4.7 HYDROLOGY AND WATER QUALITY

This section describes existing hydrology and water quality (surface water and groundwater) in and around the planning area. The section also describes the regulatory environment applicable to the 2012 General Plan, and analyzes the impacts on hydrology and water quality associated with implementation of the 2012 General Plan.

Information used in this analysis was compiled from a variety of sources, primarily geographic information systems (GIS) data from the City, various departments of the State of California, and the Federal Emergency Management Agency (FEMA). Impacts on water supply and wastewater treatment facilities are discussed in Section 4.14, "Utilities and Energy."

4.7.1 Existing Environmental Setting

Surface Water Hydrology and Drainage

Storm Water Drainage

The City is located within the San Diego River, Sweetwater River, and Pueblo San Diego watersheds, as shown in Figure 4.3-2. The City is located within three Hydrologic Areas (HAs) based on topographical drainage areas to creek systems:

- El Capitan (907.3)
- Upper Sweetwater (909.3)
- Middle Sweetwater (909.2)

The Upper Sweetwater HA and Middle Sweetwater HA are located within the Sweetwater Hydrologic Unit. El Capitan HA is located in the San Diego Hydrologic Unit (RWQCB 1994).

The San Diego River watershed has a land area of approximately 440 square miles and contains portions of the cities of San Diego, El Cajon, La Mesa, Poway, and Santee, and several unincorporated communities of San Diego County. The San Diego River discharges into the Pacific Ocean at the community of Ocean Beach. Important hydrologic resources in the watershed include five water storage reservoirs, a large groundwater aquifer, extensive riparian habitat, coastal wetlands, and tide pools. The five reservoirs in the San Diego River watershed supply water to as many as 760,000 residents in the region.

The Sweetwater River watershed is approximately 230 square miles, and the majority of the watershed is located in unincorporated San Diego County. The urbanized lower portion of the

Sweetwater River watershed contains portions of several cities, including San Diego, National City, Chula Vista, La Mesa, and Lemon Grove. Major water bodies include the Sweetwater River, which flows into the San Diego Bay; Sweetwater Reservoir; and Loveland Reservoir.

The Pueblo San Diego watershed is approximately 60 square miles and covers portions of the cities of San Diego, La Mesa, Lemon Grove, and National City. The watershed drainage consists of small local creeks, including Chollas Creek and Paleta Creek, and pipe conveyances, many of which drain directly into San Diego Bay. Chollas Creek, the largest water body in the watershed, has its headwaters in La Mesa and Lemon Grove and flows into the San Diego Bay. Five sites in San Diego Bay that are impacted by runoff from the Pueblo San Diego watershed have been identified as hot spots by California's Bay Protection Toxic Cleanup Program (SWRCB 2010).

Major Water Bodies

There are no large water bodies within the City of La Mesa; however, Lake Murray is located just outside the northwestern City boundaries near Lake Murray Boulevard. Lake Murray is located in the Mission Trails Regional Park within the City of San Diego. Murray Reservoir in Lake Murray is operated by the City of San Diego and has a water storage capacity of 4,684.2 acre feet. Three creeks are located within the City and are described below.

Alvarado Creek

Alvarado Creek runs east/west through La Mesa, parallel to and south of Fletcher Parkway from east of SR-125 to near La Murray Boulevard. Most of the area north of I-8 is in the Alvarado Creek drainage basin. Alvarado Creek joins the San Diego River near the stadium in Mission Valley. Storm drainage improvements funded by the Alvarado Creek Redevelopment Project in 1998 provide flood control along a significant portion of Alvarado Creek.

Chollas Creek

A branch of Chollas Creek runs parallel and south of University Avenue. Chollas Creek drains into San Diego Bay near the 32nd Street Naval Station. Inadequate and undersized storm drains have led to flooding along University Avenue. Unlike Alvarado Creek, there is no funding mechanism to build the infrastructure needed to alleviate flood hazards along Chollas Creek.

Spring Valley Creek

A branch of Spring Valley Creek flows off the west slope of Mount Helix along Bancroft Drive in Spring Valley. Spring Valley Creek drains Mount Helix, Casa de Oro, and Spring Valley, and

flows into the Sweetwater Reservoir. Existing flood control improvements include a cobblestone-lined drainage channel dating to the 1930s. Undergrounding of the drainage channel has occurred in some locations, the result of more recent development activities (City of La Mesa 2012).

Other Water Bodies

Other water bodies in the planning area include Mount Helix Reservoir (also referred to as Lake Helix) located in the eastern portion of the planning area on Lemon Avenue and Fuerte Drive, and the lake behind Anthony's Fish Grotto restaurant also located in the eastern portion of the planning area on Water Street and Murphy Drive.

Groundwater Hydrology

Groundwater is contained in underwater aquifers and is recharged by the entire land surface. Groundwater recharge rates vary and are affected by the permeability of the ground. In an arid or semi-arid region, such as the San Diego region, a slow rate of replenishment by rainfall can be far exceeded by the rate of groundwater pumping, resulting in serious problems of groundwater mining. The principal groundwater basins in the San Diego Region are small and shallow. Only a small portion of the region is underlain by permeable geologic formations that can accept, transmit, and yield appreciable quantities of groundwater.

Groundwater in the San Diego region is mostly found as saline brackish water, which requires an additional desalination treatment process. Groundwater production in the greater San Diego area is limited by a number of elements, including lack of storage capacity in local aquifers, availability of groundwater recharge, and degraded water quality. Narrow river valleys filled with shallow sand and gravel deposits are characteristic of the most productive groundwater basins in the San Diego region (SDCWA 2012).

La Mesa does not lie within a groundwater basin, but is close to three groundwater basins: the San Diego River Valley Groundwater Basin and the El Cajon Groundwater Basin to the east of La Mesa, and the Mission Valley Groundwater Basin to the west.

The San Diego River Valley Groundwater Basin is 9,890 acres and consists of alluvium deposited by the San Diego River and its tributaries. Historically, the primary recharge sources were stream runoff from the San Diego River and San Vicente Creek. The El Capitan and San Vicente Dams were completed in 1935 and 1943, respectively, and have altered recharge patterns. At present, recharge occurs from dam releases and underflow past the dams. Other

sources of recharge are stream flow from Forester Creek and other smaller creeks, precipitation falling on the valley floor, and discharges from municipal wastewater treatment plants.

The El Cajon Groundwater Basin is 7,160 acres and just south of the San Diego River Valley Groundwater Basin. Surface waters drain northwestward to the San Diego River. The dominant source of natural recharge to the basin is from percolation of precipitation, with lesser contributions from underflow from underlying fractured crystalline rocks. Additional recharge comes from return of applied irrigation water and percolation of septic tank effluent.

The Mission Valley Groundwater Basin is 7,350 acres and underlies an east-west-trending valley drained by the San Diego River. The primary source of recharge for this basin is infiltration of stream flow from the San Diego River (CADWR 2004).

The nearest principal aquifers to La Mesa are the El Cajon, Santee/El Monte, and Mission Valley aquifers.

Information on groundwater depths in the City is limited. The presence of subsurface springs indicates that water is close to the surface, at least in localized areas. Groundwater is not naturally abundant throughout most of La Mesa (City of La Mesa 2012).

Water Quality

Surface Water

Maintaining water quality is essential for the health of residents and the sustainability of the environmental resources in La Mesa, as well as within the surrounding areas. Alvarado Creek and Chollas Creek are listed on the 303(d) List of Water Quality Limited Segments (SWRCB 2010).

Under Section 303(d) of the CWA, jurisdictions are required to establish priority rankings for waters on the 303(d) List and develop total maximum daily loads (TMDLs) for these waters to restore beneficial uses and meet water quality objectives. TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. Impaired water bodies in the City are summarized below. Table 4.7-1 provides the 303(d) listed water bodies in the City.

Table 4.7-1
303(d) Listed Waterbodies in the City of La Mesa

Pollutant/Stressor	Potential Sources	Proposed TMDL Completion
Chollas Creek		
Indicator Bacteria	Nonpoint/Point Source/Urban Runoff/Storm Sewers	2005
Copper	Nonpoint/Point Source	2004
Lead	Nonpoint/Point Source/Urban Runoff/Storm Sewers/Landfills/Atmospheric Deposition	2004
Zinc	Nonpoint/Point Source/Urban Runoff/Storm Sewers/Landfills/Atmospheric Deposition	2004
Diazinon	Nonpoint/Point Source	2003
Phosphorus	Source Unknown	2019
Total Nitrogen as N	Source Unknown	2019
Trash	Nonpoint/Point Source/Urban Runoff/Storm Sewers/Illegal Dumping	2021
Alvarado Creek		
Selenium	Urban Runoff	2021

Source: SWRCB 2010

Beneficial uses, with Basin Plan designations for Alvarado Creek and Chollas Creek are as follows (RWQCB 1994):

Alvarado Creek:

- AGR: Agricultural Supply
- IND: Industrial Service Supply
- REC-1: Water Contact Recreation
- REC-2: Noncontact Water Recreation
- WARM: Warm Freshwater Habitat
- WILD: Wildlife Habitat

Chollas Creek:

- REC-2: Noncontact Water Recreation
- WARM: Warm Freshwater Habitat
- WILD: Wildlife Habitat
- REC-1: Water Contact Recreation (potential beneficial use)

Groundwater

Groundwater quality of basins in San Diego County is often impaired by nitrate, sulfate, total dissolved solids (TDS), and the following contaminant groups: inorganics, radiological, nitrates,

pesticides, and volatile organic compounds (VOCs). For this reason, groundwater in La Mesa, and the entire region, is limited and is often of poor quality.

Groundwater in the San Diego River Valley Groundwater Basin varies in character. The eastern portion of the basin contains water of a bicarbonate character, while the western portion contains water of a chloride character. TDS content ranges from 260 to 2,870 milligrams per liter (mg/L), with higher values to the west and lower values to the east.

Groundwater in the El Cajon Groundwater Basin is generally of sodium chloride character. Water from wells sampled in 1984 had TDS concentrations ranging from 637 to 3,960 mg/L, with a mean value of 1,640 mg/L. Water from one public supply well has a TDS concentration of 2,340 mg/L. In the 1960s, groundwater in the basin was rated suitable to inferior for domestic use because of high nitrate content and marginal to inferior for irrigation use because of high chloride content. In the 1970s, high nitrate and TDS concentrations were listed as a cause for impairment for domestic use.

In the Mission Valley Groundwater Basin, magnesium and sulfate levels make groundwater not suitable for domestic use. Chloride and TDS concentrations are too high for domestic and irrigation use, and seawater intrusion is suspected (CADWR 2004).

Beneficial Uses for Groundwater

Groundwater in the San Diego region can have as many as six designated beneficial uses: (1) municipal and domestic, (2) agricultural, (3) industrial service supply, (4) industrial process supply, (5) groundwater recharge, and (6) freshwater replenishment. Nearly all of the groundwater development in the region has been for municipal and agricultural supply. Beneficial uses of the groundwater in the HAs located within the boundaries of the City are listed in Table 4.7-2.

Table 4.7-2
Beneficial Uses for Groundwater in the City of La Mesa

Hydrologic Area (HA)	Existing Beneficial Uses
El Capitan	Municipal and domestic; agricultural
Upper Sweetwater	Municipal and domestic; agricultural
Middle Sweetwater	Municipal and domestic; agricultural; industrial service supply

Source: RWQCB 1994

Flooding

FEMA is responsible for the preparation of Flood Insurance Rate Maps (FIRMs). The City participates in the Federal Flood Insurance Study to determine the mandatory insurance necessary for identified properties. As shown in FIRMs, flood areas that have a 1 percent annual chance of flooding are in the "100-year floodplain." Flood hazard areas are shown in Figure 4.7-1.

All watercourses in La Mesa are tributary to larger regional drainage systems. Although they are dry most of the year, they fill quickly with water during storm episodes and result in localized flooding conditions. Flood hazards in La Mesa are primarily the result of a lack of adequate storm drain facilities, particularly in older neighborhoods. One area within the City, Alvarado Creek near I-8 and Fletcher Parkway north of the La Mesa Colony neighborhood, is located within a 100-year floodplain and has a 1 percent chance of flooding up to 1 foot of depth. Commercial development and portions of the trailer park south of Alvarado Road are at risk. There is also potential for traffic hazards on I-8 as a result from flooding from Alvarado Creek. The City recently constructed flood control facilities along Alvarado Creek to comply with flood control regulations for new development.

A dam inundation area runs the length of Alvarado Creek in an east/west direction through the City. In the event of failure of any of these flood control facilities, portions of the City would be subject to inundation, as shown in Figure 4.7-1. In general, the farther the distance from the facility, the lower the hazard risk in the event of failure.

Other areas in the City are also prone to flooding. Businesses and residential uses on University Avenue north of the Vista La Mesa neighborhood are affected by flooding of Chollas Creek. Other areas at risk of flooding include portions of the residential Grossmont Summit and La Mesa Boulevard neighborhoods east and west of SR-125 near Spring Valley Creek. The City coordinates with the San Diego County Flood Control District to maintain necessary flood control and storm water management.

Development of property within the "F" overlay zone designation must adhere to flood control regulations. All new development is required to be elevated above the level of the 100-year flood. New development, or substantial improvement of existing structures, requires construction of flood protection improvements. If actual construction of flood improvements is not practical, a bond must be posted to guarantee future construction.

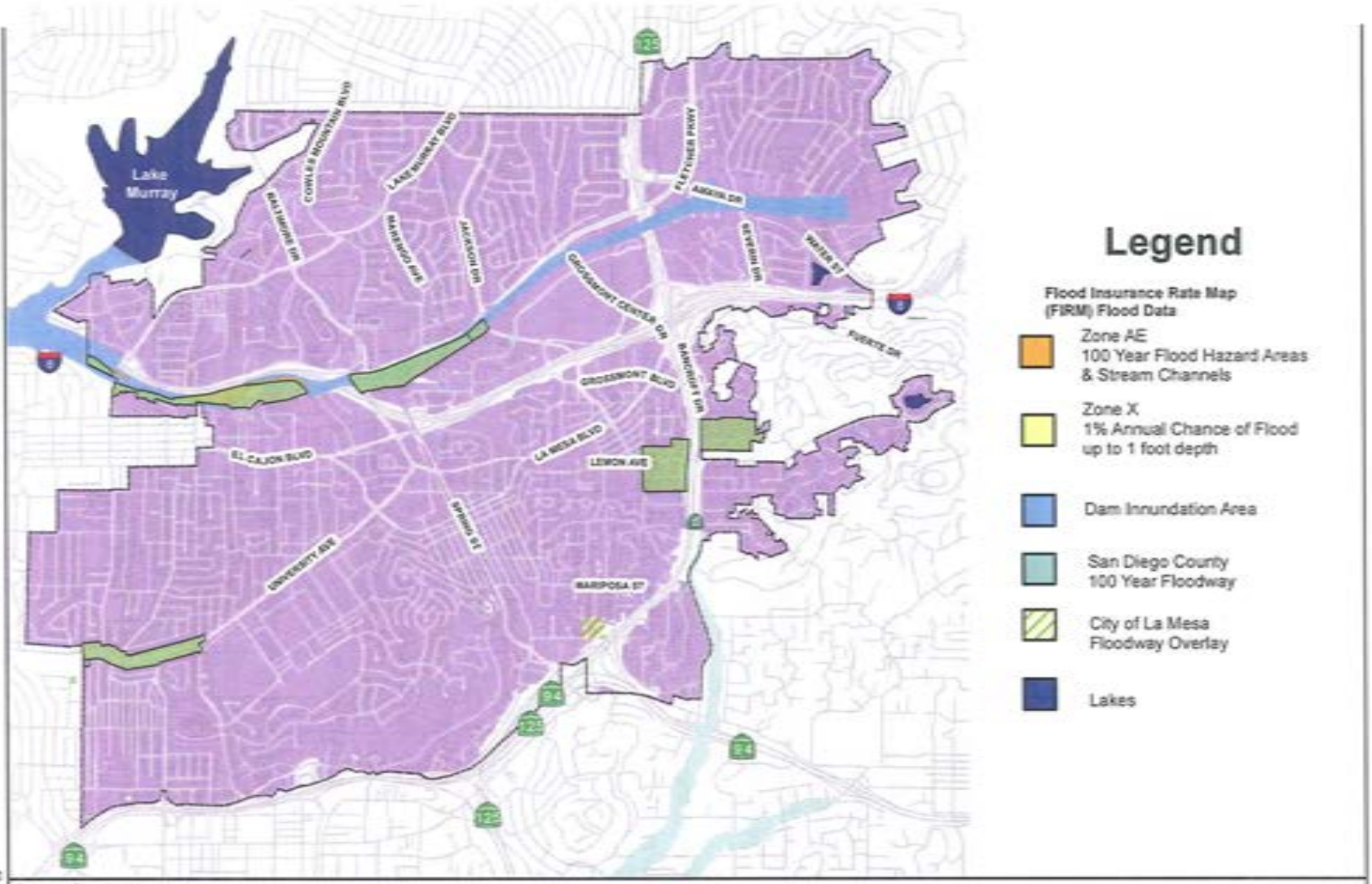

Figure 4.7-1
Flood Hazard Areas

4.7.2 Regulatory Setting

Federal

Federal Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into waters of the U.S. and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the act was significantly reorganized and expanded in 1972. "Clean Water Act" became the act's common name with amendments in 1977.

Under the CWA, USEPA implements pollution control programs such as setting wastewater discharge standards for industry. USEPA also sets water quality standards for contaminants in surface waters.

The CWA makes it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit is obtained. USEPA's National Pollutant Discharge Elimination System (NPDES) permit program controls point-source and nonpoint-source discharges. Point sources are discrete conveyances such as pipes or human-made ditches. Nonpoint-source pollution is water pollution affecting a water body from diffuse sources. According to USEPA, nonpoint-source pollution is the leading cause of water pollution in the United States.

National Pollution Discharge Elimination System

USEPA authorized the SWRCB to administer its NPDES permitting program. The NPDES permitting program prohibits the unauthorized discharge of pollutants from a point source (pipe, ditch, well, etc.) to U.S. waters. The permitting program addresses municipal, commercial, and industrial wastewater discharges, and discharges from large animal feeding operations. Permittees must verify compliance with permit requirements by monitoring their effluent, maintaining records, and filing periodic reports. The program is administered at the local level by nine RWQCBs. The City is a co-permittee to the NPDES permit issued by the RWCQB. This permit is revised every 5 years and requires extensive monitoring and reporting by the City to protect water quality.

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-

source dischargers (municipalities and industries). Section 303(d) requires that the state develop a TMDL for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows the link between loading reductions and the attainment of water quality objectives. USEPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. The goal of the TMDL program is that, after implementation of a TMDL for a given pollutant on the 303(d) List, the causes that led to the pollutant's placement on the list would be remediated.

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. The City is a participant in the National Flood Insurance Program. FEMA also issues FIRMs that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. The minimum level of flood protection for new development is the 1-in-100 Annual Exceedance Probability standard. This is defined as a flood having a 1 percent chance of occurring in any given year. Flood zone areas in the City are shown in Figure 4.7-1.

State

State Water Resources Control Board

In California, the SWRCB has broad authority over water-quality-control issues. The SWRCB is responsible for developing statewide water-quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water-quality regulation in California are the California Department of Public Health (for drinking water regulations), the California Department of Pesticide Regulation, CDFW, and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt Basin Plans for all areas in the region, and establish water-quality objectives. California water-quality objectives (or "criteria" under the

CWA) are found in the Basin Plans adopted by the SWRCB and each of the nine RWQCBs. The City is located in Region 9, the San Diego RWQCB.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the act, the state must adopt water-quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcing is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt water-quality control plans (Basin Plans) for all areas in the region, and establish water-quality objectives. The Porter-Cologne Act sets the obligations of the SWRCB and RWQCBs to adopt and periodically update the Basin Plans.

Basin Plans are the regional water-quality control plans required by the CWA and Porter-Cologne Act in which beneficial uses, water-quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of such activities through filing Reports of Waste Discharge, and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. RWQCBs also have authority to issue waivers to Reports of Waste Discharge requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water-quality effects when implemented according to prescribed terms and conditions.

Statewide General NPDES Permit for Construction Activity

California adopted a new Construction General Permit on September 2, 2009. SWRCB Water Quality Order 2009-0009-DWQ (as amended by 2010-0010-DWQ) regulates construction site storm water management. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that, in total, disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit for discharges of storm water associated with construction activity. Construction activity subject to this permit includes clearing, grading, and disturbing the ground, such as through stockpiling or excavating, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the area.

Permit applicants are required to submit a Notice of Intent to the SWRCB and to prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies best management practices (BMPs) that must be implemented to reduce construction effects on receiving-water quality

based on potential pollutants. BMPs are directed at implementing sediment- and erosion-control measures and other measures to control potential chemical contaminants. The SWPPP also includes descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases are completed at the site (postconstruction BMPs).

The Construction General Permit includes several new requirements (compared to the previous Construction General Permit, 99-08-DWQ), including risk-level assessment for construction sites, an active storm water effluent monitoring and reporting program, rain event action plans, and numeric effluent limitations and action levels for pH and turbidity. The permit was adopted on September 2, 2009, and became enforceable on July 1, 2010.

Local

San Diego Regional Water Quality Control Board

The San Diego RWQCB, along with the SWRCB, is responsible for implementation and compliance with the Porter-Cologne Water Quality Act and the CWA. The San Diego RWQCB has the authority to implement water-quality protection standards by issuing permits for discharges of water within its jurisdiction. The San Diego RWQCB prepared the Water Quality Control Plan for the San Diego Basin (Basin Plan) in compliance with the requirements of the CWA and Porter-Cologne Water Quality Control Act. The Basin Plan establishes water quality objectives and implementation programs to meet those objectives. All discharges to surface water bodies or groundwater in La Mesa are subject to the requirements of the San Diego Basin Plan (RWQCB 1994).

In January 2007, the San Diego RWQCB issued Order R9-2007-0001, the San Diego Municipal Storm Water NPDES Permit (Municipal Permit), which regulates storm water discharges from public drainage systems. Order R9-2007-0001 requires each city to develop and implement a Jurisdictional Urban Runoff Management Plan that identifies and describes the methods that the city will use to eliminate significant pollutants from storm water conveyance systems. As part of Order R9-2007-0001, the City is required to implement a plan to eliminate pollutant discharges by requiring BMPs at applicable areas. BMPs include inspection programs for businesses, municipal facilities, and treatment control facilities; preventive programs such as street sweeping and storm drain facility cleaning; and water quality monitoring.

City of La Mesa, La Mesa Municipal Code

To implement Order R9-2007-0001, the City adopted the Standard Urban Storm Water Mitigation Plan (SUSMP), updated in January 2011, which serves as a guidance manual for

developers to comply with City requirements. The January 2011 update incorporates the hydromodification control requirements of the Municipal Permit.

Municipal Code Section 7.18, Storm Water Management, requires new development and significant redevelopment projects to include storm water management requirements and BMPs as part of site design. Development projects are required to implement source control, site design, watercourse protection, low-impact development (LID) standards (e.g., permeable pavement, bioretention facilities), and water-quality treatment for the pollutants of concern within the watershed.

Municipal Code Section 14.29, Water Efficient Landscape, was adopted in 2010 as required by the State of California Water Conservation in Landscaping Act.

Municipal Code Section 24.08, the Floodway Overlay Zone – F, is intended for application in those areas of the City within floodways or water courses in which flood control structures and facilities are either required or planned to be installed or improved. The construction of buildings and structures within such areas is prohibited until adequate flood protection facilities are constructed or guaranteed to be constructed, and temporary alternate arrangements are made to protect persons and property.

Municipal Code Section 7.19, Floodplain Management, was adopted to protect public health and safety and to minimize public and private losses due to flood conditions in specific areas. The ordinance includes provisions to restrict or prohibit uses that are dangerous due to water or erosion hazards, or uses that result in damaging increases to erosion or flood heights or velocities. The ordinance requires that uses vulnerable to floods be protected against flood damage; control the alteration of natural floodplains, stream channels, and natural protective barriers; control filling, grading, dredging, and other development that may increase flood damage; and prevent or regulate the construction of flood barriers that unnaturally divert flood waters or that may increase flood hazards in other areas.

City of La Mesa Hydromodification Management Plan

Under Municipal Permit Order R9-2007-0001, Section D.1, the San Diego copermittees, including the City, are required to implement a Hydromodification Management Plan to control increases in runoff rates and durations for all priority development projects that have the potential to cause increased erosion, pollutant generation, or other impacts to stream habitat. These priority development projects are required to implement control measures that reduce or maintain preconstruction flow rates and durations so that postconstruction flow rates do not

result in increased downstream erosion. The Hydromodification Management Plan must develop standards to control pre/post-project flows based on continuous hydrologic simulation modeling.

Order R9-2007-0001 requires LID BMPs to be implemented where possible to help minimize impacts to receiving waters by directing urban runoff to landscaped areas. LID BMPs allow for filtration and infiltration that reduce postdevelopment runoff rates, volumes, and pollutant loadings. Proper selection and implementation of flow control BMPs and LID design features are necessary for an effective Hydromodification Management Plan, and these features must be designed to be easily maintained in the urban environment.

Other Jurisdictional Planning Efforts

The Municipal Permit (Order No. R9-2007-0001) requires the development and implementation of Watershed Urban Runoff Management Plans (WURMPs) for each of nine watershed management areas within San Diego County, including the San Diego River watershed. The final San Diego River WURMP was prepared by the City of San Diego in collaboration with the cities of El Cajon, La Mesa, Poway, and Santee, and the County of San Diego—all local agencies that have jurisdiction over the San Diego River watershed. The WURMP meets the requirements of the Municipal Permit and represents the plan the jurisdictions and stakeholders have prepared to implement the WURMP.

4.7.3 Thresholds for Determining Significance

Based on Appendix G of the CEQA Guidelines, a significant impact related to hydrology/water quality would occur if implementation of the 2012 General Plan would do any of the following:

- Violate any water quality standards or waste discharge requirements, or otherwise impact local or regional water quality.
- Result in changes in absorption rates, drainage patterns, or the rate and amount of surface runoff.
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, FIRM, or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam.

Impacts related to groundwater supplies and recharge, and inundation by seiche, tsunami, or mudflow were determined to be less than significant in the Initial Study and will not be discussed further in this Program EIR. Refer to the Initial Study in Appendix A for a discussion of these issue areas.

4.7.4 Analysis of Environmental Impacts

Violation of Water Quality Standards

Areas with high percentages of impervious surfaces may contain contaminants such as trash, litter, silt, automotive chemicals, fertilizers, animal wastes, and other contaminants that could flow directly into storm drains that send runoff into local streams and channels. Construction activities related to implementation of the 2012 General Plan could contribute additional pollutants, including sediments from grading activities and contaminants associated with construction materials, construction waste, vehicles, and equipment, among others. However, since storm drains are designed to carry only storm water, these drains typically are not equipped with filters or cleaning systems and, consequently, can deliver polluted urban runoff directly into local flood control channels and the receiving water bodies affecting their beneficial use. Many of the pollutants found in runoff are toxic to marine and aquatic life.

The City has allocated staffing and resources to implement pollution mitigation programs to improve water quality. The City conducts programs and activities designed to maintain downstream water quality, including inspection programs, water quality monitoring activities, public outreach, and pollutant source investigations. Four informational kiosks have been installed in City parks, and information is available on the City's website. In addition, the Fats, Oils, and Grease (FOG) Control Program was implemented to help reduce blockages within the wastewater system, which can lead to sanitary sewer overflows that degrade surface water quality and pose a hazard to health and safety.

The City employs many methods to reduce pollutants found in urban runoff, including following the guidelines of clean water regulations, water quality permits, and water quality plans (described in Section 4.7.2). Impacts related to pollutants associated with impervious surfaces would be reduced by enforcement of RWQCB waste discharge permits and through preparation and implementation of a SWPPP and SUSMP. The SWPPP would identify required BMPs for construction and postconstruction discharges, and may include inspection programs, street sweeping and storm drain facility cleaning, and monitoring water quality to reduce polluted storm water from entering the City's storm drain system. The City would be subject to the water quality standards and/or waste discharge requirements of the following regulations: the CWA regulations associated with discharges to defined water bodies and facilities, state and San Diego

RWQCB NPDES regulations for discharge of pollutants into defined water bodies and facilities, meeting TMDL water quality numerics, and meeting the City-implemented SUSMP and Municipal Code BMP standards.

If required, a hydromodification plan would demonstrate that predevelopment runoff volumes would not be exceeded. For projects requiring a hydromodification plan, LID site design, source control, and/or treatment control BMPs would be required. LID is a storm water management and land development strategy applied at the parcel scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment or natural hydrologic functions. LID aims to decrease storm water runoff by treating it and retaining it at the source, and can include actions such as minimizing paved areas and soil compaction, preserving natural open spaces, locating open space areas to absorb overflows, directing runoff to natural and landscaped areas and filtration devices, and harvesting or reusing rain water as an irrigation source.

Since most of the development with implementation of the 2012 General Plan would be infill and redevelopment activities, site conditions and runoff filtration measures would improve through retrofitting and the development review process. Future development would be limited to small vacant parcels, and would not be expected to substantially increase the amount of existing impervious surfaces. Site redevelopment may provide opportunities to create new pervious surfaces through new landscaping and use of porous pavements, which could reduce the amount of runoff and associated pollutants.

Additionally, policies in the 2012 General Plan include a variety of actions aimed at protecting water quality through reducing runoff of pollutants and increasing on-site treatment or detention of storm water. Policies include the following:

- **Policy CS-1.3.1:** Support regional water conservation efforts, water reclamation, and prevention of water quality degradation.
- **Policy CS-1.3.3:** Encourage the use of mulch and compost in lieu of chemical fertilizers to improve water quality.
- **Policy PSF-6.1.3:** The Public Works Department will continue to maintain the existing sewer lines in an effort to reduce sewer spills.
- **Policy PSF–6.1.7:** The City will continue the FOG (fats, oils, and grease) control program as a method to decrease sewer spills.
- **Policy PSF-6.2.1:** The City will maintain a Storm Drain Master Plan to help plan and coordinate necessary improvements to the storm water drainage system.

- **Policy PSF-6.2.2:** New development will be conditioned to make improvements to the storm water system as appropriate.
- **Policy PSF-6.2.4:** The City will maintain a program to ensure that it is in compliance with the NPDES permit.
- **Policy PSF-6.2.5:** The Public Works Department will develop a program to monitor storm drain water quality and identify BMPs necessary to deal with contaminants.
- **Policy PSF-6.5.1:** The City will coordinate the SWPPP with the solid waste reduction, recycling, household hazardous waste disposal, and other waste diversion mandates.

With adherence to and implementation of applicable permits and regulations, uniformly applied development policies, existing City programs and practices, policies of the 2012 General Plan, and existing water conservation and drought-tolerant landscaping regulations, water quality impacts would be **less than significant.**

Surface Hydrology and Drainage

Implementation of the 2012 General Plan would not involve alteration of existing streams, rivers, or drainage channels, other than to improve the storm water drainage system. In general, future new development would be limited to a number of small vacant parcels and redevelopment in the City's existing urban areas, which would not be expected to substantially increase the amount of existing impervious surfaces or substantially change the flow velocity or volume of storm water runoff. Where sites are redeveloped, there may be opportunities to create new pervious surfaces to facilitate groundwater infiltration through new landscaping and use of porous pavements.

However, two areas of the City that are relatively large open spaces are planned for partial development into public or residential use. Increases to impervious surfaces, such as roofs, patios, driveways, and parking areas, would lead to increased storm water runoff. Development activities in these areas could potentially cause hydromodification effects to the creek systems. Hydromodification effects occur when the postdevelopment rate of runoff is increased above the predevelopment runoff rate, which can cause stream channel disruptions such as scouring, bank destabilization, and other effects that result in stream degradation. Construction-related activities could also contribute additional pollutants to surface waters, including sediments and erosion from grading activities and pollutants associated with construction materials, vehicles, and equipment.

However, existing City regulations reduce the effects of hydromodification during new development and redevelopment activities through implementation of the SUSMP and Order R9-

2007-0001. The City requires all priority development projects and redevelopment projects to retain runoff on-site and to include water-quality improvement techniques to reduce potential pollutants and hydromodification effects.

Engineered treatment controls include LID and BMP techniques such as permeable pavement, media filtrations devices, and bioretention facilities. The BMPs required consist of structural and nonstructural measures, including retention basins, first flush diversion devices, porous pavements, public education, and street sweeping. LID is a storm water management and land development strategy applied at the parcel scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment or natural hydrologic functions. LID aims to decrease storm water runoff by treating it and retaining it at the source, and can include actions such as minimizing paved areas and soil compaction, preserving natural open spaces, locating open space areas to absorb overflows, directing runoff to natural and landscaped areas and filtration devices, and harvesting or reusing rain water as an irrigation source. In addition, all priority development projects and redevelopment projects are required to implement hydromodification facilities to mimic natural rainfall runoff rates.

Additionally, policies in the 2012 General Plan include a variety of actions aimed at detention of storm water. Policies include the following:

- **Policy PSF-6.2.1:** The City will maintain a Storm Drain Master Plan to help plan and coordinate necessary improvements to the storm water drainage system.
- **Policy PSF-6.2.2:** New development will be conditioned to make improvements to the storm water system as appropriate.
- **Policy PSF-6.2.4:** The City will maintain a program to ensure that it is in compliance with the NPDES permit.

With adherence to and implementation of applicable permits and regulations, existing City programs and practices, and policies of the 2012 General Plan, impacts to hydrology and drainage would be **less than significant.**

Flooding and Inundation Hazards

Housing, Structures, or Risk within a 100-Year Flood Hazard Area

As shown in Figure 4.7-1, areas of the City that are susceptible to flooding during a 100-year flood event are located along Alvarado Creek near I-8 and Fletcher Parkway. A dam inundation

area runs the length of Alvarado Creek through the City. Other areas of potential flood risk include neighborhoods near Chollas Creek and Spring Valley Creek.

Zone AE, 100-year Flood Hazard Area and Stream Channels, and Zone X, 100-year Floodplain, may allow for limited development, although development is restricted by FEMA. No development opportunity site is planned in Zones AE or X within City limits. However, land use changes within these zones may occur. Building permits for these zones would include restrictions such as elevated foundations or adherence to strict building code criteria.

The 2012 General Plan identifies University Avenue as a development opportunity site, where development or redevelopment will be focused in future years. The western portion of University Avenue within the City is located in the City's Floodway Overlay Zone due to the potential flooding risk from Chollas Creek. Another development opportunity site located along eastern La Mesa Boulevard is just north of the Floodway Overlay Zone near Spring Valley Creek. As stated in Section 4.7.1, development of property within the "F" overlay zone designation must adhere to flood-control regulations. All new development would be required to be elevated above the level of the 100-year flood level. New development, or substantial improvement of existing structures, requires construction of flood protection improvements. If actual construction of flood improvements is not practical, a bond must be posted to guarantee future construction.

Policies S-1.1.1 through S-1.1.4 of the Safety Element of the 2012 General Plan would reduce the risk of flooding by providing adequate flood control facilities, including conducting storm drain master planning, upgrading drainage infrastructure, pursuing grant funding for flood control projects, and requiring all proposed development to minimize surface runoff and downstream effects. Policies S-1.2.1 through S-1.2.4 seek to minimize losses caused by flooding within the 100-year floodplain and potential dam inundation areas by requiring new development in flood-prone areas to be elevated and maintaining storm drains in low-lying areas.

According to the San Diego Multi-Jurisdictional Hazard Mitigation Plan, the facility at Lake Murray has a "high" potential for hazards related to dam failure. Because of its size and proximity to the City, failure of the facility at Lake Murray could have the potential to adversely affect residences and business located on the northwestern area of the City. Policy S-1.2.4 of the 2012 General Plan states that the City will cooperate with the City of San Diego to reduce the possible effects of Lake Murray dam failure to the City of La Mesa, which will reduce the risk of flooding in this area.

Increased flooding hazards due to climate change are discussed in Section 4.5 of this EIR.

With adherence to and implementation of 2012 General Plan policies and uniformly applied development policies, program-level impacts from flooding would be **less than significant.**

4.7.5 Mitigation Measures

With adherence to and implementation of uniformly applied development policies, applicable permits, proposed regulations, and policies of the 2012 General Plan, impacts to hydrology and water quality would be less than significant at this Program EIR level of analysis. Therefore, no mitigation measures are required.

4.7.6 Significance after Mitigation

Violation of Water Quality Standards

Implementation of the 2012 General Plan would not result in the violation of water quality standards. Impacts would be **less than significant.**

Surface Hydrology and Drainage

Implementation of the 2012 General Plan would not result in substantial changes to surface hydrology and drainage. Impacts would be **less than significant.**

Flooding and Inundation Hazards

Implementation of the 2012 General Plan would not result in flooding or inundation hazards. Impacts would be **less than significant.**