4.9 HYDROLOGY/WATER QUALITY

4.9.1 Introduction

This section evaluates the impacts of the General Plan Update associated with hydrology and water quality within the City of Simi Valley. The section analyzes whether the project would violate any water quality standards or waste discharge requirements, deplete groundwater supplies or interfere with groundwater recharge, result in substantial erosion or siltation on or off site, increase the rate of surface runoff, provide substantial additional sources of polluted runoff, place structures in a 100-year flood hazard area, or expose people or structures to a significant risk of loss, injury, or death involving flooding.

Existing data sources used to prepare this section include state, county, regional, and local resources such as the California Department of Water Resources (DWR), Los Angeles Regional Water Quality Control Board (LARWQCB), Watersheds Coalition of Ventura County, Calleguas Municipal Water District (Water District), and the Ventura County Watershed Protection District (VCWPD). A comment letter was received from the VCWPD in response to the Notice of Preparation dated December 1, 2009, expressing concern that stormwater quality management be considered in the General Plan Update as codified in Section V.2 of the current NPDES permit, which contains changes in the regulatory framework related to water quality management.

4.9.2 Environmental Setting

The Ventura County Board of Supervisors originally formed Ventura County Waterworks District No. 8 (District No. 8) during the 1960s in order to provide water service to the Simi Valley area. The responsibility was transferred to the City of Simi Valley on July 1, 1977. Approximately 66 percent of the developed portion of Simi Valley is served by District No. 8. The Simi Valley City Council serves as the governing body and has responsibility for its operations and financial management. The remaining 34 percent of Simi Valley not served by District No. 8 is served by the Golden State Water Company, a private company. Unincorporated areas located southeast and north of the City boundary are served by District No. 8 (VCWWD 2005).

More than 96 percent of water consumed in the District No. 8 service area is imported water. Imported water comes from the State Water Project (the California Aqueduct) and supplied to District No. 8 by the Metropolitan Water District of Southern California via the Water District. Ninety percent of water served by the Golden State Water Company is imported from Water District as well.

Calleguas Creek Watershed

Simi Valley is located within the Calleguas Creek Watershed (Watershed). The Watershed encompasses approximately 343 square miles, predominantly in southern Ventura County, and is located along an east/west axis approximately 30 miles long and 14 miles wide, as shown in Figure 4.9-1 (Groundwater Basins and Watersheds). The northern boundary is formed by South Mountain and Oak Ridge, the

northeast and east boundary is formed by the Santa Susana Mountains, and the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

The Watershed includes the Conejo Creek, Arroyo Santa Rosa, Arroyo Simi, Arroyo Las Posas, and Calleguas Creek, as well as Revolon Slough and Mugu Lagoon (CMWD 2004). Approximately 50 percent of the Watershed is undeveloped open space, 25 percent is agricultural, and the remaining 25 percent is urban land use (WCVC 2006). The Watershed is semi-arid, receiving an average of 15 inches of rainfall per year (at Moorpark), with a historical annual range of 6 inches to over 30 inches. Nearly all of the rainfall occurs between November and March (Larry Walker Associates 2004). Simi Valley receives an average of 14.37 inches of rainfall per year (City of Simi Valley 2007).

The upper reach of the Watershed includes Simi Valley and Las Posas Valley. The main surface water bodies are the Arroyo Simi, Arroyo Las Posas and the uppermost reach of the Calleguas Creek. The groundwater bodies include the Las Posas Basin, one of the major aquifers within the Fox Canyon Aquifer System, and the South Las Posas Basin and the Simi Valley Basin, both unconfined groundwater basins (Figure 4.9-1). Development on the northern reach includes the City of Simi Valley, the City of Moorpark, and some 19,000 acres of irrigated agriculture (Larry Walker Associates 2004).

Surface Water Resources

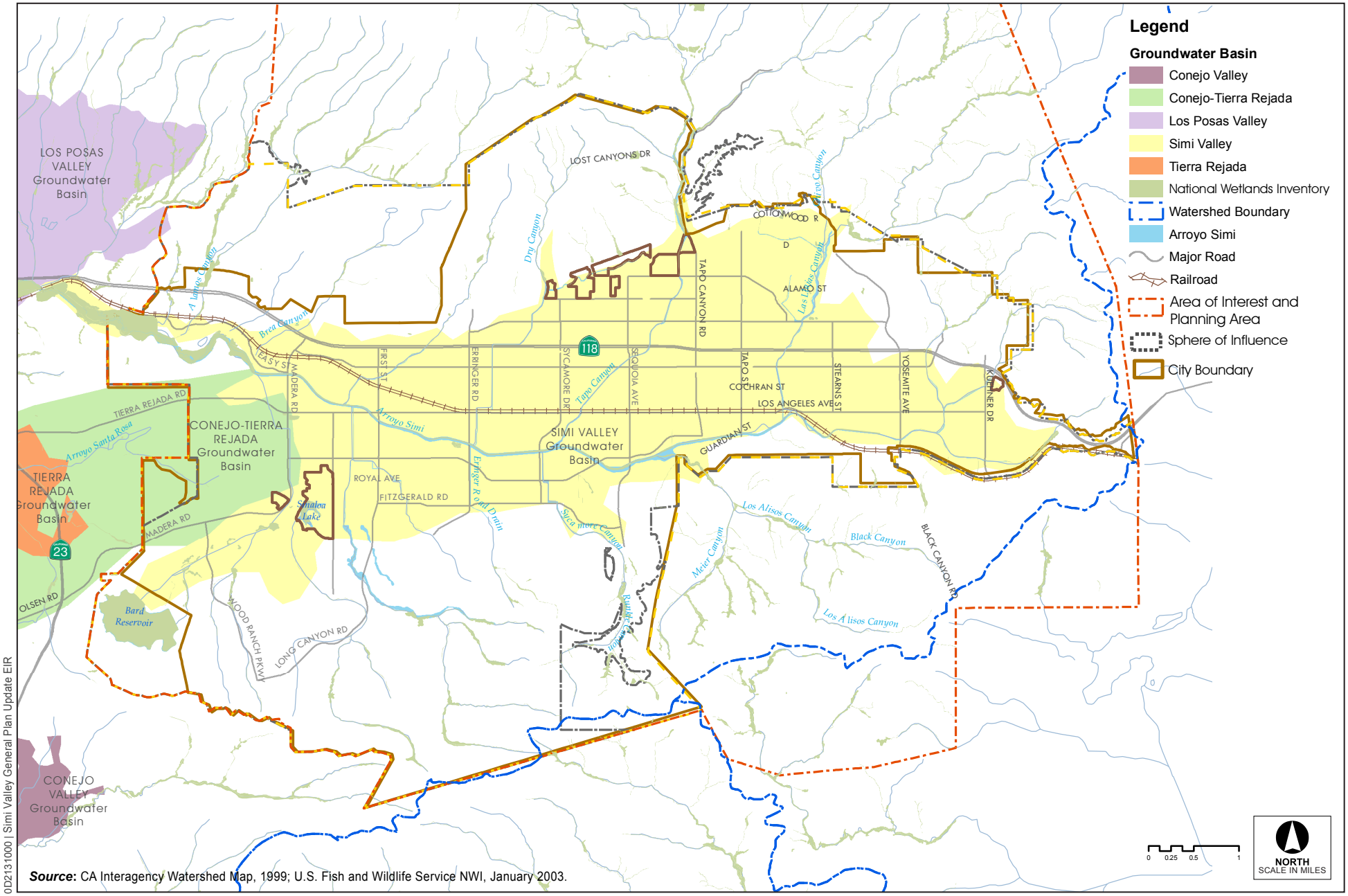
The Watershed has relatively few surface water features. There are no natural lakes and no major rivers. The surface waters are primarily arroyos and creeks that have historically carried storm flows and post-storm flows from the upper watershed down to the alluvial valleys and the southeastern portion of the Oxnard Plain (Larry Walker Associates 2004).

The major drainage course through the City of Simi Valley is the Arroyo Simi. This major channel drains from the extreme limits of the Watershed in the east and northeast, then westerly through the Las Posas Valley (as Arroyo Las Posas) to the Oxnard Plain (as Calleguas Creek), and finally into the Pacific Ocean through Mugu Lagoon (VCWPD 2003). In the eastern half of the valley, the Arroyo Simi traverses close to the base of the hills on the southern edge of the valley, while in the western half it traverses diagonally across the valley to the northwest, reaching the center of the valley, from which it discharges downstream toward Moorpark (City of Simi Valley 1990).

Tributaries to Arroyo Simi from the Santa Susana Mountains on the north are, from west to east, Alamos Canyon, Brea Canyon, North Simi Drain, Dry Canyon, Tapo Canyon, Chivo Canyon, and Las Llajas Canyon. Canyons draining the Simi Hills from the south are Sycamore Canyon, Bus Canyon, Erringer Road Drain, Runkle Canyon, Meier Canyon, and Black Canyon in the Santa Susana area (VCWPD 2003).

Groundwater Resources

Groundwater is concentrated into areas called basins that are the natural hydrogeological unit for delineating and describing groundwater. An aquifer is a subsurface area where water collects, concentrates, and can be extracted within the basin. Multiple aquifers may be located within each basin. The Simi Valley Groundwater Basin (SV Basin) is the major groundwater basin within the City. As shown in Figure 4.9-1, the SV Basin underlies Simi Valley in southeastern Ventura County, and is



Source: CA Interagency Watershed Map, 1999; U.S. Fish and Wildlife Service NWI, January 2003.

0D2131000 | Simi Valley General Plan Update EIR

Figure 4.9-1

Groundwater Basins and Watersheds

ATKINS

bounded on the north and northeast by the Santa Susana Mountains and the Simi fault, and on the south and southwest by the Simi Hills. A small portion of the western end of the City overlies the Conejo-Tierra Rejada Groundwater Basin (TR Basin). Ground surface elevation of the valley ranges from 700 to 1,100 feet above sea level. Surface runoff discharges into the Arroyo Simi and flows west to join Arroyo Los Posas (CMWD 2004).

With a surface area of about 12,100 acres and an average thickness of about 175 feet, the storage capacity of the SV Basin is estimated at approximately 180,000 acre-feet (af). In 1999, the basin was estimated at 95 percent full, with about 172,000 af in storage (VCWWD 2005). The TR Basin covers a surface area of 4,390 acres. Groundwater storage capacity of the TR Basin is estimated to be 39,320 af by Panaro (2000) and greater than 80,000 af by Schaaf (1998) (California DWR 2004b). In 1999, the TR Basin was estimated at 75 percent full, or having 29,490 af of groundwater in storage (Panaro 2000). About 80,000 af of groundwater in storage was estimated by Schaaf (1998), based on an average specific yield of 11 percent (California DWR 2004b). As noted, only a small portion of the TR Basin is within the Planning Area and it does not provide a substantial source of groundwater for the City. This information is provided as background only, and the remainder of this discussion focuses on the SV Basin.

Ground surface elevation of the valley ranges from 700 to 1,100 feet above sea level. Surface runoff discharges into the Arroyo Simi River and flows west, joining Arroyo Las Posas River. Inflow from overlying streams, percolation of direct precipitation, and irrigation return are considered the main recharge sources to the SV Basin (VCWWD 2005).

The primary water-bearing unit in this SV Basin is alluvium. Groundwater is generally unconfined, but as grain size decreases towards the western end of the SV Basin, clay lenses in the alluvium cause localized confinement. The average specific yield for the SV Basin is 8.6 percent, as noted, the average well yield for the basin is 394 gpm, and the depth to water-producing zones is typically 5 to 25 feet. Percolation of direct precipitation, inflow of minor streams, minor subsurface inflow from surrounding semi-permeable formations, and irrigation return provide recharge to the SV Basin.

Groundwater generally moves westward through the SV Basin, following the course of Arroyo Simi. During periods of overdraft, the slope of the groundwater surface can reverse in the western part of the SV Basin and groundwater may flow in an easterly direction. Hydrographs of wells in the SV Basin show that water levels have typically remained the same or risen since 1980 (CMWD 2004).

Water Quality

Surface Water Quality

Surface water quality within the City is affected by a variety of different discharges from both point and nonpoint sources. Wastewater treatment plant effluent is the largest and most common point-source discharge. Urban runoff, erosion, agricultural runoff, and other natural causes are common nonpoint sources. Pollutants from both point and nonpoint sources include total dissolved solids (TDS), suspended solids, oil, grease, nutrients (nitrogenated and phosphorated compounds), metals, bacteria, and pesticides. As discussed in "Regulatory Setting," total maximum daily loads (TMDLs) have been established to address surface water quality issues for chloride and nitrates and effects.

Most of the surface waters within the Watershed have been identified by water quality regulators as impaired (conditions are inadequate to support beneficial uses as designated by the Regional Water Quality Control Board [RWQCB]). The impaired uses include drinking water, aquatic life support, and recreation. The most significant sources of impairment are generally considered to be nonpoint sources of toxic pollutants, nitrogen, sediments, and algae. Point sources are also identified as potential sources of toxic pollutants and nitrogen compounds (CMWD 2004), including the presence of high levels of TDS and high chloride and nitrate concentrations, largely due to urban development and past agricultural activities (City of Simi Valley 1997). Impacts from increased urbanization and hardscaping of undeveloped areas will likely have an impact on future water recharge capabilities.

Aquatic life in both Mugu Lagoon and the inland streams of this Watershed has been impacted by pollutants from nonpoint sources. Chemicals such as DDT, PCBs, other pesticides, and some metals have been detected in both sediment and biota collected from surface waterbodies of this Watershed. Additionally, ambient toxicity has been revealed in several studies from periodic toxicity testing in the Watershed [ammonia from publicly owned treatment works (POTWs) and pesticides such as diazinon and chlorpyrifos are implicated]. Fish collected from Calleguas Creek and Revolon Slough exhibit skin lesions and have been found to have other histopathologic abnormalities. High levels of minerals and nitrates are common in the water column as well as in the groundwater. Sediment toxicity is also elevated in some parts of the lagoon.

Overall, the Calleguas Creek Watershed is considered highly impaired. Primary issues related to POTW discharges include ammonia toxicity and high mineral content (i.e., salinity), the latter, in part, due to imported water supplies. Of the seventy-three dischargers enrolled under the general industrial stormwater permit in the Watershed, the largest numbers are located in the cities of Simi Valley and Camarillo. In addition, the lack of data concerning surface flows, return flows, and natural recharge remains a water quality issue (WCVC 2006).

Groundwater Quality

The quality of groundwater has had some challenges with volatile organic compounds (VOCs) in shallower portions of the basin. With a TDS concentration of 1,580 mg/L, the quality of the groundwater is considered unsuitable for many municipal uses (VCWWD 2005). The TDS level of the groundwater must be brought below the USEPA standard of 950 parts per million (ppm) prior to discharge into the Arroyo Simi. This could be accomplished through removal of excess TDS or blending of the groundwater with imported water (City of Simi Valley 1997). Further groundwater quality information can be found in the updated California's Groundwater Bulletin 118 prepared by the DWR (VCWWD 2005).

Both the proposed Calleguas Regional Salinity Management Conveyance Facility and Simi Valley Tapo Canyon Water Treatment Plant would produce more than 8,000 and 1,000 acre-feet per year (afy) of desalted groundwater, respectively (IRWMIGP 2007). the Water District is proposing the construction of a brine line, which will carry salt removed from local water resources to the ocean (see Proposed Projects below). A desalting process will make use of groundwater that would otherwise be impaired (City of Simi Valley 1997).

Similar to the Watershed's surface water, groundwater basins also contain high levels of mineral salts that limit their use as a water supply. In addition, some groundwater basins have been overpumped, resulting in seawater intrusion along the coast (CMWD 2004).

However, high water tables have been found in the western and eastern portions of Simi Valley, where locally thick accumulations of young stream deposits in these areas coincide with areas of shallow groundwater. Water table levels greater than 40 feet have been found in the Tapo Canyon area and other areas underlain by alluvial fan or debris flow deposits adjacent to the hills (City of Simi Valley 1999a). Existing near-surface- to surface-saturated conditions in western Simi Valley have resulted from where a bedrock barrier restricts westward outflow of groundwater. Similar conditions exist in the eastern portion of the Simi Valley groundwater basin, where historic water table depths measure less than 10 feet. Hydrographs of wells in the SV Basin show that water levels have typically remained the same or risen since 1980 (California DWR 2004a).

In the SV Basin, groundwater storage has increased significantly in the last several decades, necessitating dewatering operations in order to protect development in the western portion of the City. This increase is due to a combination of an overall decrease in agricultural use of groundwater because of high TDS levels and return flows from applied imported water supplied to Simi Valley (WCVC 2006).

Simi Valley's groundwater supply has been identified as impaired due to the presence of high levels of TDS and high chloride and nitrate concentrations, largely due to urban development and past agricultural activities. There are some problems with VOCs in shallower portions of the basin. Analysis of water from one public supply well shows a TDS concentration of 1,580 mg/L (California DWR 2004a).

According to the Integrated Regional Water Management Plan (IRWMP) for the Watersheds Coalition of Ventura County, current estimates of the safe yield of the thirty-two recognized groundwater basins within the Coalition are currently being evaluated. However, the lack of regular monitoring of groundwater pumping activities and insufficient data related to groundwater recharge and usage remain as groundwater quality issues (WCVC 2006). There is also a lack of research on the effects of groundwater pumping activities on surface water quality.

In addition, hazardous materials and waste management specifically related to the Santa Susana Field Laboratory (SSFL), a development and research facility in southeastern Ventura County, has been responsible for soil and groundwater contamination in the Planning Area. Activities at SSFL since 1948 have included research, development, and testing of liquid fueled rocket engines, water jet pumps, liquid metal heat exchanger components, lasers, coal gasification, and nuclear reactors. Although testing activities have decreased since the 1970s, testing activities have involved the use of contaminants such as liquid metals, chlorinated solvents, petroleum-based compounds, polychlorinated biphenyls (PCBs), and hydraulic oils.

Chemical waste from rocket engine testing activities, including organic solvents, hydrazine fuel, oxidizers, and kerosene-based fuels, was treated and stored within flow-through and retention ponds. A total of 28 lined and unlined retention ponds were operated at SSFL.

The Department of Toxic Substances Control (DTSC), a Division of California Environmental Protection Agency (Cal/EPA), began oversight into the contamination investigation associated with the

SSFL beginning in 1997. DTSC has divided the SSFL investigations into two areas or operable units (OUs). The first is designated the Surficial OU and is comprised of soil, sediment, surface water, near-surface groundwater, air, and weathered bedrock that may have been impacted by spills or releases.

Contaminants found within the Surficial OU at the SSFL include lead, mercury, arsenic, chromium, trichloroethylene (TCE), tetrachloroethylene (PCE), PCBs, carbon tetrachloride, 1,2-dichloroethylene, cesium-137, and plutonium-238. Corrective action is currently underway at approximately fifty locations associated with the Surficial OU. For example, one area under investigation has been designated "Area I Burn Pit." Contaminants found within the Area I Burn Pit include dioxins, TCE, chromium, petroleum hydrocarbons, and perchlorate.

Contaminants have also been found in soil in off-site recreational and residential areas south and north of the SSFL. These contaminants may have originated at the SSFL and were transported via surface runoff. Beryllium and lead have been found in soil at Bell Canyon, an area south of SSFL. Arsenic and cesium-137 were also found in soil south of the SSFL at an area known as the Ahmanson Ranch.

The second DTSC area of investigation is designated the Chatsworth Formation OU. The Chatsworth Formation OU comprises the Chatsworth formation groundwater (i.e., deep groundwater) and saturated and unsaturated unweathered bedrock impacted by both spills and migration of dissolve-phase contaminants.

Groundwater characterization and monitoring activities at SSFL utilize a network of both shallow and deep monitoring wells. Groundwater quality issues resulting from SSFL operations are further discussed below. A discussion of hazardous materials and waste management related to other sites and incidents is provided in Section 4.9 (Hazards and Hazardous Materials).

Groundwater plumes impacted by chlorinated solvents from SSFL operations, primarily TCE and its degradation products, have been found at various depths and locations throughout SSFL. TCE has been found in over 80 percent of the monitoring wells sampled at SSFL. Chlorinated solvent plume sources have been identified at numerous facilities, including former solvent handling and disposal facilities, rocket test areas, and a former sodium disposal facility. In addition, TCE has been found in off-site monitoring wells to the south, northeast, and northwest of the SSFL. Perchlorate has also been found in groundwater samples collected at SSFL and in shallow non-potable monitoring wells in Simi Valley. However, perchlorate has not been found in municipal wells operated by the City of Simi Valley.

In addition to the DTSC investigations associated with Surficial OU and the Chatsworth OU, the California Department of Health Services Radiologic Health Branch (DHS-RHB) is overseeing the decontamination and decommissioning of former nuclear facilities at SSFL. The DTSC is responsible for overseeing the soil and groundwater remedial investigation and cleanup of chemical contaminants at SSFL that may pose a risk to human health and the environment. A comprehensive groundwater study for SSFL is due to be completed by DTSC in July 2009. A DTSC Corrective Measures Study is due in September 2010, an Environmental Impact Report is due in 2011, and Corrective Measures Implementation is due to begin in October 2012.

Storm Drain Infrastructure

VCWPD, formally known as the Ventura County Flood Control District (VCFCD), provides administrative services for all flood control zones throughout the County. In addition, VCWPD provides monitoring of surface water flows, issuance of flood hazard reports, land development and building permit review, watercourse and encroachment permits, water well permits, and monitoring and implementation of the Flood Warning System (VCWPD n.d.).

Based upon the Calleguas Creek Watershed Hydrology Study, peak discharges for the 100-year frequency storm event were determined with the Calleguas Creek Watershed Ventura County Modified Rational Method (VCRAT) model. A comparison of Present Condition flow rates (from March 2003 Present Condition Calleguas Creek Watershed Hydrology Study) to Future Condition (from April 2005 Future Condition Calleguas Creek Watershed Hydrology Study) with project flow rates at various key points in the watershed shows an average increase of 1.5 times discharge flow rates between the present condition and the projected future condition for Arroyo Simi.

Simi Valley Master Plan of Drainage

In addition to the Calleguas Creek Watershed Hydrology Study, the Simi Valley Master Plan of Drainage was reviewed. The valley floor is located in the approximate center of the study watershed, which is essentially rectangular in shape, with an average east/west length of 9 miles and an average north/south width of 10 miles. The drainage area is defined as the entire 90square mile Simi Valley drainage basin. The study area is located within the VCWPD Zone III. Excellent north/south ground slopes permit storm runoffs to be rapidly conveyed to the Arroyo Simi, from which they are transported westerly out of the basin. The overall gradient in the east/west direction is generally sufficient for efficient conveyance of flows. However, it must be noted that in certain localized situations, east/west slopes are quite flat, necessitating special attention during the future detail design of drainage facilities (Hawkes & Associates 1990). In addition, undeveloped areas lying west of Madera Road will receive special evaluation as part of the updated Master Plan of Drainage and with the future development projects.

Stormwater runoff calculations were made in accordance with the method outlined in the VCWPD Hydrology Manual dated in 1978. This method was a modification of the Rational Method developed over a period of years by the LACFCD and adapted for use in Ventura County by the VCWPD in 1975. That method has been adapted by the City of Simi Valley. Several flood control structures which significantly affect the amount of stormwater runoff passing to flood control and drainage facilities in the study area already exist or are contemplated for construction (VCWPD 2003). The Tapo Canyon, Dry Canyon, White Oak Creek, Tapo Hills, Bus Canyon and Sycamore Canyon watersheds were also studied by the District and the associated times of concentration, rates of imperviousness, tributary areas, delineation and sizes of subareas, soils data, and conveyance routing were incorporated in the hydrologic analysis to develop discharges for 10- and 100-year-frequency storms (Hawkes & Associates 1990).

Wood Ranch Reservoir, an existing structure, also acts as a detention basin collecting flows generated in the extreme southwestern portion of the Sycamore Canyon watershed. Sycamore Canyon Dam was constructed near the eastern limit of the watershed in 1980 and is the largest of the detention basins in

Simi Valley, with a capacity of 660 af. It provides significant reduction in peak flows in the Arroyo Simi and downstream (Hawkes & Associates 1990).

Prior to incorporation of the City of Simi Valley, the installation and maintenance of regional facilities and storm drain systems known as the Red Line Drainage System were performed by VCWPD and the secondary storm drain system was maintained by the "Subzone" of VCWPD. VCWPD facilities currently provide substantial flood protection at a regional level, establishing an effective base-level system upon which to develop future planned local facilities. However, many of these facilities provide less than VCWPD standard 50-year protection (Hawkes & Associates 1990).

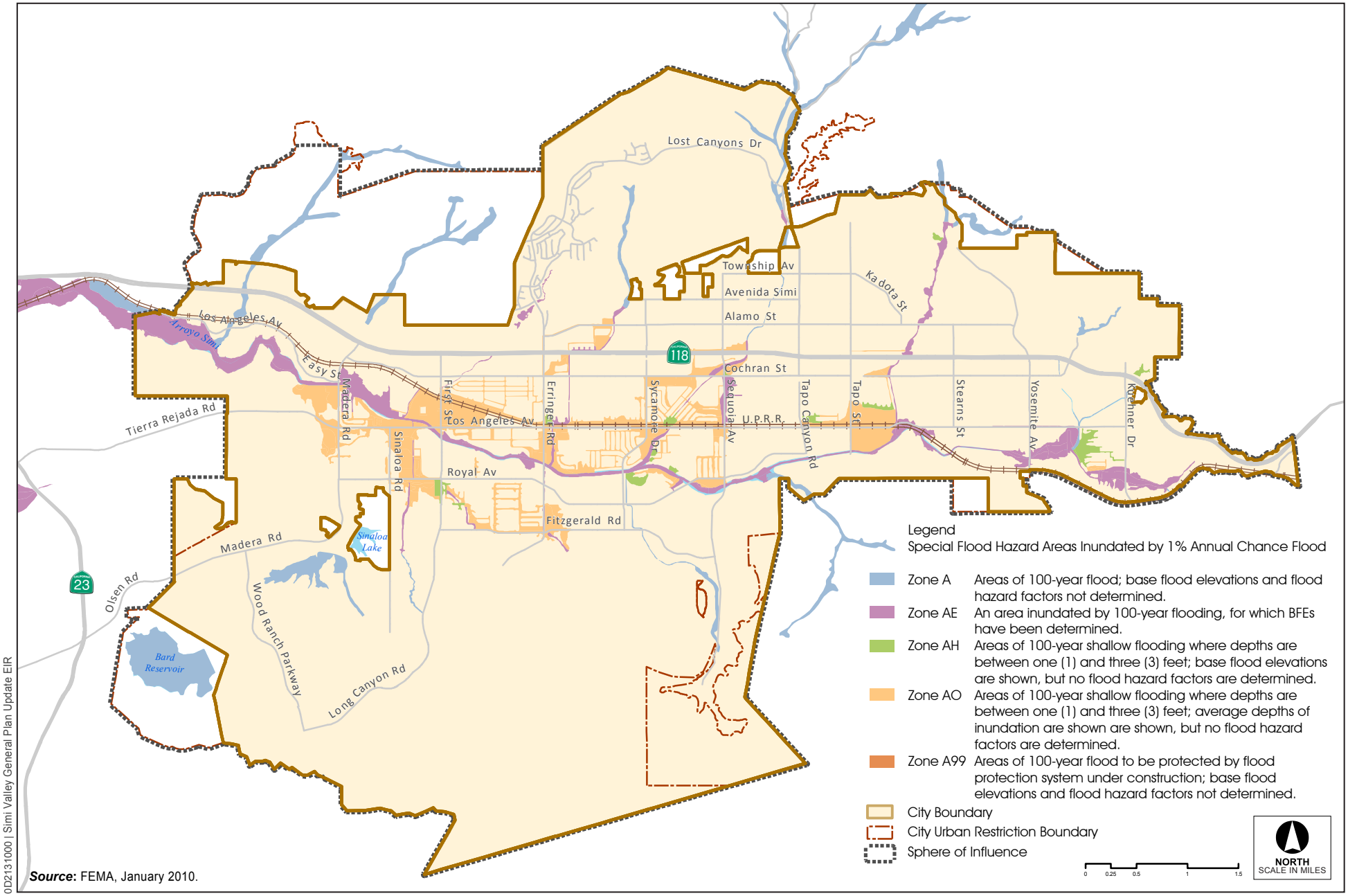
Flood Hazards

Flood Zones

The Federal Emergency Management Agency (FEMA), as part of its statutory responsibilities to carry out the National Flood Insurance Program, has mapped most of the flood risk areas within the United States. In fact, most communities with a 1 percent chance of a flood occurring in any given year have a floodway depicted on a Flood Insurance Rate Map (FIRM). Figure 4.9-2 (100-Year Flood Event Areas) depicts the 100-year flood event boundaries and the related watershed area for the major watercourses in the Planning Area. The majority of the areas that are within the 100-year floodplain are located within and directly adjacent to the Arroyo Simi and its tributaries.

Seismically Induced Inundation/Dam Failure

There are four dams that would have the potential to result in significant flooding impacts in the community of Simi Valley: Wood Ranch, Sycamore Canyon, Las Llajas, and Runkle Canyon. Sinaloa Lake is too small to result in a significant flooding impact, according to the City's Multi-Hazard Mitigation Plan (MHMP). Bard Reservoir is outside the City limits but within the Sphere of Influence, confined by the Wood Ranch dam. The Simi Valley City Council considers the development of residential uses that might be impacted be dams on a case-by-case basis and mitigation is required as part of the MHMP. A dam subject to state regulations concerning construction and operation is called a "state-size" dam. Such dams are more than 25 feet in height and hold back more than 15 af of water or hold more than 50 af of water with a dam more than 6 feet in height. According to the Ventura County Flood Mitigation Plan (March 2005), the Sycamore Canyon, Las Llajas, and Runkle Canyon dams are state-size dams. The California Division of Safety of Dams (DSOD) regulates state-size dams and inspects these dams annually to ensure that the dams are in good operating condition. The DSOD also has a program to identify those dams most susceptible to seismically caused failure, mainly according to their age, type of construction, and present physical condition. These factors, and others, are specifically investigated for seismic stability on a priority basis. Studies are performed for each state-size dam to establish the flood inundation limits resulting from a dam breach that occurs during the design storm, as determined by DSOD regulations. The resultant maps contain flood-wave arrival time estimates and flood inundation limits. These maps are generated by the District and provided to DSOD and local communities. Figure 4.9-3 (Dam Inundation Areas) illustrates the areas both in and outside of the Planning Area that are subject to potential inundation from dam failure. Table 4.9-1 (Dams in the Simi Valley Area) describes the capacity and other information relative to the five dams in Simi Valley.



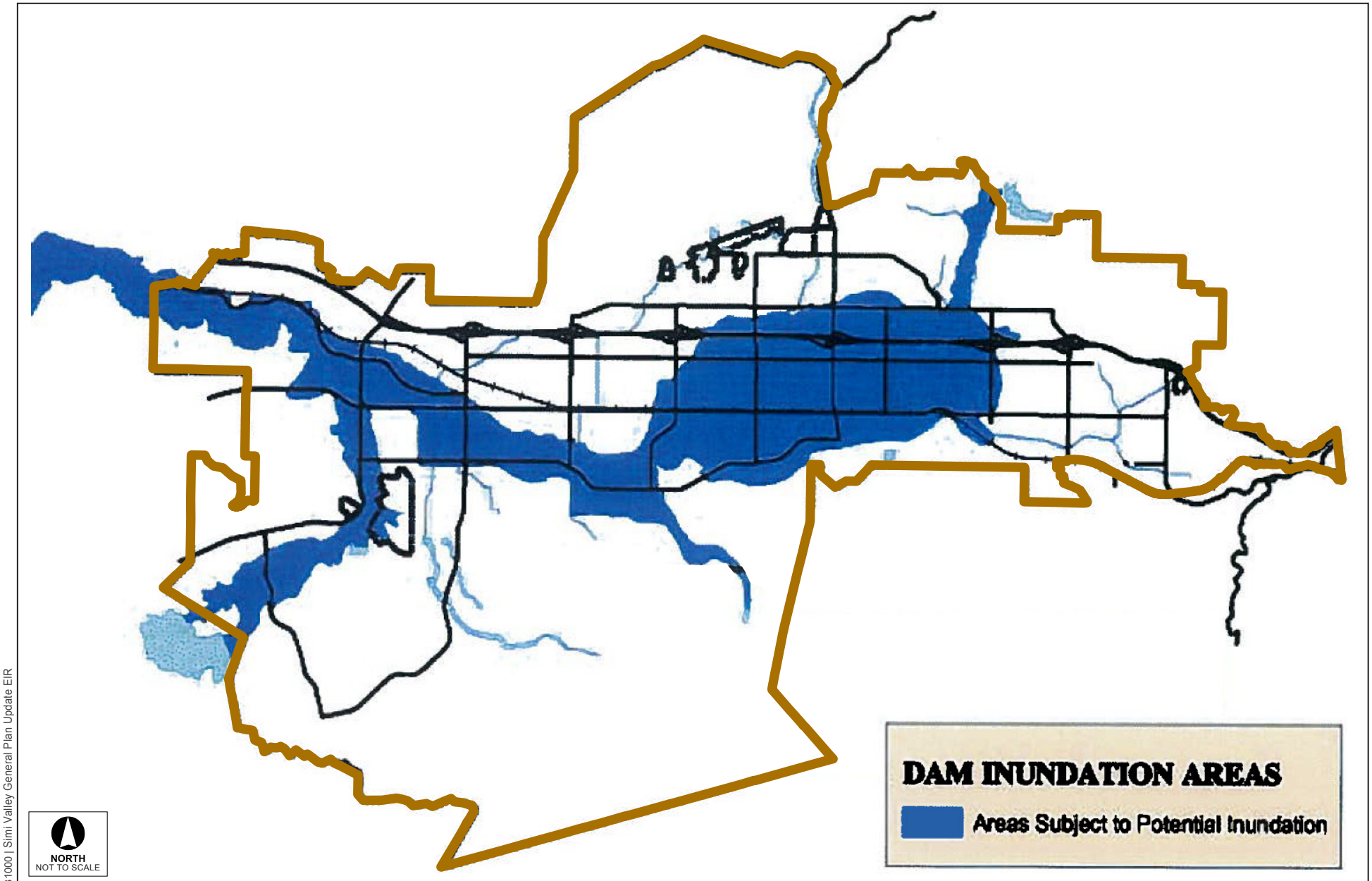
Source: FEMA, January 2010.

0D2131000 | Simi Valley General Plan Update EIR

Figure 4.9-2

100-Year Flood Event Areas

ATKINS



Source: Ventura County Watershed Protection District.

0D2131000 | Simi Valley General Plan Update EIR

Figure 4.9-3
Dam Inundation Areas

ATKINS

According to information from the DSOD, there are no operating restrictions on any dams within the City.

Table 4.9-1 Dams in the Simi Valley Area

Name	*Type*	*Height*	*Capacity*	*Year Built*	*Permanent Water*	*Instrumentation*
Wood Ranch (Bard Reservoir)	Earth	146	11,000	1965	Yes	Yes—Movement and settlement, seepage, piezometers, observation wells
Sycamore Canyon	Earth	40	890	1981	No	No
Las Llajas	Earth	96	1,250	1981	No	No
Runkle Canyon	Earth	41	100	1949	No	Yes—Movement and settlement
Sinaloa Lake	Earth	30	200	1925	Yes	

SOURCES: Simi Valley, City of. 1999. Safety Element of the *City of Simi Valley General Plan.* Appendix J: Safety Element Technical Appendix, 26 July. Communication with Eric Chen, City of Simi Valley. 2007

The failure of a large dam in Simi Valley would cause flooding, injury, possible loss of life, and property damage due to inundation, erosion, and debris and sediment deposition. Primary effects of the hazard include erosion, loss of vegetation, disruption of communication and transportation facilities, utilities and vital public services, and health hazards from ruptured sewage lines and damaged septic tanks. Secondary effects include disaster relief, clean-up operations, and repair of public facilities, which place a burden on local and national taxpayers and resources.

4.9.3 Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Other provisions of the CWA related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from nonpoint sources. The U.S. Environmental Protection Agency (USEPA) has delegated responsibility for implementation of portions of the CWA to the State Water Resources Control Board (SWRCB) and the RWQCB, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program.

Section 303 of the CWA requires states to adopt water quality standards for all surface water of the United States. Section 304(a) requires the USEPA to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative

criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards.

Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which USEPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCBs. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

Proposed development projects within the City are subject to CWA stipulations at the appropriate level of government. The City is responsible for assuring that new developments are in compliance with the CWA and associated water quality standards.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater) and directs the RWQCB to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The Basin Plan specifically (1) designates beneficial uses for surface and ground waters, (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, and (3) describes implementation programs to protect all waters in the region. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the CWA.

The California Toxic Rules (CTR) serves as one of the bases for revised and more stringent discharge prohibitions. In June 2003, the state RWQCB issued an order outlining general NPDES permit and waste discharge requirements for discharges from surface water treatment facilities. The CTR serve to strengthen existing and complementary policies regarding surface water.

The California Antidegradation Policy (State Board Resolution 68-16: Statement of Policy in Respect to Maintaining High Quality of Waters in California) applies in all instances when water quality is better than that prescribed in the SWRCB's Water Quality Objectives. The purpose of the policy is to protect relatively uncontaminated aquatic systems, and to prevent further degradation where it has occurred.

The City is responsible for assuring that new developments are in compliance with the surface and groundwater policies associated with the Porter-Cologne Water Quality Control Act.

National Pretreatment Program

The CWA established the National Pretreatment Program to require publicly owned treatment plants (POTW) with capacities greater than five mgd to implement pretreatment programs. POTWs are responsible for developing, implementing, and enforcing their own pretreatment programs. If they fail to do so, they are subject to enforcement actions, penalties, fines, or other remedies provisioned for by the CWA.

The City is responsible for assuring that publicly owned treatment plants are in compliance with the National Pretreatment Program.

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA), passed by Congress in 1974, requires the USEPA to develop drinking water standards. In California, the USEPA has delegated implementation of drinking water regulations to the state. The California Department of Health Services has responsibility to protect the quality of drinking water, in accord with California's Drinking Water Source Assessment and Protection Programs. Drinking water standards for the state of California are specified in the Health and Safety Code.

The City is responsible for assuring that the Simi Valley's drinking water supply is in compliance with the SDWA and state drinking water standards.

NPDES and Reuse Permits

Implementation of regulations related to surface water is accomplished through the issuance of National Pollutant Discharge Elimination System (NPDES) Permits issued by the RWQCB to point sources and MS4 (storm drains), construction sites, and reuse (reclaimed water) permits issued to individual wastewater treatment plants.

The RWQCB establishes requirements prescribing the discharge limits and establishes water quality objectives through the Ventura County Stormwater Quality Management Plan (see Regional Plans below) pursuant to the Ventura County Municipal Stormwater NPDES Permit. The Stormwater Quality Urban Impact Mitigation Plan (SQUIMP), which is part of the NPDES Permit, addresses specific stormwater pollution requirements for new developments. The City is responsible for assuring that new developments are in compliance with the SQUIMP.

The NPDES Permit system was established in the CWA to regulate, both point source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the United States. For point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. However, currently the MS4 NPDES Permit is Best Management Practice based. Numeric limits for MS4 NPDES Permits are being legally challenged. The SWRP and VWRP are regulated by NPDES permits CA0054313 and CA0054216, respectively, and are renewed every five years. Two notable exceptions to the NPDES regulations are the exemption of agricultural and silvicultural activities, including stormwater runoff from orchards, cultivated crops, pastures, range lands, and forest lands.

Phase I of the NPDES stormwater program addresses stormwater runoff from "medium" and "large" municipal separate storm sewer systems (MS4s), generally serving populations of 100,000 or greater; construction activities disturbing 5 acres of land or greater; and ten categories of industrial activities. With respect to the disturbance of 5 acres of land or greater from construction activities, the SWRCB has issued a Statewide General Construction Activity Stormwater Permit, that applies to all construction activities (on sites greater than 5 acres) within the state.

Landowners are responsible for obtaining and complying with the General Construction NPDES Permit, but may delegate specific duties to developers and contractors by mutual consent. However, this delegation does not absolve landowners of ultimate responsibility to ensure NPDES compliance.

A Stormwater Pollution Prevention Plan (SWPPP) prepared in compliance with the General Construction NPDES Permit describes the site, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction stormwater management measures and maintenance responsibilities, training of staff, a list of contractors and subcontractors, and nonstormwater management controls. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary.

Phase II of the stormwater regulations became effective in March 2003, and extended stormwater regulations to urbanized areas (with populations of less than 100,000 persons that were not already covered by Phase I) and extended coverage of construction projects on sites of more than 1 acre.

The City is responsible for ensuring that new developments are in compliance with NPDES regulations and associated stormwater and wastewater control measures.

Federal Emergency Management Agency (FEMA)

The regulations of the National Flood Insurance Program, which is administered by FEMA, require that communities adopt land use restrictions for the 100-year flood plain in order to qualify for federally subsidized flood insurance. The type of restrictions communities must adopt are listed in some detail in the regulations; included is a requirement that residential structures be elevated above the level of the 100-year flood and that other types of structures be flood-proofed. Participation in the flood insurance program is virtually mandatory, since flood insurance (within identified "special flood hazard" areas) is a prerequisite for receiving mortgages or construction loans from federally regulated lending institutions. Disaster assistance was not available to public agencies in hazard areas if they did not participate in the program. Thus, Simi Valley and the County of Ventura must be, and is, a participating community in the National Flood Insurance Program in order to qualify for disaster assistance in the event of a declared natural disaster.

State

Total Maximum Daily Loads

Under the requirement of Section 303(d) of the federal CWA, the state must develop a list of waterbodies that are not meeting water quality standards (impaired waterbody list). The state sets criteria

and develops the impaired list (or 303(d) List) of waterbodies every 2 years, though sometimes it extends to every four years. Under the CWA, Congress recognized two sources of pollution: point source pollution that is discharged from a discernable, confined and discrete conveyance such as a pipe (or) ditch (i.e., wastewater treatment plants); and nonpoint source pollution that is runoff from a variety of sources including urban areas and agricultural and forestry sites. The CWA mandates a permitting scheme to limit the pollution that point sources may discharge; however, the CWA provides no direct mechanism to control nonpoint source pollution, but rather grants authority to states to reduce nonpoint source pollution.

States were also granted the responsibility under Section 303 to set water quality standards for all waters within their boundaries regardless of the sources of the pollution entering the water. Once standards are set, the states must then identify and compile a list of waters that fail to meet the standards and set a TMDL for those waterbodies.

The TMDL is basically a plan under which a pollutant allocation for each discharge to a waterbody is determined to maintain water quality standard within the receiving water. Under California law, the TMDL must also include a plan of how the TMDL will be implemented. The USEPA defines a TMDL as "the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background." Each source of pollution into the river is granted a "share" of the TMDL, which together make up the maximum amount of pollution the waterway can handle (NSGLC 2002).

The California RWQCB has identified over 700 waterbody-pollutant combinations in the Los Angeles Region where TMDLs are required. Schedule for development of TMDLs in the Los Angeles Region was established in a consent decree (*Heal the Bay Inc., et al. v. Browner* C 98-4825 SBA) and approved on March 22, 1999.

There are total of thirty-two pollutants within the Calleguas Creek Watershed that are on the 303(d) List. Table 4.9-2 (Water Bodies and Summary of 303(d) Listings for the Calleguas Creek Watershed) outlines the list of pollutants, specific reaches and effective date for 303(d) List and TMDL. Through proactive coordination with the City, the LARWQCB is responsible for ensuring that all new developments are in compliance with TMDL requirements for criteria pollutants.

SB 1004 (2003)

Senate Bill 1004 by Senator Nell Soto (D-Colton) requires owners of perchlorate facilities to notify the SWRCB about their storage of perchlorate from 1950 to the present, where their perchlorate is stored, and the volume of perchlorate stored. Through proactive notification, the state will establish a system of tracking perchlorate use and improve coordination between state and local agencies. The bill emphasizes the authority of the nine RWQCBs to order perchlorate facility owners to replace drinking water supplies that have been damaged by perchlorate. Through coordination with the City and the LARWQCB, the SWRCB is responsible for ensuring that perchlorate facilities are in compliance with SB 1004 regulations.

Table 4.9-2 Water Bodies and Summary of 303(d) Listings for the Calleguas Creek Watershed

303(d) Listed Water Body	*Nitrogen and Effects*	*Water Soluble Pesticides and Effects*	*Salts*	*Historic Pesticides and Effects and Vehicle of Transport*	*Metals*	*PCBs*
Scheduled TMDL Completion	Effective 7/03	Effective 3/06	2007/08	Effective 3/06	Effective 3/07	Effective 3/06
Arroyo Las Posas	Ammonia Nitrate Nitrite		Chloride Sulfate TDS	DDT		
Calleguas Creek	Ammonia Nitrogen Nitrate Nitrite	Toxicity	Chloride TDS	Sediment-Toxicity ChemA Chlordane DDT Endosulfan Toxaphene Dacthal		PCBs
Conejo Creek	Ammonia Algae Low DO Chlordane	Toxicity	Sulfate TDS Chloride	DDT ChemA Dacthal Endosulfan Toxaphene	Cadmium Chromium Nickel Silver	
Revolon Slough	Nitrogen	Toxicity Chloropyrifos		DDT ChemA Chlordane Dacthal Dieldrin Endosulfan Toxaphene	Selenium	PCBs
Mugu Lagoon	Nitrogen			Siltation Sediment—Toxicity Chlordane Dacthal DDT Endosulfan Toxaphene	Mercury Copper Nickel Zinc	PCBs

SOURCE: Los Angeles Regional Water Quality Control Board (1999).

AB 826 Perchlorate Contamination Prevention Act

Assembly Bill 826, by Assemblymember Hannah-Beth Jackson (D-Santa Barbara), establishes a statewide database connecting Cal/EPA's hazardous waste materials with data from local agencies. The bill, called the Perchlorate Contamination Prevention Act, directs the DTSC to develop best management practices for perchlorate by December 31, 2005. These management practices would ensure that perchlorate and perchlorate materials are handled in a safe manner and that there is consistent statewide management of perchlorate. The City is responsible for providing hazardous waste materials data to Cal/EPA, and ensuring that perchlorate facilities are in compliance with AB 826 regulations.

Regional

Regional Water Quality Control Board Water Quality Control Plan

Responsibility for the protection of surface water quality in California rests with the SWRCB and nine RWQCBs. The City of Simi Valley lies within the jurisdiction of the Los Angeles RWQCB. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The Basin Plan also provides strategies and implementation plans for the control of point source and nonpoint source pollutants, the remediation of pollution, and the monitoring and assessment of the regions waters. The Basin Plan implements a number of federal and state laws, the most important of which are the state Porter-Cologne Water Quality Control Act and the federal CWA. The City is responsible for assuring that new developments are in compliance with the goals and policies contained in the LARWQCB Basin Plan.

Ventura Countywide Stormwater Quality Management Program

The Ventura County Stormwater Quality Management Plan defines the requirements of the Ventura County Municipal Stormwater NPDES Permit adopted by the Los Angeles Regional Water Quality Board (LARWCQB), pursuant to Division 7 of the California Water Code. Program elements included in the SMP include NPDES permit coverage and provisions, institutional arrangements, program structure, monitoring and reporting, fiscal resources, and legal authority. The Ventura County Stormwater Quality Management Plan addresses specific stormwater pollution requirements for new developments. The City is responsible for assuring that new developments are in compliance with the Ventura County Stormwater Quality Management Plan.

Ventura County Water Management Plan

The Ventura County Water Management Plan addresses water supply sources including groundwater, surface, imported, and reclaimed water, as well as alternative resources. This plan includes demand management programs and discusses the County's water quality issues. The plan is part of an ongoing County effort to maintain and improve the management and quality of County water resources. It contains recommendations for water quality programs that address abandoned water wells, seawater intrusion, individual septic tanks, urban stormwater runoff, agricultural runoff, and other water quality issues of priority as identified by the County. The City is responsible for assuring that new developments are in compliance with the goals and policies contained in the Ventura County Water Management Plan.

Ventura County Flood Mitigation Plan

The Ventura County Flood Mitigation Plan (March 2005) was prepared for the Ventura County Watershed Protection District to address planning for risks associated with flooding, post-fire debris flow, and dam failure. It also addresses how to mitigate and reduce the number of repetitive loss structures in the county. The flood mitigation plan for the District was prepared with input from Ventura County residents and stakeholders, and responsible officials, and with the support of state Office of Emergency Services and FEMA.

Watersheds Coalition Authority of Ventura County IRWMP 2006

The Watersheds Coalition Authority of Ventura County's (WCVC) IRWMP 2006 addresses proposed implementation projects for the near-term and long-term future, which will address the Plan's watershed management objectives and strategies, and help meet statewide and regional priorities (see Proposed Projects below). The City is responsible for assuring that new developments are in compliance with the goals and policies contained in the Ventura County IRWMP.

Local

Chapter 5 of the City of Simi Valley Municipal Code (Flood Damage Prevention Ordinance)

The City has addressed the issue of preventing flood damage by adopting a Flood Damage Prevention Ordinance (Ordinance No. 760, Chapter 5 of Title 7, Simi Valley Municipal Code, August 12, 1991). The Ordinance establishes rules concerning development in areas designated as a Special Flood Hazard Area or as a regulatory floodway, as depicted on the FIRM maps. Those rules are designed to prevent damage to structures from a 100-year flood, and to prevent future development from intensifying flooding effects during a 100-year flood (City of Simi Valley 1991). The FIRM compliance program also requires finish floor elevations of new development and major rehabilitations to be at least one foot above the 100-year flood plain.

Title 6, Chapter 7 of the Simi Valley Municipal Code (Water Wells)

Chapter 7 (Water Wells within the City of Simi Valley) provides, in cooperation with the County of Ventura, regulations pertaining to construction, maintenance, operation, use, repair, modification and destruction of wells within the City in such a manner that the groundwater of the County of Ventura will not be contaminated or polluted, and that water obtained from wells will be suitable for beneficial use and will not jeopardize the health, safety or welfare of the people of the County. It includes provisions for the destruction of abandoned water wells and the aquifer protection program (Sections 6-7.15 and 6-7.22, respectively) (City of Simi Valley 1999b).

Title 6, Chapter 12 of the Simi Valley Municipal Code (Stormwater Quality Management)

Chapter 12 of the Simi Valley Municipal Code prescribes regulations as mandated by the federal Water Pollution Control Act (previously discussed herein as the CWA), 33 USC Sections 1251 et seq., as amended, and the California Water Code, Division 7, to effectively prohibit nonstormwater discharges into the storm drain system, flood control channels and debris and detention basins, and to reduce the discharge of pollutants in stormwater from all controllable sources to the maximum extent practicable. The intent of this chapter is to ensure the health, safety, and general welfare of citizens, and to protect and enhance water quality by controlling the contribution of urban pollutants to runoff that enter the storm drain system of the City (City of Simi Valley 2001).

Simi Valley Multi-Hazard Mitigation Plan (2004)

The City of Simi Valley is required to adopt and state and federally approved MHMP under the regulations of the Disaster Mitigation Act of 2000. The overall intent of the MHMP is to be a strategic planning tool for the reduction or prevention of injury and damage from hazards in Simi Valley. The MHMP includes findings and recommendations that are intended to inform community members and public officials about the hazards in Simi Valley and methods to mitigate them. Some of the goals, objectives, and actions regarding flood hazards include the necessity of regularly updating the Master Plan of Drainage, monitoring and regulating new construction, and encouraging the Ventura County Watershed Protection District to maintain flood control channels, storm drains, and retention facilities.

Drainage Mitigation Program

In addition, the Planning and City Engineering Divisions have a Drainage Mitigation Program that requires drainage studies for major projects to ensure adequate measures are incorporated and that they do not adversely affect downstream areas or other surrounding properties.

4.9.4 Project Impacts and Mitigation

Analytic Method

The proposed project is the adoption of the General Plan Update. Such action would not have a direct effect related to hydrology and water quality, but the indirect effect of development that is likely to occur as a result of the proposed project could result in hydrologic effects such as changes in stormwater flows. The analysis that follows is provided within the context of the Planning Area. While most infill or new development would occur within the area of potential change identified in Chapter 3 (Project Description), some infill or redevelopment could occur throughout the City, and these areas would be subject to similar potential drainage, water quality, and flooding impacts as the change areas.

Baseline information for the analysis was compiled from a review of data and reports published by state agencies, environmental documents for projects in the vicinity, as well as information compiled and evaluated by the County of Ventura and City of Simi Valley in conjunction with its stormwater management and hazard mitigation programs. The result of that effort is a general and qualitative analysis of the types of hydrologic and water quality changes that could be expected relative to the proposed types and locations of land use changes and potential decrease in permeable surfaces. Future development under the General Plan Update could affect stormwater drainage, result in increases in sources of polluted runoff, and expose a greater number of people and structures to the risk of flooding. The potential impacts to drainage, water quality, and flooding resulting from development under the General Plan Update were evaluated against the 2011 CEQA Thresholds (described below), as well as the potentially mitigating effects of applicable General Plan Update policies on those impacts.

Independent of the CEQA process, there is a comprehensive regulatory framework implemented at the state, County, and City level to mitigate effects related to storm drainage, urban pollutants, and flood hazards. Compliance with these regulations is required, not optional. Compliance must be demonstrated by the project proponent to have been incorporated in the project's design before permits for project

construction would be issued. The analysis presented herein assumes compliance with all applicable laws, regulations, and standards.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2011 CEQA Guidelines. For the purposes of this EIR, implementation of the General Plan Update would have a significant impact if it would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table 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)
- Result in substantial erosion or siltation on or off site as a result of substantial alteration of the existing drainage pattern of the site or area
- Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems
- Provide substantial additional sources of polluted runoff or otherwise substantially degrade water quality
- Place any structure intended for human habitation within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam

General Plan Policies that Mitigate Potential Impacts on Hydrology and Water Quality

Policies and goals from the Mobility-Infrastructure, Natural Resources, and Safety and Noise Chapters that would mitigate potential impacts on hydrology and water quality include the following. All General Plan policies are followed by a set of numbers in parentheses. These numbers reference applicable measures that will be undertaken by the City to implement the policy.

Policy IU-3.12 **Federal and County Regulations.** Continue to implement the latest requirements of the National Pollutant Discharge and Elimination System (NPDES) and Ventura County Air Pollution Control District (APCD) regulations, including the use of Best Management Practices by businesses in the City. *(Imp A-1, A-2, LU-18, IU-6, IU-9)*

Policy IU-4.1 **Storm Drain Improvement.** Upgrade existing stormwater collection and treatment facilities as necessary. *(Imp A-1, A-2, LU-18, IU-1, IU-3, IU-13)*

Policy IU-4.2 **Adequate Drainage Facilities and Master Plan.** Ensure that all new drainage facilities are adequately sized and constructed to accommodate stormwater runoff

and prevent flooding. Update the City's Master Plan of Drainage on a ten-year cycle, as practical. *(Imp A-1, A-2, LU-18, IU-3*

Policy IU-4.3 **Drainage Plans.** Require developers to prepare project-specific drainage plans for proposed developments that meet integrated water quality, flow reduction, and resources management criteria, as technically feasible; define needed drainage treatment and runoff controls (BMPs) per City standards; and comply with the City's most current National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit and Master Plan of Drainage. *(Imp A-1, A-2, LU-18, IU-3, IU-6, IU-12, IU-13)*

Policy IU-4.4 **Post-Construction Runoff.** Impose requirements to control post-construction stormwater runoff discharge rates and velocities to prevent or reduce downstream erosion and protect stream habitat and private property. The requirements should conform to the standards and practices outlined in the City's most current NPDES MS4 permit and the Master Plan of Drainage. *(Imp A-1, A-2, LU-18, IU-6, IU-12, IU-13)*

Policy IU-4.5 **Permeable Surfaces.** Limit the percentage of impervious surfaces (such as asphalt) for large new or renovated development consistent with the Low Impact Development requirements for new and redevelopment projects in the City's most current NPDES MS4 Permit. *(Imp A-1, A-2, LU-18, IU-2, IU-12, IU-13)*

Policy IU-4.6 **Conservation of Open Space Areas.** Conserve undeveloped open space areas and drainage channels as practical for the purpose of protecting water resources and water quality in the City's watersheds. *(Imp A-1, A-2, LU-18, LU-8, IU-6, IU-13)*

Policy IU-4.7 **Protection of Water Bodies.** Require new development to protect the quality of water bodies and natural drainage systems through site design, stormwater treatment, and stormwater best management practices (BMPs) consistent with the City's most current NPDES MS4 Permit. *(Imp A-1, A-2, LU-18, IU-3, IU-5, IU-6)*

Policy IU-4.8 **Public Information and Participation Programs.** Implement watershed awareness, stormwater pollution prevention, and water quality educational programs for City staff, community groups, schools, the public, and other appropriate groups. *(Imp A-1, A-2, LU-18, IU-6)*

Policy IU-4.9 **Removal of Debris.** Require that parking lots, public and private streets, and alleys be cleaned as frequently as necessary, and in a manner that minimizes noise and water consumption, to remove debris and contaminated residue. *(Imp A-1, A-2, LU-18, IU-12)*

Policy NR-4.1 **Water Conservation.** Establish water conservation goals and benchmarks for the next 20-year period. Establish auditing methods to evaluate the extent of success in meeting goals as well as the effectiveness of conservation programs and technology. *(Imp A-1, A-2, LU-18, IU-2, NR-9)*

Policy NR-4.2 **Public Education.** Establish a comprehensive water conservation program to educate the public, publicize regulations, and provide information regarding incentives. *(Imp A-1, A-2, LU-18, IU-2, NR-9)*

Policy NR-4.3 **Water Conservation Measures.** Require water conservation measures/devices that limit water usage for all new construction projects and major alterations to existing facilities, including public facilities. These measures should include the use of water-efficient landscaping and irrigation, stormwater capture, efficient appliances and fixtures, and use of "gray water" for irrigation. *(Imp A-1, A-2, LU-7, LU-18, IU-2, NR-4, NR-9)*

Policy NR-4.4 **Partnerships for Conservation.** Explore partnerships with other public agencies (such as the Simi Valley Unified School District, Rancho Simi Recreation and Park District, Ventura County Watershed Protection District) to reduce water consumption. *(Imp A-1, A-2, LU-18, NR-13)*

Policy NR-4.5 **Water Efficient Landscaping.** Require that drought-tolerant landscaping be installed for all private and City landscaping and parkways. *(Imp A-1, A-2, LU-7, LU-18, NR-4)*

Policy NR-4.6 **Irrigation Timing.** Require that public and private irrigation be done at optimum times of the day, such as early mornings or late afternoon, and use weather sensors to facilitate optimum irrigation. *(Imp A-1, A-2, LU-7, LU-18, NR-4)*

Policy NR-4.7 **Monitoring System.** Adopt state-of-the-art water monitoring systems to remotely monitor the City's water usage, leaks, and ruptures. *(Imp A-1, A-2, LU-18, IU-1, NR-12)*

Policy NR-4.8 **Infrastructure Upgrades.** Continue to upgrade the City's water infrastructure to minimize water leakage and ensure adequate supply for residents and businesses. *(Imp A-1, A-2, LU-18, IU-1, IU-2, NR-9, NR-12)*

Policy NR-4.9 **Funding.** Explore methods to provide financial support for water conservation efforts. *(Imp A-1, A-2, LU-18, IU-2, NR-9)*

Policy NR-5.1 **Permeable Surfaces.** Limit the percentage of impermeable surface (such as asphalt) for new or renovated public, institutional, residential, and commercial projects. *(Imp A-1, A-2, LU-7, LU-18, IU-6, NR-4, NR-10)*

Policy NR-5.2 **Protect Open Space Areas and Water Resources.** Conserve undeveloped open space areas and drainage channels for the purpose of protecting water resources in the City's watershed. For new development and post-development runoff, control sources of pollutants and improve and maintain urban runoff water quality through stormwater protection measures consistent with the City's National Pollution Discharge Elimination System (NPDES) Permit. *(Imp A-1, A-2, LU-8, LU-18, IU-6, NR-1, NR-10)*

Policy NR-5.3 **Watershed Education.** Implement watershed awareness and water quality educational programs for community organizations, the public, and other appropriate groups. *(Imp A-1, A-2, LU-18, IU-6, NR-10)*

Policy NR-5.4 **Removal of Debris.** Require that parking lots and public and private streets and alleys be cleaned as frequently as necessary, and in a manner that minimizes noise and water consumption, to remove debris and contaminated residue. *(Imp A-1, A-2, LU-7, LU-18, IU-6, NR-4, NR-10)*

Policy NR-5.5 **Arroyo Simi.** Restore and protect the Arroyo Simi as a natural resource that contributes to recharge and filtration capability for the watershed. *(Imp A-1, A-2, LU-8, LU-18, NR-1, NR-8)*

Policy S-8.1 **Floodplain Requirements.** Regulate new development and protect existing development within flood prone areas in accordance with City, state, and federal building codes. Follow federal requirements to reduce damage and loss due to flooding and to maintain the City's eligibility under the National Flood Insurance Program (NFIP). *(Imp A-1, A-2, LU-18, S-5, S-6, S-9)*

Policy S-8.2 **Flood Insurance.** Request assistance from state and federal governments, as necessary, to enable the City to maintain compliance with National Flood Insurance Program (NFIP) requirements. *(Imp A-1, A-2, LU-18, S-2, S-9)*

Policy S-8.3 **Flood Prevention Design.** Require that new development incorporates sufficient measures to mitigate flood hazards, including the design of on-site drainage systems linking with Citywide storm drainage, gradation of the site so that runoff does not impact adjacent properties or structures on the site, and elevation of any structures above the localized flooding elevation. *(Imp A-1, A-2, LU-18, S-5, S-6)*

Policy S-8.4 **Critical Facilities.** Prohibit the location of critical facilities within an area subject to significant inundation during any flood event unless the facility can be adequately protected from inundation, and provide for updating of critical facilities within these areas when practical. *(Imp A-1, A-2, LU-18, S-6)*

Policy S-8.5 **Facility Use or Storage of Hazardous Materials**. Require that all facilities storing, using, or otherwise involved with substantial quantities of on-site hazardous materials within flood zones comply with applicable standards of elevation, anchoring, and flood proofing, and that hazardous materials be stored in watertight containers. *(Imp A-1, A-2, LU-18, S-6)*

Policy S-8.6 **New Development.** Ensure that new development is properly located and designed to avoid flooding, and require upgrades and improvements of the existing storm drain system for on-site retention to handle the increased runoff generated from the development site. *(Imp A-1, A-2, LU-18, S-5)*

Policy S-8.7 **Preservation of Flood Plains.** Require preservation of flood plains as open space, when practical, as the preferred alternative to development or channelization in project environmental impact reports (EIRs). *(Imp A-1, A-2, LU-8, LU-18, S-6)*

Policy S-8.8 **Dam Failure Warning Plan.** Maintain the City's Dam Failure Response Plan to alert affected residents, businesses, and government agencies located in potential hazard areas. *(Imp A-1, A-2, LU-18, S-9)*

Effects Not Found to Be Significant

No Effects Not Found to Be Significant have been identified with respect to hydrology and water quality.

Less-Than-Significant Impacts

Impact 4.9-1 **Development under the General Plan Update could result in an increase in pollutants in stormwater and wastewater, although water quality standards and waste discharge requirements would not be violated. This is a *less-than-significant* impact.**

Construction

Soil disturbance would temporarily occur due to construction of future developments contemplated under the General Plan Update due to earth-moving activities, such as excavation and trenching for foundations and utilities, soil compaction and moving, cut and fill activities, and grading. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport via stormwater runoff from the project area. Erosion and sedimentation affects water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Runoff from construction sites would be typical of urban areas, and may include sediments and contaminants such as oils, fuels, paints, and solvents. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways, contributing to degradation of water quality.

Construction materials and waste handling, and the use of construction equipment, could also result in stormwater contamination and impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. The potential demolition of buildings to allow for redevelopment activities, and the removal of waste material during construction could also result in tracking of dust and debris and release of contaminants in existing structures. Staging areas or building sites can also be the source of pollution due to the use of paints, solvents, cleaning agents, and metals during construction. Pesticide use (including herbicides, fungicides, and rodenticides) associated with site preparation is another potential source of stormwater contamination. Larger pollutants, such as trash, debris, and organic matter could also be associated with construction activities. Water quality degradation could result in health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors.

Sediments and contaminants may be transported throughout site runoff to downstream drainages and ultimately into the collecting waterways, and potentially into the Pacific Ocean, thereby affecting surface water and offshore water quality.

Construction activities could include road improvements and realignments, installation and realignment of utilities, demolition of existing structures for new development or replacement, new development, and the potential replacement of facilities. Areas that disturb 1 acre or more of land surface are subject to the Construction General Permit, 99-08-DWQ adopted by the SWRCB. Preparation of an SWPPP is required for compliance with the NPDES General Construction Stormwater Activity Permit. Compliance with the permit would involve filing a Notice of Intent with the SWRCB and preparing and submitting a SWPPP prior to construction activities. The SWPPP must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and nonstormwater management controls. Inspection of construction sites before and

after storms is required to identify stormwater discharge from the construction activity and to identify and implement controls where necessary. The Construction General Permit requirements would need to be satisfied prior to beginning construction on any project located on a site greater than 1 acre.

The preparation of a SWPPP requires the individual developer to implement BMPs that are designed to specifically address the potential pollution risks that would be incurred during project construction. BMPs are selected from an approved list of documents (i.e., the California Stormwater BMP Handbook, the Caltrans Stormwater Handbook, the USEPA database, and the ASCE database), which describe practices that have a proven track record of effectively preventing stormwater pollution from construction sites. BMPs appropriate for construction activities are organized into four major categories:

- Erosion Control: Measures that prevent erosion and keep soil particles from entering stormwater, lessening the eroded sediment that must be trapped, both during and at completion of construction
- Sediment Control: Feasible methods of trapping eroded sediments so as to prevent a net increase in sediment load in stormwater discharges from the site
- Site Management: Methods to manage the construction site and construction activities in a manner that prevents pollutants from entering stormwater, drainage systems or receiving waters
- Materials and Waste Management: Methods to manage construction materials and wastes that prevent their entry into stormwater, drainage systems, or receiving waters

The BMPs to be implemented for future projects contemplated in the General Plan Update would be developed as part of each SWPPP required for individual parcel construction. Implementation of the SWPPP is the responsibility of the construction site contractor with oversight and inspection by the City of Simi Valley and the LARWQCB. Effective implementation of the specific measures in the SWPPP would comply with the General Construction Permit requirements and therefore would not violate applicable waste discharge requirements.

General Plan Update policies IU-3.12, IU-4.1, IU-4.2, IU-4.3, IU-4.4, IU-4.5, IU-4.6, IU-4.7, IU-4.8, and IU-4.9 are designed to minimize stormwater and erosion impacts during construction. Compliance with regulations and policies discussed above would reduce the risk of water degradation within the City from soil erosion related and construction activities. Since violations of water quality standards would be minimized or eliminated, impacts to water quality from construction activities within the Planning Area would be considered ***less than significant***.

Operation

Operation of future developments pursuant to the General Plan Update could result in the addition of contaminants into both the stormwater runoff entering the City's drainage system and the wastewater stream entering the local wastewater collection and treatment systems. Future developments would increase the amount of impervious surfaces within the City, which could potentially increase stormwater runoff. In addition, the operation of new land uses could result in the release of contaminants that would further degrade the quality of the stormwater runoff and wastewater.

The General Plan Update would allow infill development and/or redevelopment throughout the Planning Area, consistent with existing land use patterns, intensities, and building types. Runoff from

urban development typically contains contaminants such as oil, grease, metals, and landscaping chemicals (pesticides, herbicides, fertilizers, etc.). These contaminants could be transported by stormwater runoff into the City's drainage system and ultimately degrade surface water and groundwater quality.

In addition to stormwater runoff, polluted wastewater would be discharged by development under the General Plan Update. Discharge of pollutants from any point source is prohibited unless the discharge is in compliance with a NPDES Permit issued by the RWQCB. Point sources of pollutants of greatest concern include nutrients (ammonia and nitrate), heavy metals, toxic chemicals, chlorine, and salts. Nonpoint sources of pollutants, which are also regulated under NPDES permits, include urban runoff that is carried to City storm drains and/or natural drainages. Development that could be facilitated by the General Plan Update would incrementally increase development intensity in portions of the City, thereby increasing the amount of impervious surface area within the watershed. This could incrementally increase surface runoff into area drainages and reduce the area available for groundwater percolation. The increase in runoff, which may contain pollutants, could result in localized flooding and increase pollutant loads in surface runoff. New development would be required to comply with current federal, state, and local requirements, including the preparation of a Standard Urban Stormwater Mitigation Plan, which are more stringent than what was required at the time most existing development was built. As such, redevelopment of these areas with new projects that incorporate current BMP requirements could actually improve water quality in area drainages. Several General Plan Update policies would also address impacts to water quality.

Compliance with NPDES permits requirements, Chapter 12 of the Municipal Code, and General Plan Update policies IU-4.3, IU-4.4, IU-4.5, IU-4.6, IU-4.7, IU-4.8, IU-4.9, NR-5.3, NR-5.4, and NR-5.5 would reduce the risk of water degradation within the City from the operation of new developments to the maximum extent practicable. Therefore, because violation of waste discharge requirements or water quality standards would be minimized, this impact would be considered *less than significant*.

Impact 4.9-2 **Development under the General Plan Update could create additional impervious surfaces, but would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. This is a *less-than-significant* impact.**

Construction

Construction activities would primarily occur as part of infill/redevelopment associated the General Plan Update. The Planning Area almost entirely overlies the SV Basin. Surface depths to water table vary from 5 to 25 feet. Percolation of direct precipitation, inflow of minor streams, minor subsurface inflow from surrounding semi-permeable formations, and irrigation return provide recharge to the basin. Pile driving, dewatering, and other construction activities that would encounter groundwater could occur. While the insertion of support and foundation structures in the groundwater may reduce the storage capacity of groundwater, the displaced volume would not be substantial relative to the volume of the Basin. Likewise, while dewatering would remove groundwater, the volume of water removed would not likely be substantial relative to groundwater pumping for water supply. Simi Valley's groundwater supply has been identified as impaired due to the presence of high levels of TDS and high chloride and nitrate concentrations, largely due to urban development and past agricultural activities. Accordingly, the majority of groundwater utilized in the City of Simi Valley goes towards irrigation uses. Also, water used

during construction for cleaning, dust control, and other uses would be nominal. Thus, construction activities would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. This impact would be considered *less than significant*.

Operation

All development contemplated in the General Plan Update would utilize water from District No. 8 or the Golden State Water Company, both of which receive potable water from the Water District. Ninety-six percent of water delivered by the Water District to Simi Valley is imported from northern California via the State Water Project. The remaining 4 percent is from groundwater sources. Future development would rely on imported water sources, with little to no use of groundwater resources. As such, there would be no substantial increased demand for City groundwater supply as a result of development under the General Plan Update. Thus, implementation of the General Plan Update would not substantially deplete groundwater supplies and the impact is considered *less than significant*.

Intensification of development and addition of impervious surfaces as a result of implementation of the General Plan Update would not interfere with groundwater recharge. Recharge to the Basin is derived from percolation of rainfall and from irrigation runoff. Implementation of the General Plan Update would not interfere substantially with percolation flow because the areas targeted for new development represent a small percentage of the total acreage in the City, and the Basin includes significant amounts of open space that would remain undeveloped at General Plan build-out. Thus, implementation of the General Plan Update would not result in substantial increases in impermeable surfaces overlying the Basin. Also, as stated above, the Basin is not identified in overdraft condition. In addition, General Plan Update Policies IU-4.5, IU-4.6, NR-5.1, NR-5.5, and NR-8.7 would help to reduce any potential impacts on groundwater recharge associated with future development. Therefore, new development would not substantially affect groundwater recharge and the impact would be considered *less than significant*.

Impact 4.9-3 **Development under the General Plan Update could alter the existing drainage pattern of the Planning Area and potentially result in erosion and siltation. Implementation of General Plan Update policies and compliance with applicable permit requirements would reduce this impact to *less than significant*.**

Construction

Construction activities under the General Plan Update would involve stockpiling, grading, excavation, dredging, paving, and other earth-disturbing activities, resulting in the alteration of existing drainage patterns. These types of activities would constitute a temporary alteration of drainage patterns. The General Plan Update includes policies designed to minimize stormwater and erosional impacts during construction. Policy NR-5.2 requires new development applications to minimize runoff during construction. Implementation of this policy would, in turn, minimize runoff-induced erosion. Compliance with NPDES requirements would minimize the potential for construction activities to alter natural drainages via the deposition of sediments. In addition, as described in Impact 4.9-1, above, compliance with SWRCB's NPDES General Construction Activity Stormwater Permit, and NPDES MS4 regulations, would reduce the risk of short-term erosion resulting from drainage alterations during construction to *less than significant*.

Operation

Development under the General Plan Update would result in alterations to drainage, such as changes in ground surface permeability via paving and changes in topography by grading and excavation. Impact 4.9-1 discusses applicable regulations that would limit pollutant discharges from proposed development under the General Plan Update. NPDES permit requirements would be imposed on applicable projects to limit pollutant discharges. Further, all development within the City would be subject to the provisions of the City's NPDES MS4 Permit. These include provisions including the implementation of appropriate BMPs, including a range of methods to minimize off-site erosion, including, but not limited to, hydrodynamic devices, swales/biofilters, basins, and various filters.

The General Plan Update includes specific policies, IU-3.12, IU-4.3, IU-4.4, IU-4.5, IU-4.6, IU-4.7, and NR-5.2, designed to minimize post-construction erosional impacts. These policies require implementation of BMPs, incorporation of stormwater detention facilities, design of drainage facilities to minimize adverse effects on water quality, and minimization of increase in impervious areas. Implementation of these policies would reduce the volume of sediment-laden runoff discharging from sites within the Planning Area. Therefore, compliance with NPDES regulations and CDFG regulations in addition to implementation of the General Plan Update policies identified in this impact analysis would reduce the risk of erosion resulting from drainage alterations during the operation of new developments to *less than significant*.

Impact 4.9-4 **Development under the General Plan Update could alter the existing drainage patterns in the Planning Area and potentially result in increased downstream flooding through the addition of impervious surfaces, exceeding the capacity of existing or planned stormwater drainage systems, or providing substantial additional sources of polluted runoff. Implementation of General Plan Update policies and compliance with applicable stormwater regulations would reduce this impact to *less than significant*.**

Areas where land use changes or new development could occur under the General Plan Update would generally result in infill development or redevelopment. As such, implementation of the General Plan Update would not result in new development that would substantially alter drainage patterns because these areas are already developed with existing uses and impervious surfaces. However, development of land that may currently be vacant and covered with permeable surfaces, such as bare soil or vegetation, may occur. The primary area that would experience increased runoff from implementation of the General Plan Update would be in existing open space areas that are expected to experience change as new development occurs over time (e.g., Ronald Reagan Presidential Library-Visitor Serving Area, Covington Avenue/Rudolph Drive Area). Thus, if existing open space areas are developed, it would be expected that the natural drainage courses, particularly in hillside areas, would be altered.

Increased impervious surfaces would result in an increase of stormwater runoff in the City. This increased runoff could exceed the capacity of existing and planned infrastructure and cause downstream flooding impacts.

The General Plan Update policies identified in Impact 4.9-3, above, designed to minimize stormwater runoff would also apply to runoff-related flooding impacts. These policies include IU-3.12, IU-4.3, IU-4.4, IU-4.5, IU-4.6, IU-4.7, and NR-5.2. These policies require preparation of a SUSMP, implementation of BMPs, incorporation of stormwater detention facilities, design of drainage facilities to minimize adverse effects on water quality, and minimization of increases in impervious areas. As analyzed in Impact 4.9-3, implementation of these policies would also reduce the volume of runoff generated, and potential for flooding, throughout the Planning Area and downstream.

If development proposes changes to drainages, this would occur in compliance with CDFG Streambed Alteration regulations in order to maintain drainage patterns. In addition, the City of Simi Valley's Drainage Guidelines require developments to detain the difference in runoff between the 10-year and 100-year storm events. Therefore, implementation of the General Plan Update policies and compliance with NPDES regulations, the preparation of a SUSMP, and compliance with drainage guidelines and CDFG regulations would reduce the risk of flooding resulting from drainage alterations to ***less than significant***.

Operation of development pursuant to the General Plan Update would degrade runoff water quality by contributing chemicals associated with household, commercial, transportation, and landscape uses. However, activities during operation of future development would not provide additional sources of polluted runoff apart from those described in Impact 4.9-1, above. This impact would be considered ***less than significant***.

Impact 4.9-5 **Development under the General Plan Update could place housing within a 100-year flood zone. Implementation of General Plan Update policies and compliance with applicable regulations would reduce this impact to *less than significant*.**

As shown in Figure 4.9-2, the 100-year flood zone the majority of the areas that are within the 100-year floodplain are located within and directly adjacent to the Arroyo Simi and its tributaries. Some existing residential uses are located within the 100-year flood zone. A significant portion of the flood zone is located within open space areas of the City or in low-density residential or commercial areas.

The Community Safety chapter of the General Plan Update has established a goal to protect human life and public and private property from the risks of flooding. The Safety section includes flood policies that, if implemented, would achieve this goal. These policies include S-8.1, S-8.2, S-8.3, S-8.4, S-8.6, and S-8.7.

Furthermore, future development contemplated in the General Plan Update would be subject to the City's Floodplain Ordinance, the Ventura County Flood Management Plan, and FEMA requirements. These regulations require that all structure located within the floodplain be flood-proofed, as appropriate, to ensure that encroachment would not cause any increase in downstream or upstream flood levels and that the structures would be built at elevation above the floodplain. In addition, compliance with the Flood Mitigation Strategies set forth in the Simi Valley MHMP would further reduce any potential impacts.

Therefore, impacts of flood hazards to housing developed under the General Plan Update would be considered *less than significant*.

Impact 4.9-6 Development under the General Plan Update could expose people and structures to flood risks from dam failure. Compliance with applicable ordinances would reduce this impact to *less than significant*.

Flooding risks from sources other than dam failures are addressed in Impact 4.9-4 and Impact 4.9-5, above. This discussion focuses on potential flooding due to dam failure.

Dam failures can result from a number of natural or manmade causes, such as earthquakes, erosion of the face or foundation, improper siting, rapidly rising floodwaters, and structural/design flaws. The five dams in the City are constructed of earth and rock fill, which type fails gradually due to erosion of a breach. Warning ability is generally determined by the frequency of inspections for structural integrity, the flood wave arrival time, or the ability to notify persons downstream and their ability to evacuate. A dam failure could cause loss of life, damage to property and utility transmission lines, and displacement of persons residing in the inundation path.

The Simi Valley City Council considers the development of residential uses that might be impacted by dam failure on a case-by-case basis and mitigation is required as part of the City's MHMP. Mitigation strategies in the MHMP to reduce the risk from dam failure include Actions 6.A.1 through 6.A.5, which discourage new residential development within the Wood Ranch Lake inundation area; require review of the Dam Failure Response Plan, as necessary; require periodic dam failure exercises with Emergency Operations Center staff; update emergency planning documents when dam operators revise dam inundation maps; and regularly update emergency notification procedures with dam operators. The Public Works Agency last updated this manual in October 2003. The Ventura County Flood Mitigation Plan contains similar actions to mitigate the risk from dam failure Countywide. In addition, the Ventura County Public Works Agency, a lead agency in responding to major emergencies, developed a manual to guide agency operations during an emergency and as a planning document to develop preparedness training. The Watershed Protection Emergency Procedure Manual, outlined in Appendix F of the manual, provides general instructions for a mobilization plan and information systems to be used during flood emergencies, the Automated Local Evaluation in Real Time (ALERT) flood warning system, and special instructions for the Public Works Agency. Additionally, it details the Flood Control Emergency Procedures.

Reservoirs, lakes, ponds, swimming pools, and other enclosed bodies of water are subject to potentially damaging oscillations (sloshing) called seiches. This hazard is dependent upon specific earthquake parameters (e.g., frequency of the seismic waves, distance and direction from the epicenter), as well as site-specific design of the enclosed bodies of water, and is thus difficult to predict. There is no history of substantial seiche in the Planning Area during earthquakes.

Development under the General Plan Update would not increase the risk of dam failure, although it would increase the number of persons and amount of development exposed to this hazard. Future development would occur primarily as infill, conserving the existing pattern of uses and establishes policies for protection and long-term maintenance of established neighborhoods. New development in accordance with the General Plan Update would result as re-use of economically underperforming

properties and obsolete development, conversion of uses in response to market demand (e.g., office and industrial to residential) and more intense use of land in defined areas. Most development would occur in identified target areas as defined in Chapter 3. Implementation of the flood protection policies contained in the General Plan Update (Policies S-8.1, S-8.2, S-8.3, S-8.4, S-8.5, S-8.6, S-8.7, and S-8.8), and the existing Flood Damage Protection Ordinance would minimize the impact of flooding from dam failure. Thus, risks associated with flooding from dam would be considered *less than significant*.

Significant and Unavoidable Impacts

No significant and unavoidable impacts have been identified with respect to hydrology and water quality.

Cumulative Impacts

Water Quality

The geographic context for the analysis of cumulative impacts associated with water quality is the area covered by the Calleguas Creek Watershed, which is described above in Existing Conditions. Past cumulative development has involved construction activities that result in discharge of runoff, increases in runoff from new impervious surfaces, and reduction in groundwater recharge. However, because all development in the Watershed is subject to the requirements of the NPDES program and other regulations, past development has not resulted in significant violation of water quality standards or waste discharge requirements. Build-out of the General Plan Update, in combination with all other future development that would occur within the Watershed, would involve construction activities, new development from which runoff would discharge into waterways, and increases in stormwater runoff from new imperious surfaces. Construction of new development throughout the Watershed could result in the erosion of soil, thereby cumulatively degrading water quality. In addition, the increase in impermeable surfaces and more intensive land uses within the Watershed resulting from future development may also adversely affect water quality by increasing the amount of stormwater runoff and common urban contaminants entering the storm drain system. However, future development would be required to comply with existing regulations regarding construction practices that minimize risks of erosion and runoff. Among the various regulations are the applicable provisions of Best Management Practices, compliance with appropriate grading permits, and NPDES permits. This would minimize degradation of water quality at individual project construction sites. As such, cumulative impacts would be considered less than significant. Compliance with applicable SWRCB and RWQCB regulations as discussed in Impact 4.9-1 would ensure that water quality is maintained to the maximum extent practicable for new development under the General Plan Update. Thus, cumulative impacts associated with water quality from implementation of the General Plan Update would be considered *less than significant*.

Groundwater

The geographic context for the analysis of cumulative impacts associated with groundwater is the area underlain almost entirely by the SV Basin. The Basin is bounded on the north and northeast by the Santa Susana Mountains and the Simi fault and on the south and southwest by the Simi Hills. The storage capacity for this Basin is estimated at about 180,000 af (CSWRB 1956; DWR 1975), consistent with an

area of about 12,100 acres (California DWR 2004a). Percolation of direct precipitation, inflow of minor streams, minor subsurface inflow from surrounding semi-permeable formations, and irrigation return provide recharge to the Basin. Groundwater is generally unconfined, but as grain size decreases towards the western end of the basin, clay lenses in the alluvium cause localized confinement. The average specific yield for the SV Basin is 8.6 percent (CSWRB 1956). Total estimated groundwater storage is approximately 180,000 af, with annual pumping less than 5,500 afy (Panaro 2000), as groundwater from the Simi Valley Basin is generally not utilized for municipal supply (only 4 percent of the potable water supply at its maximum). Past development in this geographic area has resulted in some reduction in groundwater recharge area due to the increase in impervious surfaces, but since the groundwater in the Basin is not used for municipal water supply, any reduction in groundwater recharge area in the Basin would not represent a significant impact. New development occurring in vacant areas that currently allow percolation into the groundwater basin would not significantly reduce recharge potential within the watershed, as a substantial amount of open space in the Planning Area would remain from full build-out of the General Plan Update. The cumulative impact of development pursuant to the General Plan Update would, therefore, be considered ***less than significant***.

Storm Drainage

The existing storm drain system in the City is currently owned and operated by the City, while the VCWPD is responsible for all regional drainage facilities within the County. Since some local storm drain facilities within the City ultimately flow into the County facilities, the geographic context for cumulative impacts is the County of Ventura. Past cumulative development has resulted in increased erosion and siltation due to alteration of existing drainage patterns. Compliance with federal, state, and local regulations regarding erosion control and drainage has reduced the significance of past development to less than significant. Build-out of the General Plan Update, in combination with all other development that would occur within the County, would involve development that would increase stormwater runoff from new impervious surfaces. All new development would be required to comply with existing state and local regulations regarding construction and operation practices that minimize the amount of stormwater runoff that enters the storm drain system. In addition, the General Plan Update policies require that adequate stormwater conveyance and storage control facilities be maintained and/or constructed for all development. As such, the project's cumulative impact within the County would be considered ***less than significant***.

Flood Hazards

The geographic context for the analysis of cumulative impacts associated with flooding hazards is the area covered by the Calleguas Creek Watershed, which is described above in Existing Conditions. Cumulative growth and development throughout the watershed has resulted in the introduction of new structures and impervious surfaces that increased stormwater runoff, leading to increased flood hazards. Applicable strategies in the Ventura County Flood Mitigation Plan, as well as Simi Valley ordinances and policies, have reduced impacts from flooding to less than significant. For future development, it is anticipated that applicable state and local regulations would prevent the placement of housing and structures in 100-year flood hazard areas unless flood control improvements are made to reduce the risk from 100-year floods. Within Ventura County, for instance, future development that could potentially affect floodwater conveyance, which in turn could adversely affect public health and general safety,

would be subject to the requirements of the Ventura County FCD, Ventura County General Plan policies related to flood hazards, and other cities' flood plain management ordinances. As such, this cumulative impact would be considered less than significant. All development under the General Plan Update would be subject to the same policies and regulations pertaining to flood control. Therefore, the proposed project's cumulative impact associated with flood hazards in the Calleguas Creek Watershed would be considered ***less than significant***.

Cumulative development in the Watershed in the areas subject to flooding from dam failure has exposed people and structures to a risk of loss, injury, or death involving flooding or inundation. Implementation of local and regional policies related to flood protection, as well as state oversight for larger dams, have reduced the cumulative impact to less than significant. Although cumulative development could potentially result in increases in the number of people living in potential dam, levee, seiche, tsunami, and mudflow inundation areas, the occurrence of these events at a catastrophic level is considered remote. In addition, it is anticipated that applicable policies related to inundation hazards from the general plans of each jurisdiction in the Watershed would ensure that development would be protected against potential structural failures and severe weather conditions. Thus, this cumulative impact would be ***less than significant***.

4.9.5 References

California Department of Water Resources (California DWR). 2004a. Simi Valley Groundwater Basin. *California's Groundwater Bulletin 118*, February. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-9.pdf (accessed April 25, 2011).

———. 2004b. Tierra Rejada Groundwater Basin. *California's Groundwater Bulletin 118*, February 27. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-15.pdf (accessed April 28, 2011).

Calleguas Municipal Water District (CMWD). 2004. *Calleguas Creek Watershed Management Plan*.

Hawkes & Associates. 1990. *Simi Valley Master Plan of Drainage*, December.

Integrated Regional Water Management Implementation Grant Program (IRWMIGP). 2007. State Water Resources Control Board Approval of the IRWM Implementation Grant Program Recommended Funding List, January 18.

Larry Walker Associates. 2004. Technical Memorandum: Draft Salts Conceptual Model for the Calleguas Creek Watershed, January.

National Sea Grant Law Center (NSGLC). 2002. *Rivers Polluted by Nonpoint Source Pollution Subject to TMDLs*. Kristen M. Fletcher, J.D., LL.M., ed. *Pronsolino v. Nastri*, 291 F.3d 1123 (9th Cir. 2002). http://nsglc.olemiss.edu/SandBar/SandBar1/1.1tmdl.htm (accessed May 20, 2010).

Panaro, D. 2000. Fox Canyon Groundwater Management Agency. Written communication to R.R. Davis (DWR), March 2000.

Simi Valley, City of. 1988. Conservation/Open Space Element. *City of Simi Valley General Plan*.

———. 1990. *Master Plan of Drainage*, December.

———. 1991. *City of Simi Valley Municipal Code*.

———. 1997. *Vision 20/20, Environment*, November.

———. 1999a. Final Safety Element. Technical Appendix J. *City of Simi Valley General Plan*, July.

———. 1999b. Title 6, Chapter 7 Water Wells (§ 1, Ord. 949, eff. March 25, 1999). *City of Simi Valley Municipal Code*. http://municipalcodes.lexisnexis.com/codes/simivalley/ (accessed March 22, 2007).

———. 2001. Title 6, Chapter 12 Stormwater Quality Management (§ 3 (part), Ord. 1004, eff. August 23, 2001). *City of Simi Valley Municipal Code*. http://municipalcodes.lexisnexis.com/codes/simivalley/ (accessed March 22, 2007).

———. 2007. Simi Valley at a Glance. https://www.simivalley.org/about-simi-valley/at-a-glance/-fsiteid-1 (accessed April 11, 2007).

Ventura County Waterworks District No. 8 (VCWWD). 2005. *City of Simi Valley 2005 Urban Water Management Plan*, December.

Ventura County Watershed Protection District (VCWPD). 2003. Present Condition. *Calleguas Creek Watershed Hydrology Study*, March.

———. n.d. Ventura County Watershed Protection District. www.vcwatershed.org.

Watersheds Coalition of Ventura County (WCVC). 2006. *Integrated Regional Water Management Plan*.