5.9 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential impacts to hydrology and water quality conditions in the City of Menifee from implementation of the proposed City of Menifee General Plan. Hydrology deals with the distribution and circulation of water, both on land and underground. Water quality deals with the quality of surface and groundwater. Surface is on the surface of the land and includes lakes, rivers, streams, and creeks. Groundwater is water below the surface of the earth. The analysis in this section is based in part on the following technical study:

- *Technical Background Report to the Safety Element of the General Plan for the City of Menifee, Riverside County, California.* Earth Consultants International, Inc., July 2010.

A complete copy of this study is included in Appendix G to this Draft EIR.

5.9.1 Environmental Setting

Regional Drainage

The City of Menifee is in the San Jacinto Subbasin of the larger Santa Ana River Watershed (see Figure 5.9-1, *Santa Ana and San Jacinto River Watersheds*). The Santa Ana River Watershed includes much of Orange County, the northwestern corner of Riverside County, part of southwestern San Bernardino County, and a small portion of Los Angeles County. The watershed is bounded by the Santa Margarita watershed to the south, on the east by the Salton Sea and Southern Mojave watersheds, and on the north and west by the Mojave and San Gabriel watersheds, respectively. The watershed covers approximately 2,800 square miles, with about 700 miles of rivers and major tributaries.

The San Jacinto River originates in the San Jacinto Mountains and flows some 42 miles west to Lake Elsinore; however, during flooding and heavy storms, Lake Elsinore overflows into Temescal Creek, which flows northwest and discharges into the Santa Ana River.

The southeast corner of the City is in the Warm Springs Creek Watershed, part of the larger Santa Margarita Watershed.

Local Surface Waters and Drainage

Salt Creek

The Salt Creek drainage occupies the southernmost part of the San Jacinto River Basin, reaching into the hills south of Hemet and encompassing the southern part of Hemet, the communities of Green Acres and Winchester, and nearly all of the city of Menifee. Salt Creek bisects the Menifee area and has a large impact on zoning, development, and flood-hazard management. The lowlands around Salt Creek have experienced numerous floods over the past century, due in part to the flatness of the valleys and the constricted entrance to the hills at the western edge of the City. The potential for Salt Creek to flood surrounding properties in the Menifee area has been reduced in recent years by the development of flood control measures that include channelization and land use restrictions. However, because many of the road crossings are not designed to convey major storm flows, Salt Creek remains problematic. The Salt Creek channel discharges into the Railroad Canyon Reservoir at the corporate boundary between the cities of Menifee and Canyon Lake.

Ethanac Wash

This watershed includes the southwestern flank of the rugged Lakewood Mountains, in addition to the communities of Romoland and Homeland. The drainage network begins in the Juniper Flats area within the highest part of the mountains and includes numerous steep-sided channels that are generally dry except during storms or where springs are present. Upon reaching the alluvial fan surface, the drainage channels become increasing less well defined, and the runoff eventually coalesces into sheet flow across the valley floor. Runoff that crosses the Romoland portion of Menifee eventually reaches the San Jacinto River; however, the flow is impeded by the BNSF railroad tracks and the 215 freeway, causing ponding of water upstream of these structures.

Quail Valley

The community of Quail Valley occupies a small drainage basin that is a tributary of Railroad Canyon. Flooding problems on the floor of Quail Valley are due in part to the original layout of the streets and homes in the 1950s, which consists of a grid pattern superimposed on the natural, irregular drainage network.

Other Drainages

The southeastern corner of the General Plan area is in the Santa Margarita River Watershed and drains southward via numerous small tributaries to Warm Springs Creek. This creek passes through a small gap in the hills in the southeastern corner of the City. In the southwestern corner, a drainage divide located just inside the city boundary separates the Salt Creek watershed from streams flowing toward the Elsinore Valley.

Surface Water Quality

Beneficial Uses

Beneficial uses are the uses to which water can be put for the benefit of humans and/or wildlife. The beneficial uses of Salt Creek are recreation,[1] warm freshwater habitat, and wildlife habitat. Beneficial uses of Canyon Lake are municipal, agricultural, groundwater recharge, recreation (water contact recreation and non-water-contact recreation), warm freshwater habitat, and wildlife habitat (SARWQCB 2008).

Water Quality Impairments

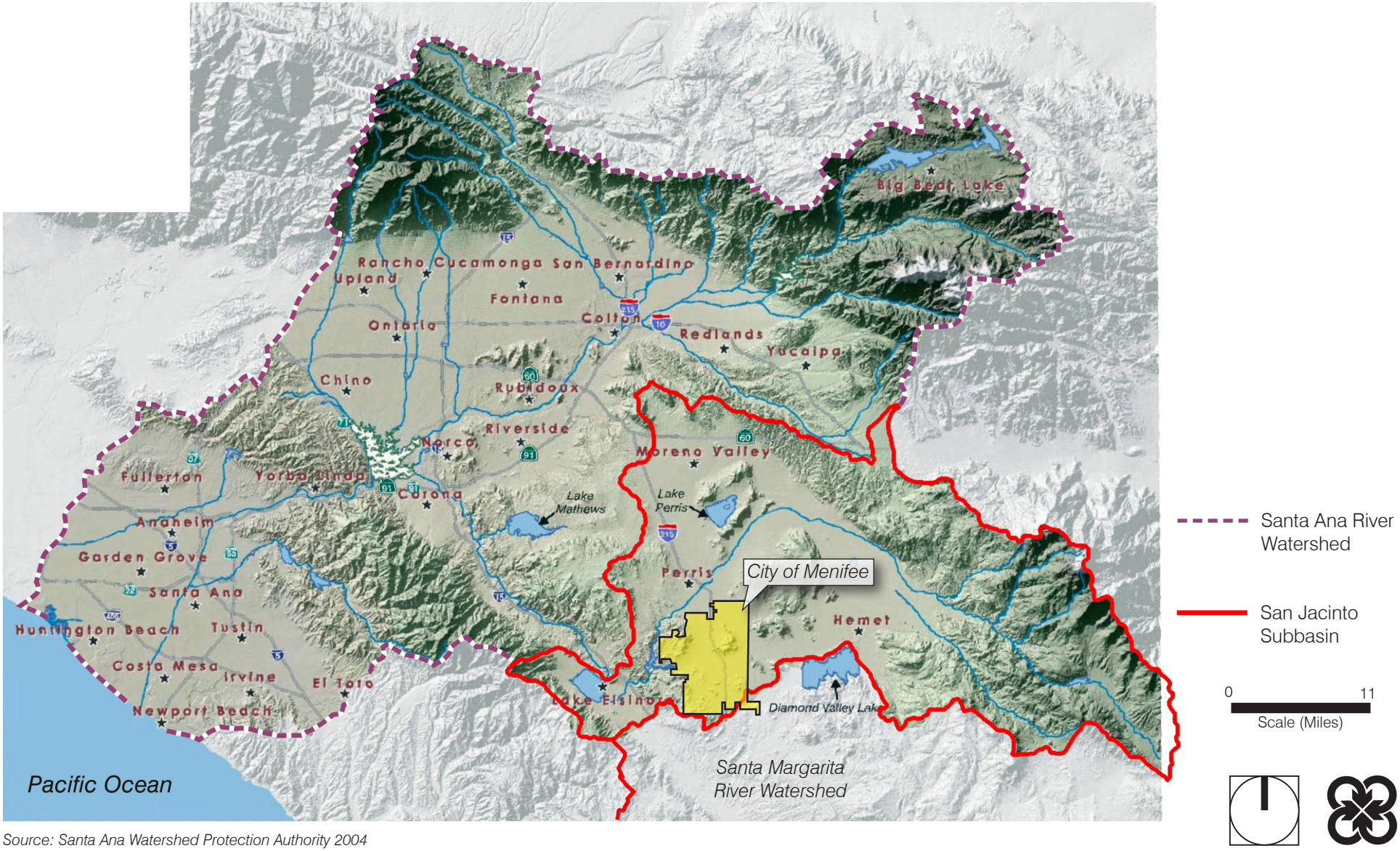
Canyon Lake, next to the west City boundary and the receiving water for water from Menifee via Salt Creek, is listed on the 2010 Section 303(d) List of Water-Quality Limited Segments as impaired by nutrients and pathogens. A total maximum daily load (TMDL) for nutrients was issued in 2005, and a TMDL for pathogens is in preparation (USEPA 2011). Lake Elsinore is listed as impaired by nutrients; organic enrichment/low dissolved oxygen; polychlorinated biphenyls (PCBs); sediment toxicity; and unknown toxicity. TMDLs for nutrients and organic enrichment/low dissolved oxygen were approved in 2005. TMDLs for PCBs, sediment toxicity, and unknown toxicity are in preparation. The expected completion dates for the PCB and sediment toxicity TMDLs are 2019 and 2021, respectively; completion of the unknown toxicity TMDL was due in 2007.

Groundwater

Much of the City overlies the Perris South and Menifee Management Zones of the San Jacinto Groundwater Basin (see Figure 5.9-2, *Groundwater Basins*).

[1] Includes water contact recreation such as swimming and wading and non-water-contact recreation such as picnicking and sightseeing.

Santa Ana and San Jacinto River Watersheds



Source: Santa Ana Watershed Protection Authority 2004

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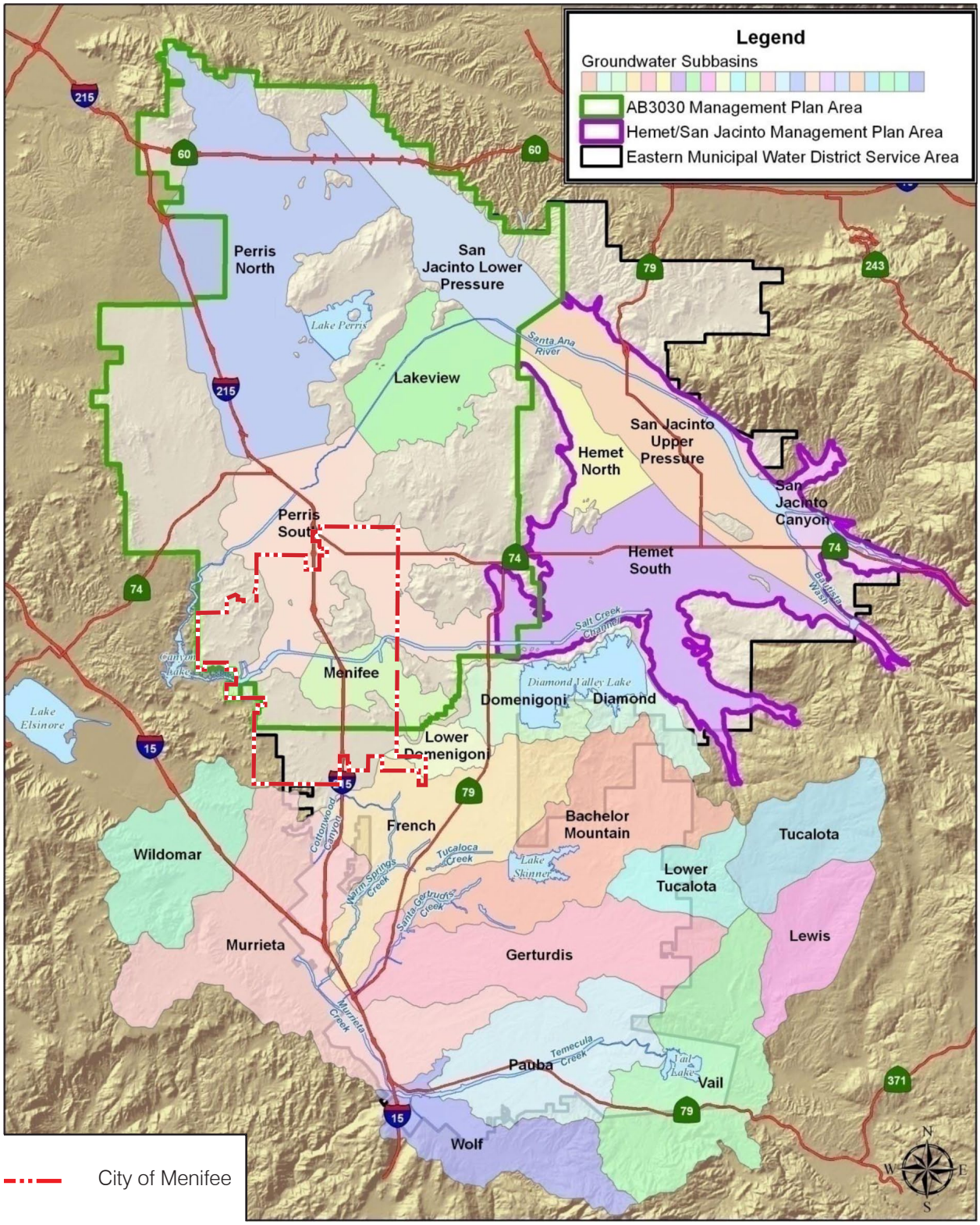
Groundwater Basins



City of Menifee

0 5
Scale (Miles)

Source: EMWD 2011

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Groundwater Quality

Beneficial Uses

Beneficial uses of groundwater from the Menifee Management Zone are municipal supply, agricultural supply, and industrial process supply.[2] Beneficial uses of the Perris South Management Zone are municipal supply and agricultural supply (SARWQCB 2008).

Water Quality Impairments

The Perris South and Menifee Management Zones are parts of the West San Jacinto Basin Water Management Area. Groundwater in this area is affected by high levels of total dissolved solids (TDS). The high TDS groundwater is migrating into the Lakeview portion of the Lakeview/Hemet North management zone, an area of good quality groundwater. The Eastern Municipal Water District operates two desalination facilities that recover high TDS groundwater from the Menifee and Perris South Management Zones and the Lakeview portion of the Lakeview/Hemet North Management Zone, for potable use. The Menifee Desalter and Perris I Desalter have a combined capacity of 7,500 acre-feet per year, or about 6.7 million gallons per day (EMWD 2011).

Flood Hazards

Types of Floods

Flash floods are short in duration, but have high peak volumes and high velocities. This type of flooding occurs in response to the local geology and geography and the built environment (man-made structures). The local mountains are steep and consist of rock types that are fairly impervious to water. Consequently, little precipitation infiltrates the ground. When a major storm moves in, water collects and runs off quickly, making a steep, rapid descent from the mountains into natural or modified channels within developed valley areas. Because of the steep terrain and scarcity of vegetation in the mountains, flood flows often carry large amounts of mud, sand, and rock.

Sheet flow occurs when the capacity of the existing channels, either natural or man-made, are exceeded, and water flows over and into the adjacent areas.

Recent Historical Floods

In February 1998, a series of powerful Pacific storms enhanced by warm El Niño conditions in the eastern Pacific Ocean pounded southern California with strong winds, thunderstorms, and intense rain. Widespread flooding and property damage occurred, including the loss of crops and livestock. Many roads, rail lines, and bridges were damaged and temporarily closed, and swift-water rescues occurred throughout the area, including Canyon Lake, Sun City, and San Jacinto. Estimated losses for the four southern California counties (Riverside, San Bernardino, Orange, and San Diego) as a result of the February storms exceeded $100 million.

Early winter storms during October 2004 brought record heavy rain to the region, causing widespread urban flooding, as well as rock and mudslides in the mountains. This series of strong storms resulted in October rainfall totals that were 1,000 to 2,000 percent above normal, the wettest October since record keeping began in 1850. In Sun City, seven people had to be rescued from their vehicles when they became trapped in a flooded intersection with water four feet deep.

[2] Industrial process supply is industrial uses dependent on water quality, including food processing.

Storms occurring during the winter of 2010 caused extensive flooding in Menifee. The Ethanac area upstream of the I-215 flooded, and the floodwaters were within one foot of topping the freeway. The Salt Creek crossings at Bradley Road, Murrieta Road, and Newport Road had to be closed several times due to flooding.

Designated Flood Zones

Two parts of the City of Menifee are in 100-year flood zones mapped by the Federal Emergency Management Agency (FEMA). One is an east–west band across the Perris Valley in the northern part of the City. The second extends east–west along Salt Creek through the central part of the City and includes tributary areas both north and south of Salt Creek. Some drainages in the southern part of the City are also in Riverside County Flood Hazard Zones—in the Paloma Valley and in hills on the south flank of the Paloma Valley (see Figure 5.9-3, *Flood Zones*).

Seismically Induced Dam Inundation

Other flood hazards for the City of Menifee include dam inundation in the event of a catastrophic failure, such as seismically induced dam failure. Seismically induced inundation refers to flooding that occurs when water retention structures, such as dams, fail due to an earthquake. Statues governing dam safety are defined in Division 3 of the California State Water Code. These statutes empower the California Division of Dam Safety to monitor the structural safety of dams that are greater than 25 feet high or have more than 50 acre-feet of storage capacity. Several structures upstream from Menifee meet these requirements: West Dam, East Dam, and Saddle Dam (Diamond Valley Lake), Forebay Dam, Lake Perris Dam, Lake Hemet Dam, and Pigeon Pass Dam (Poorman Reservoir). Figure 5.9-4 shows the locations of each of these structures relative to Menifee.

Diamond Valley Lake

Diamond Valley Lake, 4.1 miles east of the City, is the largest reservoir in southern California. Its 800,000acre-foot capacity is intended for use in drought years and as an emergency water supply in the event of a catastrophic interruption of water imported by the Metropolitan Water District of Southern California. Diamond Valley Lake is impounded behind three dams: East Dam, West Dam, and the Saddle Dam on the north side of the reservoir. Parts of the City of Menifee are within the dam inundation area of each of the three dams. A fourth dam at Diamond Valley Lake, the Forebay Dam, impounds a 500-acre-foot reservoir used in filling the main reservoir.

Lake Perris

Lake Perris is the southern terminus of the East Branch of the California Aqueduct, part of the State Water Project that imports water from northern California.

In 2005, the Department of Water Resources (DWR) determined there were potential seismic safety concerns with the dam's foundation if a magnitude 7.5 or larger earthquake struck the area. As a result, the DWR has lowered the lake level temporarily by about 25 feet while the foundation is seismically strengthened. An FEIR for the Perris Dam Remediation Program was certified in November 2011. Completion of the repair work is expected by the end of 2015 (DWR 2012). Parts of the City of Menifee are within the current dam inundation area for Lake Perris; the dam inundation map for Lake Perris may require revision after completion of the repair work.

The City is not in the dam inundation areas for Lake Hemet Dam or Pigeon Pass Dam.

Inundation from Aboveground Water Storage Reservoirs

Seismically induced inundation can also occur if strong earthquakes cause structural damage to aboveground water tanks. If a tank is not adequately braced and baffled, sloshing water can lift a water tank off its foundation, splitting the shell, damaging the roof, and bulging the bottom of the tank (EERI 1992). Movement can also shear off the pipes leading to the tank, releasing water.

There are 17 aboveground reservoirs within the Menifee General Plan area. These reservoirs are owned by the Eastern Municipal Water District (EMWD), and have a total capacity of about 29 million gallons (Homeland Reservoir is currently inactive and empty). Although some of the tanks are older, all have been fitted with flexible connections to prevent the inlet-outlet piping from breaking in case of an earthquake, and some are equipped with a seismic shut-off valve. Each tank also has an altitude value tied to an alarm system to prevent the tank from overflowing. These tanks are the responsibility of the EMWD.

Seiches

A seiche is a surface wave created when an inland body of water is shaken, usually by earthquake activity. Water bodies large enough to generate seiches that could flow onto abutting land include Canyon Lake next to the west City boundary, and artificial lakes in the community of Menifee in the east-central part of the City.

Mudflows

A mudflow is a landslide composed of saturated rock debris and soil with a consistency of wet cement. The parts of the City most susceptible to mudflows are at the bases of moderate to steep slopes, or at the mouths of drainage channels.

Regulatory Setting

Safe Drinking Water Act

The Federal Safe Drinking Water Act (SDWA) provides regulations on drinking water quality in Menifee. The SDWA gives the U.S. Environmental Protection Agency (EPA) the authority to set drinking water standards, such as the National Primary Drinking Water regulations (NPDWRs or primary standards). The NPDWRs protect drinking water quality by limiting the levels of specific contaminants that are known to occur or have the potential to occur in water and can adversely affect public health. All public water systems that provide service to 25 or more individuals are required to satisfy these legally enforceable standards. Water purveyors must monitor for these contaminants on fixed schedules and report to the EPA when a maximum contaminant level (MCL) has been exceeded. MCL is the maximum permissible level of a contaminant in water that is delivered to any user of a public water system. Drinking water supplies are tested for a variety of contaminants, including organic and inorganic chemicals (e.g., minerals), substances that are known to cause cancer (e.g., carcinogens), radionuclides (e.g., uranium and radon), and microbial contaminants (e.g., coliform and *Escherichia coli*). Changes to the MCL list are typically made every three years as the EPA adds new contaminants or, based on new research or new case studies, revises MCLs for some contaminants. The California Department of Health Services, Division of Drinking Water and Environmental Management, is responsible for implementation of the SDWA in California.

Clean Water Act

The federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) is the principal statute governing water quality. The CWA establishes the basic structure for regulating discharges of pollutants into

the waters of the United States and gives the EPA the authority to implement pollution control programs, such as setting wastewater standards for industry. The statute's goal is to end all discharges entirely and to restore, maintain, and preserve the integrity of the nation's waters. The CWA regulates both the direct and indirect discharge of pollutants into the nation's waters. The CWA sets water quality standards for all contaminants in surface waters and makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit is obtained under its provisions. The CWA mandates permits for wastewater and stormwater discharges, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and the filling of wetlands. The CWA also funded the construction of sewage treatment plants and recognized the need for planning to address nonpoint sources of pollution. Section 402 of the CWA requires a permit for all point source (a discernible, confined, and discrete conveyance, such as a pipe, ditch, or channel) discharges of any pollutant (except dredge or fill material) into waters of the U.S.

National Pollutant Discharge Elimination System

Under the National Pollutant Discharge Elimination System (NPDES) program promulgated under Section 402 of the CWA, all facilities that discharge pollutants from any point source into waters of the U.S. are required to obtain an NPDES permit. The term pollutant broadly includes any type of industrial, municipal, and agricultural waste discharged into water. Point sources are discharges from publicly owned treatment works (POTWs), from industrial facilities, and associated with urban runoff. Though the NPDES program addresses certain specific types of agricultural activities, the majority of agricultural facilities are defined as nonpoint sources and are exempt from NPDES regulation. Pollutant contributors come from direct and indirect sources. Direct sources discharge directly to receiving waters, and indirect sources discharge wastewater to POTWs, which in turn discharge to receiving waters. Under the national program, NPDES permits are issued only to direct point source discharges. The National Pretreatment Program addresses industrial and commercial indirect dischargers. Municipal sources are POTWs that receive primarily domestic sewage from residential and commercial customers. Specific NPDES program areas applicable to municipal sources are the National Pretreatment Program, the Municipal Sewage Sludge Program, Combined Sewer Overflows (CSOs), and the Municipal Storm Water Program. Nonmunicipal sources include industrial and commercial facilities. Specific NPDES program areas applicable to these industrial/commercial sources are: Process Wastewater Discharges, Non-Process Wastewater Discharges, and the Industrial Storm Water Program. NPDES issues two basic permit types: individual and general. Also, the EPA has recently focused on integrating the NPDES program further into watershed planning and permitting (USEPA 2012c).

The NPDES has a variety of measures designed to minimize and reduce pollutant discharges. All counties with storm drain systems that serve a population of 50,000 or more, as well as construction sites one acre or more in size, must file for and obtain an NPDES permit. Another measure for minimizing and reducing pollutant discharges to a publicly owned conveyance or system of conveyances (including roadways, catch basins, curbs, gutters, ditches, man-made channels and storm drains, designed or used for collecting and conveying stormwater) is the EPA's Storm Water Phase II Final Rule. The Phase II Final Rule requires an operator (such as a City) of a regulated small municipal separate storm sewer system (MS4) to develop, implement, and enforce a program (e.g., best management practices [BMPs], ordinances, or other regulatory mechanisms) to reduce pollutants in postconstruction runoff to the City's storm drain system from new development and redevelopment projects that result in the land disturbance of greater than or equal to one acre. The City of Menifee Public Works Department is the local enforcing agency of the MS4 NPDES permit.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act (Water Code sections 13000 et seq.) is the basic water quality control law for California. Under this act, the State Water Resources Control Board (SWRCB) has ultimate control over state water rights and water quality policy. In California, the EPA has delegated authority to issue NPDES permits to the SWRCB. The state is divided into nine regions related to water quality and quantity characteristics. The SWRCB, through its nine Regional Water Quality Control Boards (RWQCBs) carries out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a Water Quality Control Plan or Basin Plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The City of Menifee is in the Santa Ana River Basin, Region 8, in the Upper Santa Ana Watershed. The Water Quality Control Plan for the Santa Ana River Basin (8) was updated in 2008. This basin Plan gives direction on the beneficial uses of the state waters within Region 8, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the basin plan.

Approximately 1.25 square miles of the southeast corner of the City is in the Santa Margarita River watershed in the San Diego RWQCB Region (Region 9). However, Order No. R8-2013-0024, issued by the Santa Ana RWQCB in 2013, placed the entire City of Menifee within the jurisdiction of the Santa Ana RWQCB regarding the MS4 Permit regulating discharges to municipal storm drainage systems in the part of Riverside County in Region 8.

Plans and Programs

Water Quality Control Plan, Santa Ana River Basin

The Water Quality Control Plan for the Santa Ana River Basin, updated in February 2008, establishes water quality standards for groundwater and surface water in the basin; that is, standards for both beneficial uses of specific water bodies and the water quality levels that must be maintained to protect those uses. The basin plan includes an implementation plan describing actions by the Santa Ana RWQCB and others needed to achieve and maintain the water quality standards. The Santa Ana RWQCB regulates waste discharges to minimize and control their effects on the quality of the region's groundwater and surface waters. The Basin Plan lists water quality problems for the region, along with causes, where they are known. Plans for improving water quality are included for water bodies with quality below the levels needed to enable all the beneficial uses of the water.

Part of the southeast corner of the City is in the territory of the San Diego RWQCB; however, discharges to municipal storm drains throughout the City of Menifee are regulated by the Santa Ana RWQCB.

Storm Water Pollution Prevention Plans

Pursuant to the CWA, in 2009, the SWRCB issued a statewide general NPDES permit for stormwater discharges from construction sites (NPDES No. CAS000002). Under this Statewide General Construction Activity permit, discharges of storm water from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or to be covered by the General Permit. Coverage by the General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). Each applicant under the General Construction Activity Permit must ensure that a SWPPP is prepared prior to grading and is implemented during construction. The SWPPP must list BMPs implemented on the construction site to protect stormwater runoff and must contain a visual monitoring program; a chemical monitoring

program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a monitoring plan if the site discharges directly to a water body listed on the state's 303(d) list of impaired waters.

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 mandate the FEMA to evaluate flood hazards. FEMA provides Flood Insurance Rate Maps (FIRMs) for local and regional planners to promote sound land use and floodplain development, identifying potential flood areas based on the current conditions. To delineate a FIRM, FEMA conducts engineering studies referred to as Flood Insurance Studies (FISs). The most recent FIS and FIRM was completed and published for the County of Riverside in August 2008. Using information gathered in these studies, FEMA engineers and cartographers delineate Special Flood Hazard Areas (SFHAs) on FIRMs.

The Flood Disaster Protection Act (FDPA) requires owners of all structures in identified SFHAs to purchase and maintain flood insurance as a condition of receiving federal or federally related financial assistance, such as mortgage loans from federally insured lending institutions. Community members within designated areas are able to participate in the National Flood Insurance Program (NFIP) afforded by FEMA. The NFIP is required to offer federally subsidized flood insurance to property owners in those communities that adopt and enforce floodplain management ordinances that meet minimum criteria established by FEMA. The National Flood Insurance Reform Act of 1994 further strengthened the NFIP by providing a grant program for state and community flood mitigation projects. The act also established the Community Rating System (CRS), a system for crediting communities that implement measures to protect the natural and beneficial functions of their floodplains, as well as managing erosion hazards. Currently, the City of Menifee is not a member of NFIP.

5.9.2 Thresholds of Significance

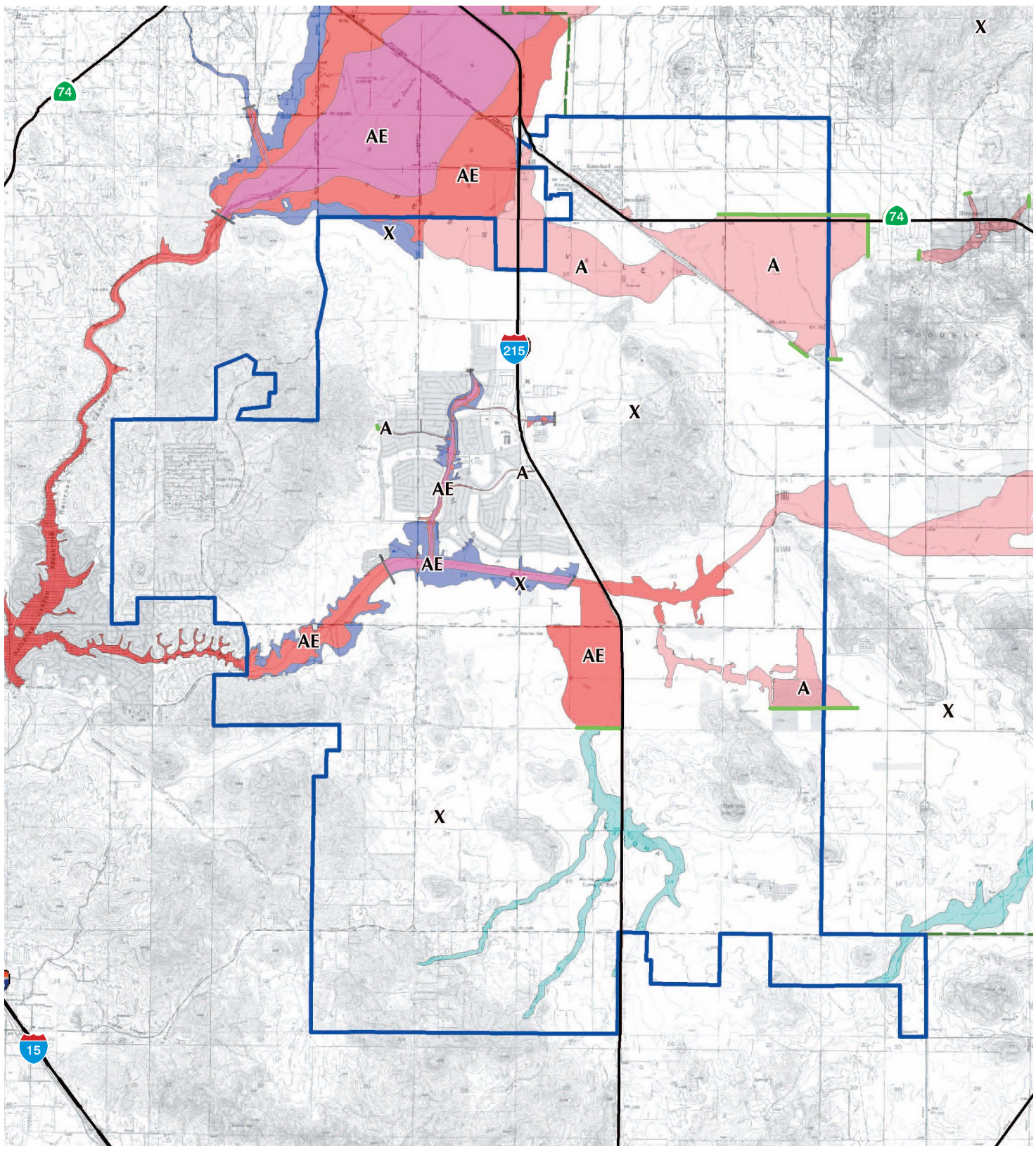
According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

HYD-1 Violate any water quality standards or waste discharge requirements.

HYD-2 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.

HYD-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.

Flood Zones



Explanation

FEMA Flood Insurance Rate Zones

High Risk Areas

A — Zone that corresponds to the 100-year flood areas, as determined by approximate methods. Because detailed hydraulic analyses were not performed, no base flood elevations or depths have been determined. Mandatory flood insurance is required.

AE — Zone that corresponds to the 100-year flood areas, as determined by detailed hydraulic analyses. In most cases, base flood elevations are shown at selected intervals.* Mandatory flood insurance is required.

AE — Floodway zone*. Watercourse channel that generally must be kept free of encroachment. Development is subject to special regulations.

Moderate and Low Risk Areas

X — Zone that corresponds to areas between the limits of the 100-year and 500-year floods. No base flood elevations or depths have been determined. Flood insurance is available but not required.

X — Zone that corresponds to areas outside of the 500-year flood or areas protected from the 100-year flood by levees. Flood insurance is available but not required.

Limit of FEMA Study

Riverside County Flood Hazard Zone.

City of Menifee Corporate Boundary

Menifee General Plan Area Boundary

* See FEMA FLood Insurance Rate Maps and FEMA FLood Insurance Study for Riverside County for Base Flood Elevations.

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Scale (Mile)

Source: Earth Consultants International 2010

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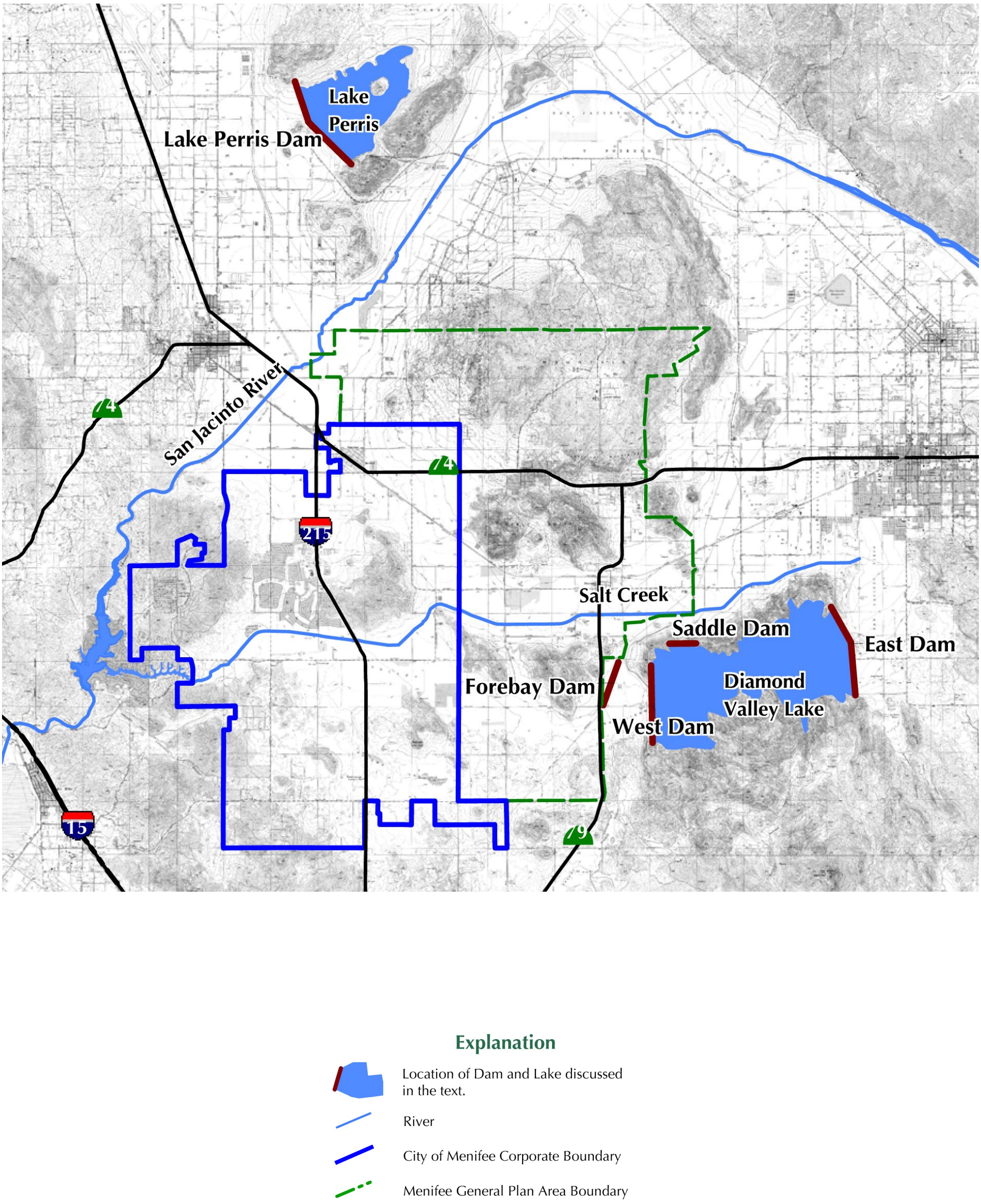
Dams with the Potential to Flood Menifee



Source: Earth Consultants International 2010

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HYD-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

HYD-5 Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

HYD-6 Otherwise substantially degrade water quality.

HYD-7 Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

HYD-8 Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

HYD-9 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.

HYD-10 Be subject to inundation by seiche, tsunami, or mudflow.

5.9.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

IMPACT 5.9-1: GENERAL PLAN BUILDOUT WOULD INCREASE SURFACE WATER FLOWS INTO DRAINAGE SYSTEMS WITHIN THE WATERSHED. [THRESHOLDS HYD-4 AND HYD-5]

Impact Analysis: Over half the land in Menifee consists of permeable surfaces: 38 percent of the land area is vacant, 6 percent is in agricultural use, and 4.5 percent is developed with parks or golf courses. Buildout of the proposed General Plan would increase impermeable areas in the City and thus could cause increased stormwater flows into storm drainage systems. The proposed General Plan would designate 2,537 acres either for conservation (OS-C, 1,664 acres); water (OS-W, 69 acres); or for land uses consisting of permeable surfaces, recreation (OS-R, 725 acres) and agriculture (AG, 79 acres). The remainder of the City—27,276 acres, or 91 percent of the City—would be designated for land uses in which some part of each lot would be developed with impermeable land uses.

The MS4 Permit for the part of the Santa Ana River Watershed in Riverside County, Order No. R8-2010-0033 issued by the Santa Ana RWQCB in 2010, requires that urban runoff from 85th-percentile storm events from specific types of development categories be infiltrated, filtered or treated; an 85th-percentile storm is roughly equivalent to a two-year storm. This requirement applies to the following types of projects:

- Significant redevelopment projects that result in the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site.

- New developments that create 10,000 square feet or more of impervious surface (collectively over the entire project site), including commercial and industrial projects and residential housing subdivisions requiring a Final Map. (i.e., detached single family home subdivisions, multi-family attached subdivisions, condominiums, apartments, etc.); mixed use and public projects (excluding Permittee road projects). This category includes development projects on public and private land, which fall under the planning and building authority of the Copermittees.

- Automotive repair shops.
- Restaurants where the land area of development is 5,000 square feet or more.
- Hillside developments disturbing 5,000 square feet or more that are on areas with known erosive soil conditions or where the natural slope is 25 percent or more.
- Developments of 2,500 square feet of impervious surface or more adjacent to (within 200 feet) or discharging directly into environmental sensitive areas.
- Parking lots of 5,000 square feet or more exposed to stormwater. Parking lot is defined as land area or facility for the temporary parking or storage of motor vehicles.
- Retail gasoline outlets that are either 5,000 square feet or more with a projected average daily traffic of 100 or more vehicles per day.
- All significant redevelopment projects: Significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Significant Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety.

The MS4 Permit also requires that each permittee, including the City of Menifee, revise its ordinances, codes, and building and landscape design standards to promote green infrastructure/low-impact development (LID) techniques including, but not limited to, the following:

- Landscaping designs that promote longer water retention and evapotranspiration such as one foot depth of compost/top soil in commercial and residential areas on top of one foot of noncompacted subsoil; concave landscape grading to allow runoff from impervious surfaces, and water conservation by selection of water efficient native plants, weather-based irrigation controllers, etc.
- Allow permeable surface designs in low traffic roads and parking lots. This may require land use/building code amendment.
- Allow natural drainage systems for street construction and catchments (with no drainage pipes) and allow vegetated ditches and swales where feasible.
- Require landscape in parking lots to provide treatment, retention, or infiltration.
- Reduce curb requirements where adequate drainage, conveyance, treatment, and storage are available.
- Amend land use/building codes to allow no curbs, curb cuts, and/or stop blocks in parking areas and residential streets with low traffic.
- Use of green roof, rain garden, and other green infrastructure in urban/suburban area.
- Allow rainwater harvesting and use.

- Narrow streets provide alternatives to minimum parking requirements, etc., to facilitate LID where acceptable to public safety departments.

- Consider vegetated landscape for stormwater treatment as an integral element of streets, parking lots, playground and buildings.

- Consider and facilitate application of landform grading techniques and revegetation as an alternative to traditional approaches, particularly in areas susceptible to erosion and sediment loss such as hillside development projects.

The City is also required under the MS4 Permit to incorporate watershed protection principles into its General Plan and other land use regulations, including the following:

- Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels; minimize significant adverse impacts from urban runoff on the biological integrity of natural drainage systems and water bodies;

- Minimize changes in hydrology and pollutant loading; ensure that postdevelopment runoff rates and velocities from a site do not adversely impact downstream erosion and stream habitat; minimize the quantity of urban runoff directed to impermeable surfaces and the MS4; and maximize the percentage of permeable surfaces to allow more percolation of urban runoff into the ground;

- Preserve wetlands, riparian corridors, and buffer zones that provide important water quality benefits; establish reasonable limits on the clearing of vegetation from the project site.

Development and redevelopment projects built pursuant to the proposed General Plan would comply with the MS4 Permit. No substantial impacts to storm drainage capacity would occur. The entire City of Menifee is within the jurisdiction of the Santa Ana Region RWQCB respecting discharges to municipal storm drains, pursuant to Order No. R8-2013-0024, and is regulated under Order No. R8-2010-0033.

Impacts would be the same for the Expanded EDC Scenario.

IMPACT 5.9-2: GENERAL PLAN BUILDOUT WOULD NOT SUBSTANTIALLY REDUCE GROUNDWATER RECHARGE. [THRESHOLD HYD-2]

Impact Analysis: The increase in impermeable surfaces that would occur in the City resulting from General Plan buildout is described above under Impact 5.9-1. Requirements for infiltration or other treatment of stormwater by new development projects are also described under Impact 5.9-1. There are no percolation basins or other areas in the City used for intentional recharge of groundwater basins (Daverin 2013). Thus, General Plan buildout would not interfere with intentional groundwater recharge. Impacts would be the same for the Expanded EDC Scenario.

IMPACT 5.9-3: PORTIONS OF THE PROPOSED DEVELOPMENT AREA ARE LOCATED WITHIN A 100-YEAR FLOOD HAZARD AREA. [THRESHOLDS HYD-7 AND HYD-8]

Impact Analysis: Two parts of the City of Menifee are in FEMA 100-year flood zones. One is an east–west band across the Perris Valley in the northern part of the City, and the second extends east–west along Salt Creek through the central part of the City and includes tributary areas both north and south of Salt Creek. Some drainages in the southern part of the City are also in Riverside County Flood Hazard Zones—in the Paloma Valley and in hills on the south flank of the Paloma Valley (see Figure 5.9-3, *Flood Zones*).

Future development within the 100-year flood plan must be reviewed by FEMA to determine whether or not the project meets the criteria of the National Flood Insurance Program and if revisions will be needed to the FEMA maps as a result of the project's construction. Projects developed pursuant to the General Plan would be required to reduce flood risks by doing one or more of the following:

- Grade project building pads above 100-year flood elevations. For areas in 100-year flood zones where detailed hydraulic analyses have not been performed, and thus flood elevations are not known, project-specific hydrologic studies shall determine flood elevations for 100-year floods. This requirement applies to the finish floors of buildings for human occupancy, as well as outdoor areas for use by substantial numbers of people, such as schoolyards and amphitheaters.

- Implement flood control improvements and obtain a Letter of Map Revision (LOMR) or Letter of Map Change (LOMC) from FEMA based on the flood control improvements. An LOMR or LOMC requires a hydrologic and hydraulic analysis and approval by FEMA.

All developments and redevelopments approved in accordance with the proposed General Plan would comply with provisions governing new construction, modifications of existing structures, and encroachments into special flood hazard areas. Therefore, impacts related to flood zones are considered less than significant and would not subject people or structures to substantial hazards from 100-year floods.

Impacts would be the same under the Expanded EDC Scenario.

IMPACT 5.9-4: ***DURING THE CONSTRUCTION OF DEVELOPMENT PROJECTS THERE IS THE POTENTIAL FOR SHORT-TERM UNQUANTIFIABLE INCREASES IN POLLUTANT CONCENTRATIONS. AFTER PROJECT DEVELOPMENT, THE QUALITY OF STORM RUNOFF MAY BE ALTERED. [THRESHOLDS HYD-1, HYD-3 AND HYD-6]***

Impact Analysis: Buildout of the Menifee in accordance with the General Plan would generate pollutants during the construction and operation of individual projects.

Construction Activities

Clearing, grading, excavation, and construction activities associated with the proposed project may impact water quality due to sheet erosion of exposed soils and subsequent deposition of particulates in local drainages. Grading activities, in particular, lead to exposed areas of loose soil sediment stockpiles, that are susceptible to uncontrolled sheet flow. Although erosion occurs naturally in the environment, primarily from weathering by water and wind action, improperly managed construction activities can lead to substantially accelerated rates of erosion that are detrimental to the environment. Construction projects can also generate other water pollutants, including trash and debris, oil and grease, heavy metals, nutrients, pesticides, oxygen-demanding substances,[3] and other organic compounds such as solvents.

NPDES regulations include BMPs for water quality protection by construction projects. Construction projects one acre or more in area must prepare and implement a SWPPP specifying BMPs that would be used by that project. Construction projects smaller than one acre must also implement BMPs; compliance with NPDES regulations concerning construction impacts on stormwater for projects smaller than one acre is administered by the City of Menifee Public Works and Engineering Department.

[3] Oxygen-demanding substances are biodegradable; decomposition of the substances by bacteria and other microorganisms consumes dissolved oxygen in water.

Categories of BMPs used by construction projects are described in Table 5.9-1. Erosion and siltation resulting from construction projects pursuant to the General Plan would be minimized by implementation of erosion control, sediment control, wind erosion control, tracking control, and waste management and control BMPs.

Table 5.9-1
Construction BMPs

Category	Purpose	Examples
Erosion Controls	Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind	Mulch, geotextiles, mats, hydroseeding, earth dikes, swales
Sediment Controls	Filter out soil particles that have been detached and transported in water.	Barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; cleaning measures such as street sweeping
Wind Erosion Controls	The aims and methods of wind erosion control are similar to those of erosion control described above.	See *Erosion Controls* above.
Tracking Controls	Minimize the tracking of soil offsite by vehicles	Stabilized construction roadways and construction entrances/exits; entrance/outlet tire wash.
NonStorm Water Management Controls	Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.	BMPs specifying methods for: paving and grinding operations; cleaning, fueling, and maintenance of vehicles and equipment; concrete curing; concrete finishing.
Waste Management and Controls (i.e., good housekeeping practices)	Management of materials and wastes to avoid contamination of stormwater.	Spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Source: CASQA 2003a.

New construction and development of land uses designated in the proposed General Plan would require projects to plan BMPs for four general phases of construction: (1) grading and land development (e.g., mass grade and rough grade), (2) utility and road installation, (3) vertical construction, and (4) final stabilization and landscaping. Therefore, BMP implementation for new construction can be evaluated in this general context. Site-specific details on individual BMPs would be dependent on the scope and breadth of each future project, which are not known at this time.

Long-Term Buildout Activities

Buildout of the City per the proposed General Plan may result in long-term impacts to the quality of stormwater and urban runoff, subsequently impacting downstream water quality. Land use changes can potentially create new sources of runoff contamination. As a consequence, future projects may have the potential to increase the postconstruction loading of certain constituent pollutants associated with the proposed land uses and their associated features, such as landscaping.

The pollutants of concern for water quality are those that are anticipated or potential based on past and proposed land uses, and with those that have been identified by regulatory agencies as potentially impairing

beneficial uses in receiving water bodies. Anticipated and potential pollutants generated by land use type are listed in Table 5.9-2.

Table 5.9-2
Typical Pollutants Generated by Land Use Type

Land Use Category	Pathogens	Heavy Metals	Nutrients	Pesticides	Organic Compounds	Sediments	Trash and Debris	Oxygen Demanding Substances	Oil and Grease
Detached Residential	X		X	X		X	X	X	X
Attached Residential	P		X	X		X	X	P	P
Commercial/ Industrial Development >100,000 sq. ft.	P		P	P	P	P	X	P	X
Automotive Repair Shops		X			X		X		X
Restaurants	X						X	X	X
Parking Lots		X	P	P		P	X	P	X
Streets, Highways, and Freeways		X	P		X	X	X	P	X

Source: CASQA 2003b
X = Anticipated
P = Potential

Most of the City is in the Salt Creek and Quail Valley watersheds tributary to Canyon Lake. Pollutants of concern for projects in the City of Menifee are those for which downstream water bodies are listed as impaired on the Section 303(d) List. Canyon Lake is listed as impaired for nutrients and pathogens. A TMDL for nutrients was issued in 2005, and a TMDL for pathogens is in preparation. Lake Elsinore is listed as impaired by nutrients; organic enrichment/low dissolved oxygen; PCBs; sediment toxicity; and unknown toxicity. TMDLs for nutrients and organic enrichment/low dissolved oxygen were approved in 2005, and TMDLs for PCBs, sediment toxicity, and unknown toxicity are in preparation (USEPA 2011).

The southeast corner of the City is in the Warm Springs Creek Watershed, part of the Santa Margarita River Watershed. Warm Springs Creek is listed on the Section 303(d) List for Chlorpyrifos, an organophosphate insecticide; Escherichia coli bacteria; fecal coliform bacteria; iron, manganese, and phosphorus; and total nitrogen. TMDLs for each contaminant are in preparation, with completion scheduled in 2021 (SWRCB 2013).

Thus, pollutants of concern for projects in the City of Menifee are nutrients, pathogens, organic enrichment/low dissolved oxygen, PCBs, and sediment toxicity. Additional pollutants of concern for projects in the Warm Springs Creek Watershed are Chlorpyrifos, Escherichia coli, fecal coliform bacteria, iron, manganese, phosphorus, and total nitrogen. Pollutants of concern for projects in Menifee may change as other pollutants are added or removed from the Section 303(d) List for receiving waters.

Pollutants from the postconstruction phases of projects include sediment, metals, nutrients, pesticides, and hydrocarbons. Projects approved under the proposed General Plan would be required to prepare water quality management plans (WQMPs) specifying BMPs to be used in project design and project operation to minimize pollution of stormwater.

BMPs used in the operation phase of projects are categorized as follows:

Site Design: Measures for reducing or eliminating runoff, such as maximizing permeable areas, use of porous pavements, and natural drainage systems such as vegetated swales; and measures for controlling sources of pollutants.

Structural Source Control: Measures to minimize pollution of stormwater by such means as paving trash storage areas and fueling areas with impervious surfaces, and surrounding such areas with berms or curbs, to block run-on.

Nonstructural Source Control: Intended to minimize stormwater pollution through such means as education of owners, tenants, and occupants; employee training; activity restrictions including prohibiting the discharging of fertilizers, pesticides, or waste to streets or storm drains; street sweeping; and a spill contingency plan.

Treatment Control: Remove pollutants from stormwater by filtration, media absorption, or other means.

Since the proposed General Plan does not include a specific development plan, project-specific WQMPs cannot be developed at this time. Future project-specific WQMPs would be prepared at the time of project application. Moreover, LID and water quality treatment solutions prescribed in project-specific WQMPs would be designed to support or enhance the regional BMPs and efforts implemented by the City. Surface water quality impacts would be less than significant.

Groundwater Impacts

Infiltration BMPs, such as pervious pavement and infiltration trenches, require a depth of 10 feet or greater to groundwater to minimize the impacts from stormwater pollutants. For sites with shallow groundwater, infiltration BMPs are not recommended unless designed with impermeable liners and subdrains. Based on these design requirements, no pollutants from project runoff are expected to reach groundwater, and groundwater quality impacts are expected to be less than significant.

Water quality impacts to stormwater and groundwater would be similar under the Expanded EDC Scenario.

IMPACT 5.9-5: PARTS OF THE CITY ARE WITHIN THE DAM INUNDATION AREA FOR DIAMOND VALLEY LAKE AND LAKE PERRIS. [THRESHOLD HYD-9]

Impact Analysis: Parts of the City of Menifee are within existing dam inundation areas for three dams at Diamond Valley Lake and for Lake Perris Dam. Buildout of the proposed General Plan would increase the numbers of residents, workers, and structures in parts of the City within the dam inundation areas.

Diamond Valley Lake

At capacity fill, the three dams that impound the reservoir were each designed to withstand an earthquake of 7.5 magnitude along the San Jacinto Fault or an earthquake of 8.0 magnitude along the San Andreas Fault

(Hill 2007). Additionally, the Metropolitan Water District of Southern California carries out continuous automated monitoring of the dams and their foundations for deformation due to the weight of the dams, water pressure, and the effects of wetting of dam materials (Duffy 2001). The design and construction of the dams for earthquake resistance, in combination with monitoring of the dams, reduce risks of dam failure due to earthquakes.

Lake Perris

In 2005, the DWR determined there were potential seismic safety concerns with the Lake Perris dam's foundation if a magnitude 7.5 or larger earthquake struck the area. As a result, the DWR has lowered the lake level temporarily by about 25 feet while the foundation is seismically strengthened. An FEIR for the Perris Dam Remediation Program was certified in November 2011. Completion of the repair work is expected by the end of 2015 (DWR 2012). Parts of the City of Menifee are within the current dam inundation area for Lake Perris; the dam inundation map for Lake Perris may require revision after completion of the repair work. The approved repair work will reduce risks of dam failure due to earthquakes.

Dam inundation impacts would be less than significant. Impacts would be the same for the Expanded EDC Scenario.

IMPACT 5.9-6: PARTS OF THE CITY COULD BE SUBJECT TO FLOODING DUE TO SEICHES OR MUDFLOWS. [THRESHOLD HYD-10]

Impact Analysis:

Buildout of the proposed General Plan would increase the numbers of residents, workers, and structures in parts of the City subject to flooding due to seiches or mudflows.

Seiches

Projects proposed under the proposed General Plan would be subject to independent CEQA review. CEQA review for projects sited near inland water bodies that could generate seiches, such as Canyon Lake or artificial lakes at Menifee Lakes Country Club in the east part of the City, would assess flood hazards from seiches and set forth feasible mitigation measures as required.

Mudflows

The Riverside County Hydrology Manual contains methods for estimating debris production resulting from storms. Future drainage improvements in the City, both County flood control facilities and storm drainage improvements in parts of the City that could be subject to mudflows, would be designed to carry bulked flows per methods specified in the Hydrology Manual. Impacts would be less than significant under the proposed General Plan and the Expanded EDC Scenario.

5.9.4 Existing Regulations and Standard Conditions

Federal

- Clean Water Act (United States Code, Title 33, Sections 1251 et seq.)
- National Pollution Discharge Elimination System regulations (Code of Federal Regulations Title 40 Parts 122 et seq.)
- National Flood Insurance Program (Federal Emergency Management Agency)

State

- Porter-Cologne Water Quality Act (Water Code sections 13000 et seq.)
- Water Quality Control Plan, Santa Ana River Basin
- MS4 Permit (Order No. R8-2010-0033), Santa Ana Regional Water Quality Control Board, as amended by Order No. R8-2013-0024.
- Statewide General Construction Activity permit (Order No. 2009-DWQ-0009), State Water Resources Control Board

Relevant General Plan Policies

Relevant Menifee General Plan policies are in the Open Space and Conservation Element and the Safety Element and are listed in Appendix C of this EIR.

5.9.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.9-1, 5.9-2, 5.9-3, 5.9-4, 5.9-5, 5.9-6, and 5.9-7. These significance conclusions would also apply to the Expanded EDC Scenario.

5.9.6 Mitigation Measures

No mitigation measures are required.

5.9.7 Level of Significance After Mitigation

Impacts would be less than significant under the proposed General Plan and the Expanded EDC Scenario.

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