.

### Increased Water Demand Impacts

**Impact 4.8.4** Implementation of the Redevelopment Plan would increase demand for water supply and require increased groundwater production and the use of surface water supplies. This is considered a **less than significant** impact.

To develop an estimate of water demands for buildout of the Redevelopment Plan Area, Zone 40 Water Supply Master Plan (WSMP) demand factors were used in combination with the acres of each land use within the Plan Area. The WSMP determines future water demand using a water demand factor that is based on the assumed water demand per acre of each land use. The estimated year 2030 buildout water demand for the Redevelopment Plan Area is shown in **Table 4.8-6**.

TABLE 4.8-6
WATER DEMANDS AT BUILDOUT OF THE REDEVELOPMENT PLAN AREA

| Land Use | Total Area (acres) | Water Demand Factor (afy per acre) | Water Demand (afy) |
|---|---|---|---|
| Estate Residential | 3 | 1.33 | 4 |
| Low Density Residential | 628 | 2.89 | 1,815 |
| Medium Density Residential | 321 | 3.70 | 1,188 |
| High Density Residential | 89 | 4.12 | 367 |
| Residential Mixed Use | 47 | 2.51 | 118 |
| Commercial Mixed Use | 156 | 2.75 | 429 |
| Village Center | 26 | 2.51 | 65 |
| Transit Oriented Town Center | 77 | 2.51 | 193 |
| Office Mixed Use | 261 | 2.75 | 718 |
| Light Industrial | 58 | 2.71 | 157 |
| Public/Quasi-Public | 110 | 1.04 | 114 |
| Parks | 166 | 3.46 | 574 |
| Schools | 214 | 1.04 | 223 |
| **Total** | **2,156** | **-** | **5,965** |
| Water System Losses (7.5%) | - | - | 447 |
| **Total Water Demand** | **-** | **-** | **6,412** |

*Source: EDAW, 2006*

The Water Supply Evaluation (2006) provided by EDAW for the preparation of the Rancho Cordova General Plan EIR identified that adequate water supplies would be available to serve buildout of the City within its corporate limits. The Redevelopment Plan is located entirely within the City of Rancho Cordova corporate limits. The above 6,412 afy of water demand was included in the City's overall demand of 57,299 afy in the EDAW report (2006). Additionally, the Redevelopment Plan does not include any changes to land use and density from those identified in the Water Supply Evaluation and the proposed Rancho Cordova General Plan. Therefore, adequate water supplies for buildout of the Plan Area would be available. As adequate supplies will most likely be available to serve the Redevelopment Plan Area, additional water supply sources will not be necessary and environmental impacts associated with increased demand for water supply would be **less than significant**.

Mitigation Measures

None required.

### Indirect Water Supply Impacts

**Impact 4.8.5** The proposed project would be served by water supplies provided by SCWA Zone 40. Collection, treatment, and conveyance of this water to the Plan Area would result in impacts on the environment. This would be a **significant** impact.

Under directives from the U.S. Environmental Protection Agency and the SWRCB, Aerojet and Boeing are required to pump groundwater that has been contaminated by chemicals associated with past activities at their sites, remove those chemicals by various treatment processes, and discharge the remediated water to surface water bodies and streams. SCWA has been granted the use of some of this remediated groundwater for beneficial urban and environmental use. Up to 5,000 afy of this remediated water is provided to GSWC for the provision of water to customers in their service area, including the Plan Area.

The environmental impacts of removal, treatment, storage, and conveyance of remediated water was included in the SCWA Zone 40 Water Supply Master Plan and its associated EIR (State Clearinghouse No. 2002122068). Significant and unavoidable impacts identified in the EIR were:

- Direct visual impacts associated with operation of new facilities;
- Potential short-term air quality impacts associated with construction of new facilities;
- Potential long-term stationary-source noise impacts from operation of new facilities;
- Potential short-term construction impacts and long-term operational impacts on special-status plants and wildlife;
- Potential short-term construction impacts and long-term operational impacts on sensitive habitats;
- Potential loss of habitat from development of facilities that would otherwise be included in the proposed South Sacramento Habitat Conservation Plan if facilities are developed outside of the Zone 40 WSMP 2030 Study Area;
- Additional, project-specific review of the environmental impacts of delivery of the remediated water to GSWC is currently being conducted as part of the Eastern County Replacement Water Supply Project.

The Redevelopment Plan would not require additional water supplies (see Impact 4.8.4), including water from the remediation water from SCWA. However, the additional dwelling units and commercial square footage expected in the Plan Area would be served by remediated water. Therefore, the proposed project would contribute to those impacts already identified in the Zone 40 Water Supply Master Plan. Because the proposed project would utilize a water source that would result in significant and unavoidable impacts, the impact of implementation of the proposed project would also be **significant and unavoidable**.

Mitigation Measures

None required.

## 4.8.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

### CUMULATIVE SETTING

As previously described, the Redevelopment Plan Area is located within the 27,000 square mile Sacramento River watershed, which includes the Sacramento, American, and Cosumnes Rivers. The American River is located along the northern boundary of the Plan Area. More specifically, the Plan Area is part of the Morrison Creek Stream Group, which covers 192 square miles, and

includes the waterways of Elder, Rancho Cordova, Florin, Gerber, Laguna (and tributaries), Morrison, Strawberry, Union House, and Whitehouse Creeks. The cumulative water supply analysis focuses on water demand projections for the City of Rancho Cordova General Plan Planning Area. This cumulative analysis also considers the service area boundaries of SCWA and GSWC and potential affects to hydrology and water quality within the geographic extent of Sacramento County.

### CUMULATIVE IMPACTS AND MITIGATION MEASURES

#### Cumulative Water Quality Impacts

**Impact 4.8.6** Implementation of the proposed project, in combination with current and future development and redevelopment in the cumulative area, would contribute to water quality impacts throughout the region. The project's incremental contribution to these impacts would be **less than cumulatively considerable**.

As described under **Impact 4.8.1** and **Impact 4.8.2**, the majority of the Plan Area is already substantially disturbed with urbanized development. The Redevelopment Plan does not propose any specific redevelopment activities at this time. However, future redevelopment projects may be initiated as a result of funding provided by the Redevelopment Plan. These future projects could have a potential impact on water quality in the Plan Area. When considered with other planned and reasonably foreseeable projects in the City of Rancho Cordova and southeastern Sacramento County, implementation of the Redevelopment Plan may contribute to cumulative adverse impacts on both surface and groundwater quality. However, as discussed above, strict adherence to the City's Land Grading and Erosion Control Ordinance, Storm Water Management and Discharge Control Ordinance, required project-level SWPPPs, and NPDES permit requirements would mitigate the proposed project's contribution to this cumulative impact. Other development in the cumulative area will also be required comply with NPDES permits as well as regional, State, and federal water quality standards. Although the activities associated with the Redevelopment Plan would contribute to the degradation of water quality in the City of Rancho Cordova and the wider cumulative area, that contribution would be **less than cumulatively considerable**.

##### Mitigation Measures

None required.

#### Cumulative Flood Hazards

**Impact 4.8.7** Implementation of the proposed project, when combined with current and future projects in the cumulative area, would result in an increase in impervious surfaces and modification of drainage conditions that could result in localized and area-wide flood conditions. The proposed project's incremental contribution to this cumulative impact would be **less than cumulatively considerable**.

As described in **Impact 4.8.3** above, the Redevelopment Plan would not result in significant impacts associated with flooding. However, within the cumulative area there are several large development projects proposed or under construction (i.e. Rio del Oro, the Sunridge Specific Plan, the Villages at Zinfandel) that would cause large areas of undeveloped land to be

converted to impervious surfaces as well as changes in the drainage pattern of the area. This would result in a cumulative impact on flooding in the vicinity.

The proposed project's contribution to these impacts is reduced by the fact that the Plan Area is largely developed and already consists of large impervious areas. Additionally, stormwater infrastructure is in place within the Plan Area to convey stormwater flows to the American River and thus outside the Plan Area. Impacts from future redevelopment activities in the Plan Area are reduced by implementation of mitigation measures **MM 4.8.3a** and **b**, further reducing the proposed project's contribution. Therefore, the proposed project's incremental contribution to cumulative flooding impacts would be **less than cumulatively considerable**.

Mitigation Measures

Implement mitigation measures **MM 4.8.3a** and **b**.

### Cumulative Water Supply Impacts

**Impact 4.8.8** Implementation of the proposed Redevelopment Plan would contribute to an increased cumulative demand for water supply requiring increased groundwater production and the use of surface water supplies that could result in significant environmental impacts. The proposed project's incremental contribution to the impact would be **less than cumulatively considerable**.

Development anticipated by the proposed Rancho Cordova General Plan, including both within and outside the City's corporate boundaries would result in a cumulative increase in water supply demands. The water supply and demand for the Rancho Cordova General Plan Planning Area are shown in **Table 4.8-7**.

TABLE 4.8-7
SUMMARY OF WATER SUPPLY FOR THE RANCHO CORDOVA GENERAL PLAN PLANNING AREA (AFY)

| Source | Year | | | | |
|---|---|---|---|---|---|
| | 2010 | 2015 | 2020 | 2025 | 2030 |
| SCWA | | | | | |
| Surface Water | 13,060 | 44,143 | 48,772 | 68,700 | 69,567 |
| Groundwater | 34,125 | 28,837 | 40,470 | 31,324 | 39,097 |
| Recycled Water | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| Supply for Entire Service Area | 51,585 | 77,380 | 93,642 | 104,424 | 113,064[1] |
| **Supply for General Plan PA** | - | - | - | - | **37,314** |
| GSWC | | | | | |
| Surface Water | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 |
| Groundwater | 9,518 | 10,499 | 10,814 | 10,829 | 10,829 |
| **Supply for General Plan PA[2]** | 24,518 | 25,499 | 25,814 | 25,829 | **25,829[3]** |
| Cal-Am | | | | | |
| Groundwater | 43,600 | 33,650 | 34,180 | 33,550 | 33,910 |

| Source | Year | | | | |
|---|---|---|---|---|---|
| | 2010 | 2015 | 2020 | 2025 | 2030 |
| Wholesale Purchases | 4,020 | 16,860 | 18,320 | 20,830 | 22,280 |
| Supply for Entire Service Area | 47,620 | 50,510 | 52,500 | 54,380 | 56,190 |
| **Supply for General Plan PA** | - | - | - | - | **14,477** |
| | | | | | |
| **Total Water Supply for General Plan Planning Area** | | | | | **77,620** |

*Source: EDAW, 2006*
*Notes:*

[1] *Total water supply for SCWA Zone 40 is less than that shown in Table 4.8-1 due to SCWA's conjunctive use program that would limit water supplies to Zone 40 water demands of 113,064.*

[2] *GSWC's service area is located entirely within the General Plan Planning Area.*

[3] *This water supply for GSWC is greater than that shown in Table 4.8-3 due to an additional 5,000 afy of water from GSWC's SMUD water transfer entitlement that they currently choose not to utilize. However, if needed, this additional 5,000 afy entitlement could be utilized to meet cumulative water need. Therefore, it is included in the total supply number.*

Water demand for the Rancho Cordova General Plan Planning Area is expected to be 128,709 afy (EDAW, 2006). Approximately 51,089 afy of water supply will be required to serve the entire Planning Area at buildout of the proposed General Plan. As identified in Impact 4.8.4 above, adequate supplies exist to serve the projected growth within the corporate boundaries of the City. Therefore, the additional 51,089 afy will be required in order to serve those portions of the General Plan Planning Area that lie outside the City's boundaries. A number of options are available for additional water supply, including but not limited to: water transfers and exchanges with nearby purveyors, improved groundwater sustainability, and expanded use of recycled water.

Potential impacts from the expansion of water supply include surface water quality impacts, geological impacts, wetlands and biological impacts, visual impacts, agricultural impacts, land use compatibility impacts, air quality impacts, noise impacts, transportation impacts, and growth inducement. Environmental review has been completed for several large SCWA water supply projects. These include the Water Forum Agreement EIR, the Zone 40 Water Supply Master Plan EIR, and the North Vineyard Well Field (NVWF) EIR. The following significant and unavoidable impacts were identified in the Water Forum Agreement EIR and the Zone 40 Water Supply Master Plan EIR. No significant and unavoidable impacts were identified in the NVWF EIR.

*Water Forum Agreement*

- Water quality impacts to the Sacramento River and Delta.
- Impacts to Folsom Reservoir warmwater fisheries
- Impacts to Fall-run Chinook salmon
- Flow and temperature impacts to splittail
- Decreases in deliveries to State Water Project (SWP) customers
- Decreases in deliveries to Central Valley Project (CVP) customers
- Reduced rafting and boating opportunities on the Lower American River
- Reduced Folsom Reservoir boating opportunities
- Reduced availability of Folsom Reservoir swimming beaches
- Land use and growth-inducement impacts water service area
- Cultural resource impacts in Folsom Reservoir from varying water levels

*Zone 40 Water Supply Master Plan*

- Direct visual impacts associated with operation of new facilities
- Potential short-term air quality impacts associated with construction of new facilities
- Potential long-term stationary-source noise impacts from operation of new facilities
- Potential short-term construction impacts and long-term operational impacts on special-status plants and wildlife
- Potential short-term construction impacts and long-term operational impacts on sensitive habitats
- Potential loss of habitat from development of facilities that would otherwise be included in the proposed South Sacramento Habitat Conservation Plan if facilities are developed outside of the Zone 40 WSMP 2030 Study Area

Additional water supplies will be required to serve the cumulative area at buildout. However, purveyors that serve the Redevelopment Plan Area have adequate supplies to serve the increased density predicted for the Plan Area. While the cumulative area would see significant environmental impacts from the securing of additional water supplies, these impacts would occur in areas outside the Plan Area. Therefore, the proposed project's incremental contribution to cumulative water supply impacts would be **less than cumulatively considerable**.

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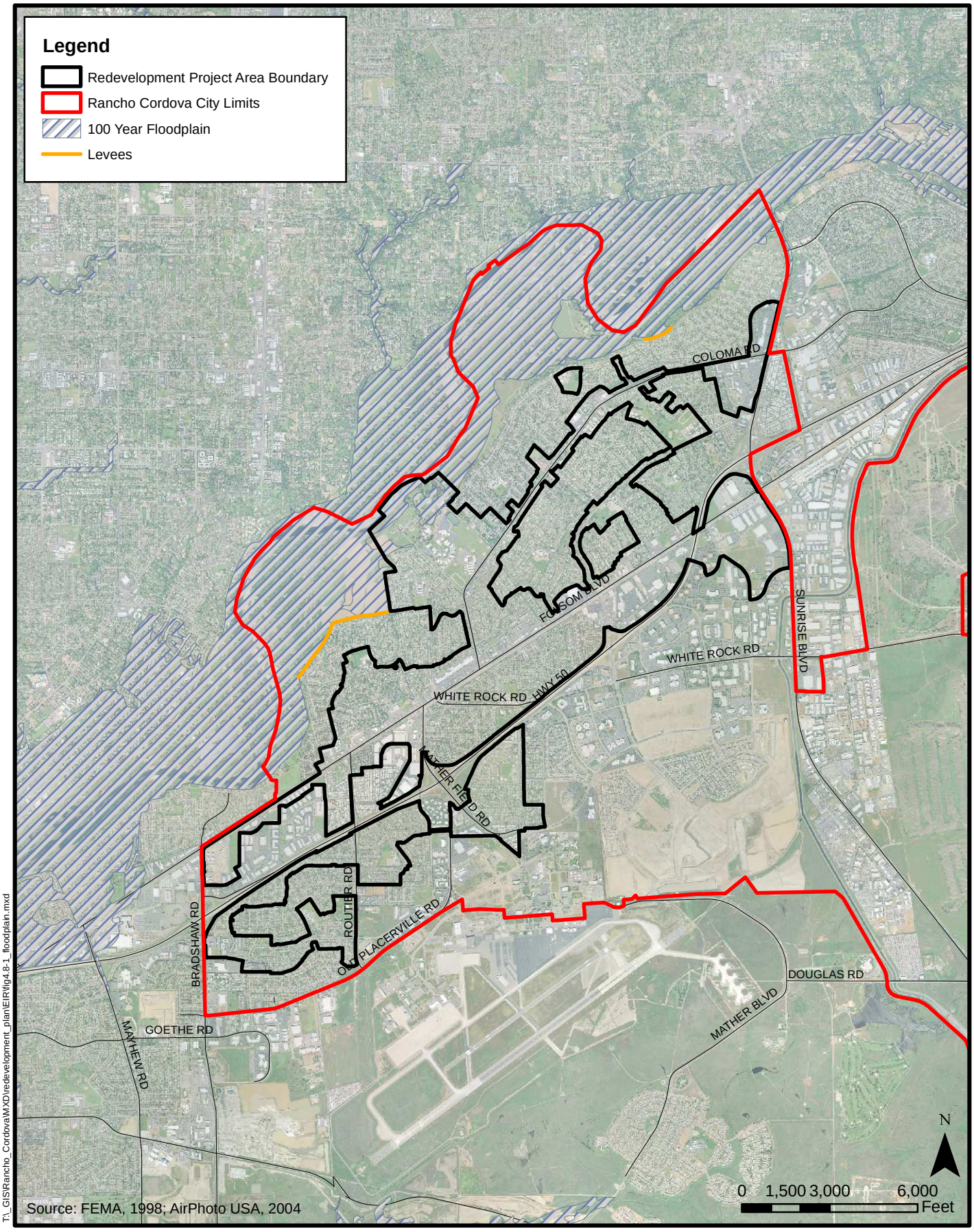


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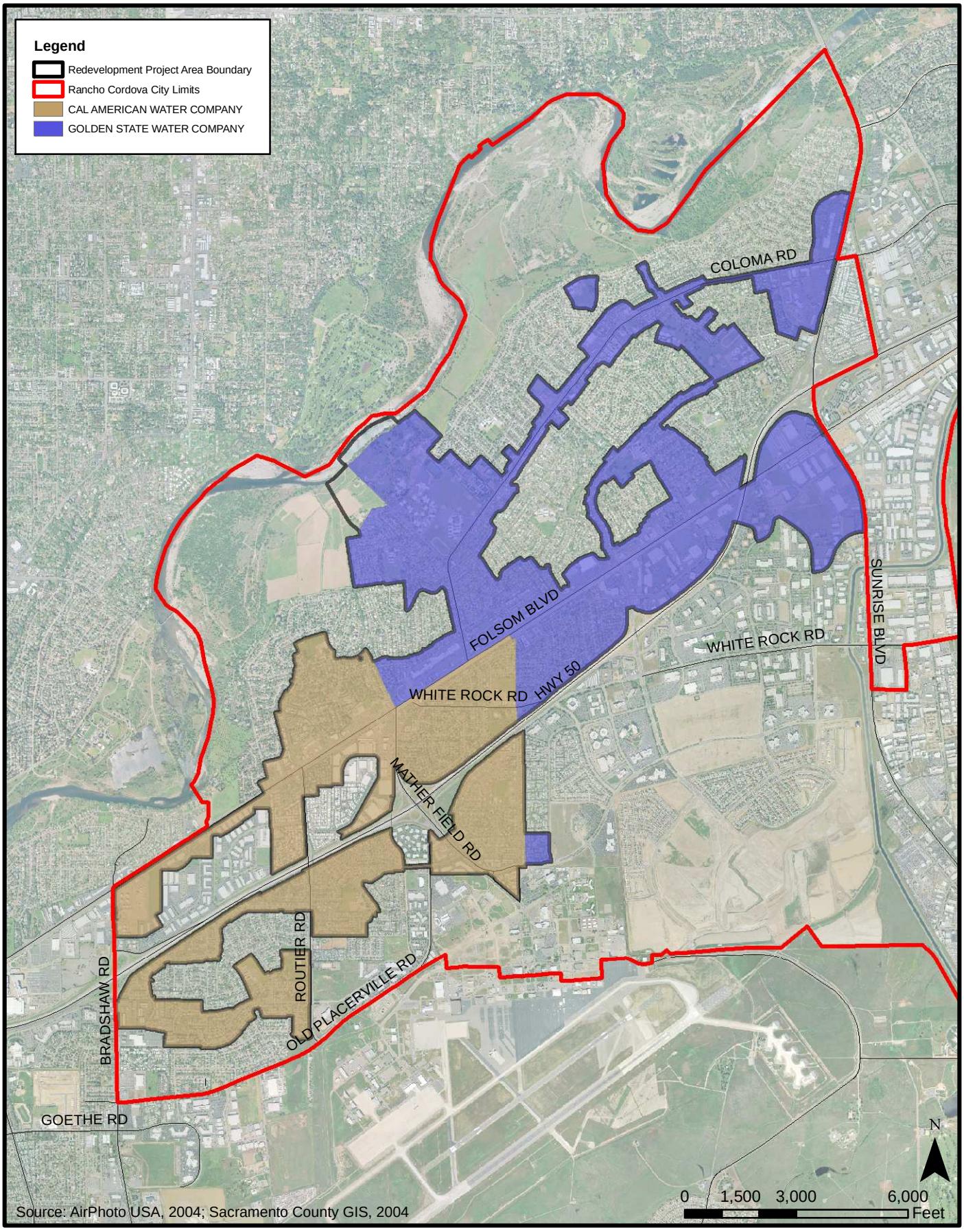
City of Rancho Cordova
Planning Department

Figure 4.8-1
100-Year Floodplain
Within the Redevelopment Project Area Vicinity

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Planning Department

Figure 4.8-2
Water Purveyor Service Boundaries
Within the Redevelopment Project Area