5.8 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 Torrance from implementation of the proposed general plan Update. 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 water is water on the surface of the land and includes lakes, rivers, streams, and creeks. Groundwater is water below the surface of the earth.

- *Technical Background Report to the Safety Element of the General Plan for the City of Torrance, Los Angeles County, California*, Earth Consultants International, August 2005

A complete copy of this study is included in the Technical Appendices to this Draft EIR (Volume II, Appendix G)

The complete report is available at the City. Current website information and pertinent documents from the City of Torrance and other appropriate agencies were also used in preparation of this section, as listed in Chapter 13 of this document. These agencies include:

- Southern California Association of Governments (SCAG)
- South Bay Cities Council of Governments (SBCCOG)
- U.S. Environmental Protection Agency (EPA)
- Los Angeles Regional Water Quality Control Board (LARWQCB)
- Torrance Municipal Water District (TMWD)
- Los Angeles County Department of Public Works Water Resources Division

5.8.1 Environmental Setting

Regulatory Framework

Federal Regulations

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA) provides regulations on drinking water quality. The SDWA gives the 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, radionuclide (e.g., uranium and radon), and microbial contaminants (e.g., coliform and E. 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 funds the construction of sewage treatment plants and recognizes 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 United States.

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 United States 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 (POTW), discharges from industrial facilities, and discharges associated with urban runoff. While 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, whereas 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, 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 2004).

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 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, human-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 [BMP], 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 Torrance Public Works Department and the Community Development Department are both responsible for issuing and enforcing MS4 NPDES permits.

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 mandate the Federal Emergency Management Agency (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 (FIS). The most recent FIS and FIRM was completed and published for Torrance in 1997. Using information gathered in these studies, FEMA engineers and cartographers delineate special flood hazard areas (SFHA) on FIRMs.

The Flood Disaster Protection Act 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, a system for crediting communities that implement measures to protect the natural and beneficial functions of their floodplains, as well as manage erosion hazards.

The City of Torrance, under NFIP, has created standards and policies to ensure flood protection. These policies address development and redevelopment, compatibility of uses, required predevelopment drainage studies, compliance with discharge permits, enhancement of existing waterways, cooperation with the U.S. Army Corps of Engineers (Corps) and the SBCFCD for updating, and method consistency with the RWQCB and proposed BMPs.

State Regulations

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 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 Torrance is in the LARWQCB which has a water quality control plan (1994) that is reviewed every three years. This water quality control plan gives direction on the beneficial uses of the state waters within Region 4, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve its established standards.

The RWQCBs implement the permit provisions of Section 402 and certain planning provisions of the federal CWA. This means that the state issues one discharge permit for purposes of both state and federal law. Under state law the permit is officially called a waste discharge requirement and under federal law the permit is officially called an NPDES permit.

Local Regulations

Storm Water Pollution Prevention Plans

Pursuant to the CWA, in 2001, 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 stormwater from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or 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 "nonvisible" 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.

City of Torrance Urban Water Management Plan

The California Urban Water Management Planning Act of 1983 requires urban water suppliers to develop an urban water management plan (UWMP) in the years ending in zero and five. The 2005 Torrance UWMP contains information regarding the TMWD service area, water system facilities, water sources and supplies, water quality information, water reliability planning, water use provisions, water demand management measures, water shortage contingency plan, and water recycling. The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in the regional water supply trends and conservation and water use efficiency policies. This UWMP, along with TMWD's water master plan and other City planning documents, will be used by City staff to guide the water use and management efforts of TMWD through the year 2010, when the UWMP is required to be updated.

Existing Conditions

Regional Drainage

The city of Torrance lies at the western edge of the greater floodplain of the Los Angeles and San Gabriel Rivers. Prior to human's intervention in historical times, these rivers collected runoff from the surrounding mountains, spreading stormwater and sediment loads across the basin. The natural rivers were rarely confined to a distinct channel and often radically changed their courses, building up in this manner the present basin floor and creating the underlying aquifers. In the northeastern part of Torrance, the flood plain was slightly elevated and had been gently incised by Dominguez Creek and its associated tributaries, ponds, and wetlands. In the central and western parts of the city, rainwater collected in shallow depressions within the dunes of the El Segundo Sand Hills. The southeastern part of the City was drained by shallow streams that meandered toward the Bixby Slough, a remnant of which is now called Machado Lake. Runoff from streams in the Palos Verdes Hills collected in depressions at the base of the hills or joined the Bixby Slough drainage system, eventually reaching San Pedro Bay. Along the western coastal margin, small channels conveyed runoff to the ocean.

The natural drainage patterns of the City, like the rest of the Los Angeles Basin, were changed with the urbanization of the landscape and channelization of creeks and rivers to form retention basins, storm drains, and flood control channels. The Dominguez Creek and the Torrance Lateral, the main channels in Torrance, were channelized in the late 1920s. The Dominguez Channel, which is maintained by the County of Los Angeles Flood Control District, collects storm runoff from sections of the cities of Hawthorne, Gardena, Lawndale, and Redondo Beach. The channel flows southerly, emptying into the Los Angeles Harbor area.

Local Surface Waters and Drainage

Most of Torrance is in the Dominguez Watershed, which covers 133 square miles in the southwestern portion of Los Angeles County, as shown on Figure 5.8-1, *Watersheds*. The primary waterway draining the Dominquez Watershed is the Dominguez Channel, which extends 15 miles in a southeasterly direction from its origin in the City of Hawthorne until it discharges into Los Angeles Harbor. The remainder of the City, near the City's western boundary, is in the Lower Santa Monica Bay Watershed, where local runoff is directed to detention or retention basins scattered throughout the area. Many of these basins occupy what were natural depressions between sand dunes. In the southeastern part of the city, the Wilmington Drain discharges runoff to Machado Lake. In the south-central part of the City, runoff is directed via storm drains to the Walteria Retention Basin, where it is dissipated by infiltration and evaporation.

Watershed Master Plans

Both watersheds have watershed master plans that provide comprehensive information about the watershed and to help improve the natural environment and beneficial uses of the watershed by involving stakeholders in decision making, providing restoration and conservation plans, recharging water supply, and promoting public awareness and involvement in watershed management. The Dominguez Watershed Master Plan was last updated in 2004 (Los Angeles County Department of Public Works 2004).

Groundwater

Almost the entire City of Torrance lies over the West Coast Groundwater (WCG) Basin that spans much of the southwestern Los Angeles Basin (see Figure 5.8-2, *West Coast Groundwater Basin*). Groundwater levels throughout most of the WCG Basin are below sea level and generally flow in a southeasterly direction.

TMWD only obtains about 12 percent of its total water from groundwater supplies. Roughly 65 percent of this groundwater comes from a desalter because of high levels of salinity in local groundwater supplies. The West Coast Groundwater Basin is the source of groundwater for the TMWD, with four aquifers in the vicinity of Torrance. These are the Gage, Gardena, Lynwood, and Silverado aquifers. TMWD also has one active well (Well #6) and one inactive, or standby, well (Well #7) to pump groundwater from the West Coast Basin. TMWD is planning to deactivate Well #6 and is in the process of completing new Well #9 as a replacement facility for Well #6. The new Well #9 is projected to increase TMWD's groundwater production at this site from 1,200 acre feet to approximately 2,500 acre feet per year. The development of additional groundwater wells are in the planning stage and it is anticipated that TMWD will fully utilize its groundwater rights, ultimately deriving 30 percent of its potable water demands from local groundwater supplies.

Groundwater Quality

Both the West Basin Municipal Water District (WBMWD) and the Water Replenishment District of Southern California (WRD) actively monitor the basin for water quality issues. WBMWD assists water purveyors in its service area in meeting drinking water standards through its Cooperative Basin-Wide Title 22 Groundwater Quality Program. The program includes wellhead testing, reservoir sample collecting, water quality testing, and reporting services. WRD conducts a comprehensive groundwater quality program to evaluate water quality compliance in production wells, monitoring wells, and recharge/injection areas. WBMWD currently coordinates groundwater quality compliance monitoring of wells for TMWD. TMWD collects water quality samples in the distribution system.

Two reports are the main sources of groundwater quality information: the Engineering and Survey Report and the Regional Groundwater Monitoring Report (City of Torrance 2005). The groundwater supply is monitored for levels of total dissolved solids (TDS), iron and manganese, nitrates, hardness, sulfate, chloride,

trichloroethylene (TCE), tetrachloroethylene (PCE), and a number of other special interest contaminants. The main contaminants of concern are TDS, manganese, organic carbon, arsenic, and chloride.

In 2004, TDS levels reached 640 mg/L in the basin and 366 to 520 mg/L at Well #6. The upper limit for TDS is 1,000 mg/L. Manganese concentrations typically exceed the MCL in many monitoring wells. Concentrations range from nondetectable to 670 μg/L. Chloride was detected in the basin wells at and between concentrations of 12 to 6,300 mg/L. Chloride concentrations exceeded the MCL in the Silverado aquifer zones in 5 of 15 basin wells, primarily due to seawater intrusion. Three monitoring wells had arsenic concentrations between 10 and 50 μg/L and one monitoring well had an arsenic concentration of 68 μg/L. The MCL for arsenic domestic water supplies is 10 μg/L. Seven of the fifteen production wells tested greater then 5 mg/L for total organic carbon. There is no MCL for total organic carbon.

Flood Hazards

Designated Flood Zones

Torrance, like most of southern California, is subject to unpredictable seasonal rainfall. Most years, winter rains are scant. However, every few years the region is subjected to periods of intense and sustained precipitation that results in flooding. Floods are natural and recurring events that become hazardous when humans encroach onto floodplains, modifying the landscape, increasing the amount of impervious surfaces, and building structures in areas meant to convey excess water during floods.

Only a few, small, isolated areas within the City have been mapped as SFHAs, and these result primarily from ponding of water in shallow depressions or sumps, and not from channel flooding. Several of the SFHAs occupy low points that were once natural closed depressions in the El Segundo Sand Hills. Areas in the City that are within 100-year flood zones, as designated by FEMA, are shown in Figure 5.8-3, *100-Year Flood Hazard Areas*. For example, the Madrona Marsh Nature Preserve, the largest SFHA in the city, occupies what was once a large, natural depression. Other SFHAs appear to be human-made depressions or sumps.

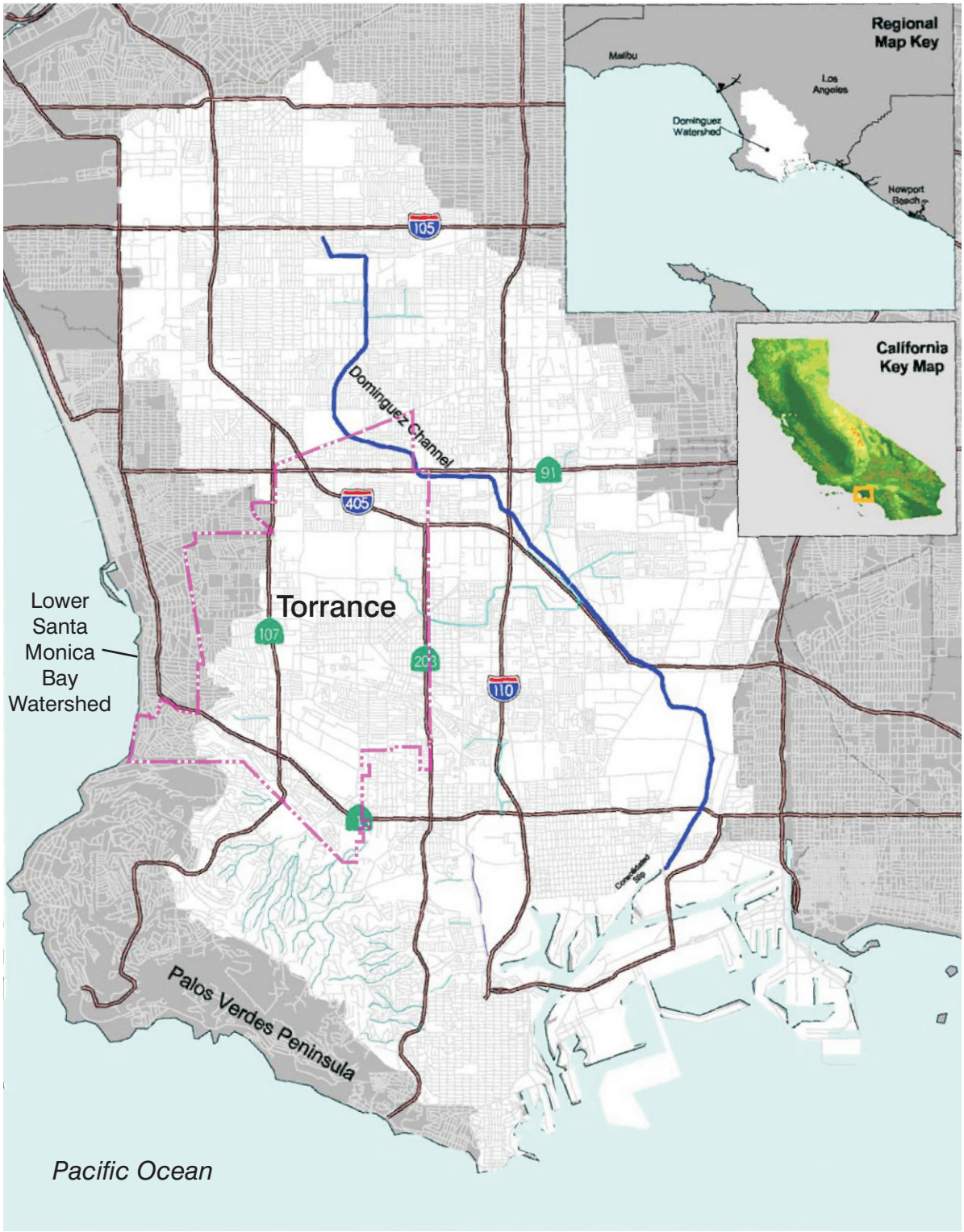
Seismically Induced Dam Inundation

Seismically induced inundation refers to flooding that results when water retention structures, such as dams and water tanks, fail due to an earthquake. There are no dam-impounded open reservoirs within or above the city of Torrance; however, seismically induced inundation can also occur if strong ground shaking causes structural damage to water tanks and enclosed water reservoirs.

Inundation from Aboveground Water Storage Reservoirs

There is currently one active aboveground water storage tank in Torrance, at the north end of the City. The Yukon tank is of steel construction, has a storage capacity of one million gallons, and is associated with the groundwater well currently servicing the City. There is only one other aboveground water storage tank in the City that are not being used (ECI 2005).

Watersheds



Source: MEC Analytical Systems Inc. 2004

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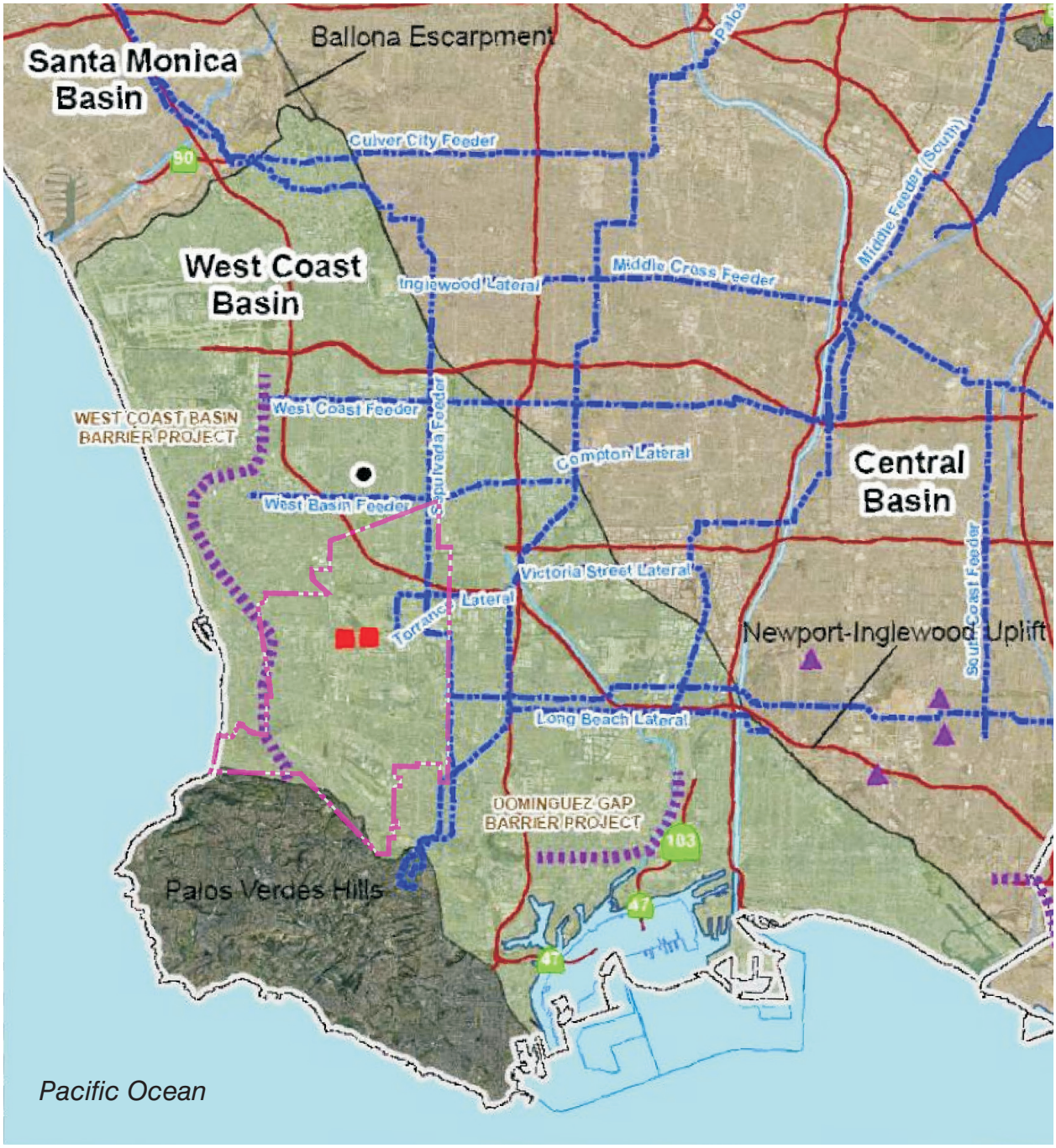
West Coast Groundwater Basin



Torrance City Limits

0 3.3
Scale (Mile)

Source: MWDSC 2007

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100-Year Flood Hazard Areas

Source: ECI 2005

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In addition to the Yukon tank, there are two enclosed water reservoirs in Torrance. These reservoirs, referred to as the Walteria and Ben Haggot reservoirs (the Ben Haggot reservoir is also referred to in the state database as the 18M Walteria, or Walteria Dam 2), are in the southern part of the City, on the north flank of the Palos Verdes Hills, and south of the Palos Verdes fault zone. Because of their size, these reservoirs are considered dams and are therefore under the purview of the California Division of Dam Safety. Statutes governing dam safety are defined in Division 3 of the California State Water Code (California Department of Water Resources, 1986). These statutes empower the California Division of Dam Safety to monitor the structural safety of dams that are greater than 25 feet in dam height or have more than 50 acre-feet in storage capacity. The Walteria Reservoir (California State Dam Number 1049-000) was constructed in 1952, has a storage capacity of 10 million gallons (approximately 31 acre-feet), and is a buried steel-reinforced concrete facility with a depth capacity of 29 feet. The roof of the structure houses 8 tennis courts and associated facilities.

Ben Haggot Reservoir (State Dam Number 1049-002) was constructed in 1987, has a storage capacity of 18.7 million gallons (approximately 58 acre-feet), and is also a buried steel-reinforced concrete facility. Both reservoirs are joined by pipes, and can be operated either together or separately. There is a 24-inch inlet-outlet pipe that is part of this municipal water storage, pressure regulation, and distribution system.

It is unclear whether the Yukon tank or the two reservoirs are fitted with flexible joints and pipe connections that could withstand strong earthquake shaking. The two buried reservoirs in the southern portion of Torrance are south of the Palos Verdes Hills; therefore, rupture of the Palos Verdes Fault could shear the main water lines leading to the reservoir and could result in water outages to the high elevation area served by the reservoir. However, by operating appropriate system valving water service could be provided to most of the service area providing major water supply sources remained intact. Rupture of the water mains in this area could also result in the flooding of the area immediately surrounding and downgrade of the failed pipes, since the reservoirs drain by gravity. According to the City's Natural Hazards Mitigation Plan (2004), if these reservoirs fail catastrophically as a result of a breach of an entire side of the reservoir, they could empty in as little as 18 minutes under a "worst-case scenario". This would allow little time to evacuate the areas immediately downgrade from the reservoirs, with the potential for significant loss of life and damage to property. With earthquake sustained damage a more likely scenario would be leakage from the reservoir, as a result of cracks in the reservoir, rather than a complete collapse of a reservoir side.

The inundation pathway for these reservoirs has been mapped, as required by the California Division of Dam Safety, and is shown on Figure 5.8-4, *Walteria Dams Inundation Area*. Inundation from these reservoirs, with an estimated maximum discharge of 7,300 cubic feet per second (cfs), would impact an area of roughly 215 acres near Crenshaw Boulevard and Pacific Coast Highway, including both residential and commercial development, and would spill onto the southeastern edge of the Torrance Airport.

Tsunamis

A tsunami is a high ocean wave generated by a submarine earthquake or volcanic eruption. McCarthy et al. (1993) reviewed the historical tsunami record for California and suggested that the tsunami hazard in the southern California region from the Palos Verdes Peninsula south to San Diego is moderate. There are several active faults immediately offshore of the southern California area, and any of these could generate a future earthquake that could have a tsunami associated with it. The continental shelf in the Santa Monica Bay, immediately offshore of Torrance, although not as steep as on the south side of the Palos Verdes Peninsula, has sufficient relief to generate submarine landslides. Therefore, a landslide-induced tsunami directly offshore of Torrance is plausible. Since structures along the coastline in the Torrance Beach area are on top of the sea-cliff, approximately 100 feet above the beach, a teletsunami (distantly generated tsunami) is not expected to cause damage to these structures.

5.8.2 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.

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.

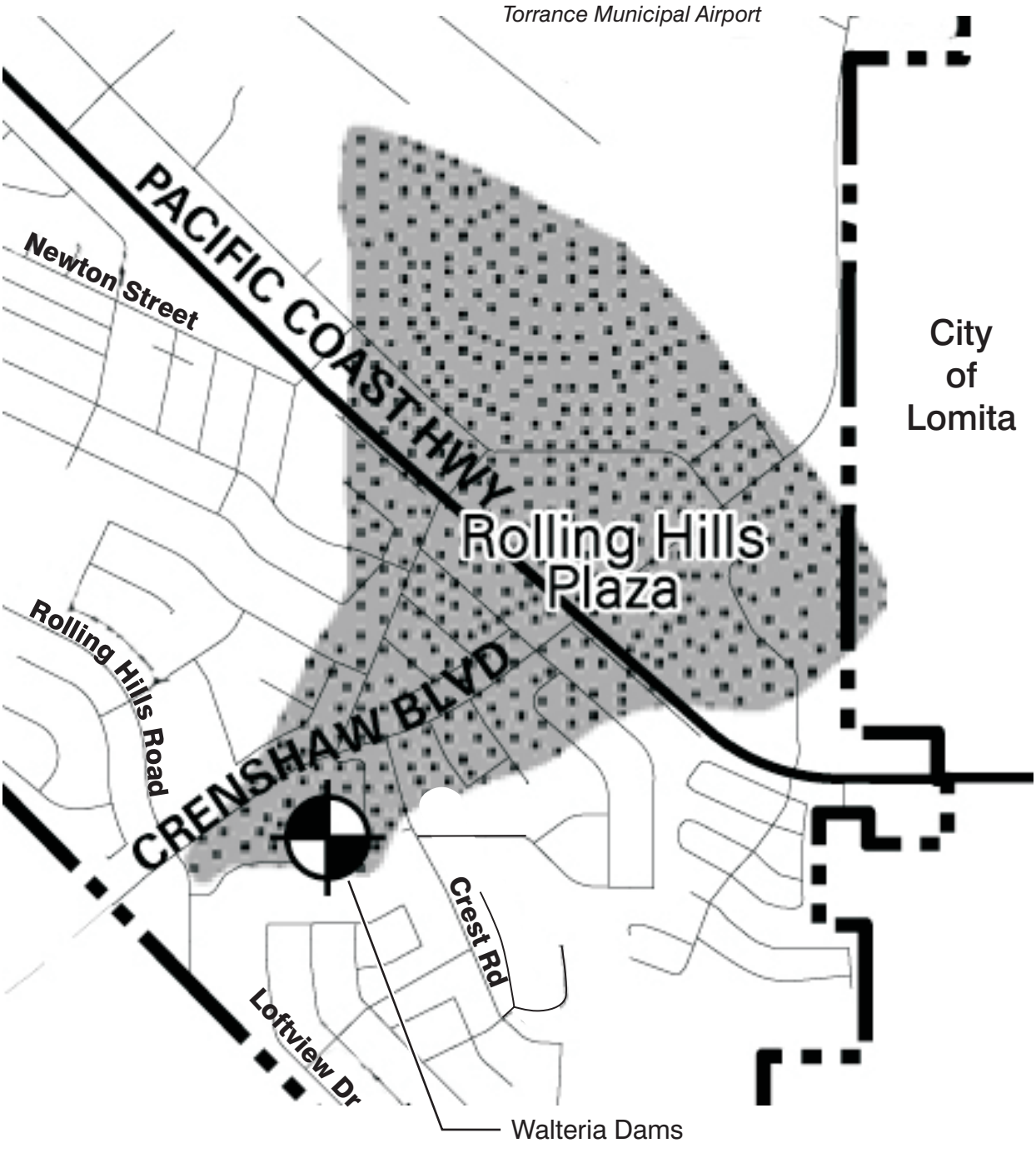
HYD-10 Be subject to inundation by seiche, tsunami, or mudflow.

The initial study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold HYD-10 regarding seiches and mudflows.

This impact will not be addressed in the following analysis.

Walteria Dams Inundation Area



Source: Torrance General Plan 2005

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5.8.3 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 5.8-1: DEVELOPMENT PURSUANT TO THE PROPOSED GENERAL PLAN UPDATE WOULD INCREASE THE AMOUNT OF IMPERVIOUS SURFACES IN THE CITY AND WOULD THEREFORE INCREASE SURFACE WATER FLOWS INTO DRAINAGE SYSTEMS WITHIN THE DOMINGUEZ AND LOWER SANTA MONICA BAY WATERSHEDS. [THRESHOLDS HYD-4 AND HYD-5]

Impact Analysis: Buildout of the proposed Torrance General Plan update would increase residential development in the City by 4,388 units and nonresidential development by about 2,337,000 square feet of building area over existing land use conditions. This would increase the amount of impervious surface in the City, thereby increasing the amount of surface water flows into drainage systems in the Dominguez and Lower Santa Monica Bay Watersheds. The amount by which impervious surfaces would increase is not known, as specific projects to be developed have not yet been determined. A certain square footage of development would also be in the form of redevelopment of areas that currently or recently had impervious surfaces. The net change in impervious surface is not known; however, the overall change in impervious surfaces in the City of Torrance is not expected to change substantially because of the built-out condition of the City. There would be little overall change to the layout and amount of growth in the City and the flow of surface water would not increase significantly.

The Los Angeles County Department of Public Works provides for the planning, development, operation, and maintenance of flood control facilities on a County-wide basis. The City is responsible for providing drainage from developments in the City and ensuring that storm drains properly feed into the ocean, sumps, or regional system.

Upgrades to existing public storm drains or on-site detention of stormwater may be necessary as undeveloped parcels are converted to urban uses, particularly in areas where flood-related problems occur. The payment of development impact fees (DIF) by developers will also help to fund storm drain enhancement projects that would help resolve system deficiencies. The Department of Public Works of the City of Torrance maintains a master plan of drainage, last updated in 1997, that identifies system deficiencies. The City does not maintain a storm drain capital improvements program but has identified priority improvements:

- Vista Montana storm drain replacement from Via Tortugas to Via Mesa
- Yukon Pump Station rehabilitation
- Maple Avenue/235th Street storm drain: rehabilitate existing corrugated metal pipes from Sepulveda Boulevard to Benner Avenue
- Alley south of 182nd Street: install new storm drain from Hawthorne Boulevard to Regina Avenue
- Redondo Beach service road east of Crenshaw Boulevard: install new storm drain

Three stormwater retention basins (referred to locally as sumps) and fourteen detention basins throughout Torrance serve the primary purpose of controlling stormwater runoff and preventing localized ponding and flooding.

Through the payment of DIFs and the continued improvements of existing drainage facilities, the stormwater and runoff system would continue to adequately serve the City of Torrance. Impacts on stormwater management and runoff capacity would be less than significant.

IMPACT 5.8-2: DEVELOPMENT PURSUANT TO THE PROPOSED GENERAL PLAN UPDATE INCREASES THE AMOUNT OF IMPERVIOUS SURFACES ON THE SITE AND WOULD THEREFORE IMPACT OPPORTUNITIES FOR GROUNDWATER RECHARGE. [THRESHOLD HYD-2]

Impact Analysis: The WCG Basin is generally confined in the Torrance area and does not receive much groundwater recharge from the surface. It receives more water from surrounding groundwater basins and from the Pacific Ocean (in the form of seawater intrusion) (City of Torrance 2005). The buildout of the Torrance General Plan update would include up to 4,388 additional dwelling units and nonresidential development including up to roughly 2,337,000 square feet of building area, thereby decreasing the amount of pervious surfaces and groundwater replenishment from surface waters via precipitation and drainage.

Groundwater replenishment for the WCG Basin is managed by the WRD. WRD's annual Engineering Survey and Report discusses groundwater levels in the WCG Basin and is used to help guide groundwater management for the WCG Basin. Since groundwater percolation in the WCG Basin area is insufficient to replace groundwater withdrawn, WRD must depend on artificial recharge programs to replace the annual overdraft. It employs various methods to recharge the WCG Basin, including injection of treated water purchased from the State Water Project, in-lieu replenishment by reducing the amount pumped from the basin, infiltration through surface spreading at the Montebello Forebay Spreading Grounds adjacent to the Rio Hondo and the San Gabriel River, and the flow of groundwater from the Central Groundwater Basin to the WCG Basin.

Through the City's Stormwater Basin Enhancement Program, the City is improving stormwater basins in west Torrance to provide natural treatment systems and improve groundwater recharge. This project will address bacteria and trash in streams tributary to the Santa Monica Bay via the Amie, Henrietta, and Entradero Detention Basins and provide the community with more opportunities for sports fields and walking trails. This project is still in the preliminary design phase, but the City has dedicated up to $1 million in funds to study and design the basin improvements (Torrance 2008b).

IMPACT 5.8-3: PORTIONS OF THE CITY PROPOSED FOR DEVELOPMENT ARE IN A 100-YEAR FLOOD HAZARD AREA. [THRESHOLDS HYD-7 AND HYD-8]

Impact Analysis: Five relatively small areas of the City are in zones of 100-year flood hazard to depths of one foot or greater (ECI 2005) (see Figure 5.8-3, *100-Year Flood Hazard Areas*). Existing land uses and proposed general plan land use designations for each of these areas are listed in Table 5.8-1.

Table 5.8-1
Areas of 100-Year Flood Hazard in the City of Torrance

Symbol on Figure 5.8-1	Location	Existing Land Uses	Proposed Land Use Designations
A	Southeast of intersection of Del Amo Boulevard with Anza Avenue	Multifamily Residential	R-LM (Low-Medium Density Residential, 9.1–18 dwelling units/acre)
B	Near southwest corner of Carson Street at Madrona Avenue	Del Amo Retention/Detention Basin	C-CTR (Commercial Center)
C	North of Sepulveda Boulevard between Madrona Avenue and Maple Avenue	Madrona Marsh and Preserve	PUB (Public/Quasi-Public/Open Space)
D	Torrance County Beach, from southwest corner of City north to about Via Riviera	Beach without developed land uses	Los Angeles County property, not subject to land use regulation by City of Torrance
E	Near the southern City boundary, south of Via Valmonte and west of Hawthorne Boulevard	Vacant	R-LO (Low-Density Residential, 0–9 dwelling units/acre)

Of the five areas listed in Table 5.8-1, two of them (A and C) currently have similar uses to those in the proposed general plan update. The Del Amo Retention/Detention Basin (B) would be designated C-CTR (Commercial Center); however, the Del Amo Basin is an important flood control feature in the City, and thus removal of the basin for development is very unlikely. Torrance County Beach (D) is Los Angeles County property and is not subject to land use regulation by the City. Area E would be designated R-LO (Low-Density Residential, 0–9 dwelling units/acre); any development of Area E would be required to comply with National Flood Insurance Program regulations. Implementation of the proposed general plan update is not expected to result in substantial flood hazards arising from heavy storm events.

IMPACT 5.8-4: ***DURING IMPLEMENTATION OF THE GENERAL PLAN UPDATE, THERE IS THE POTENTIAL FOR SHORT-TERM UNQUANTIFIABLE INCREASES IN POLLUTANT CONCENTRATIONS. AFTER IMPLEMENTATION, THE QUALITY OF STORM RUNOFF (SEDIMENT, NUTRIENTS, METALS, PESTICIDES, PATHOGENS, AND HYDROCARBONS) MAY BE ALTERED. [THRESHOLDS HYD-1 AND HYD-6]***

Impact Analysis:

Projects considered for approval under the Torrance General Plan update would be mandated to comply with BMPs for compliance with NPDES requirements. Additionally, as outlined in the Dominguez Watershed Master Water Plan, stormwater discharge permits are required for all discharging operations. These permits include the Los Angeles County Municipal Permit, industrial permits, and general construction stormwater permits. Construction site stormwater management is governed by the SWQCB under Water Quality Order 99-08-DWQ / NPDES General Permit No. CAS000002. These regulations prohibit discharges of stormwater to waters of the United States from construction projects that encompass one or more acres of soil disturbance unless the discharge is in compliance with an NPDES permit. The California General Permit (enforced by the nine regional boards) requires all dischargers where construction activity disturbs one acre or more to:

- Develop and implement a SWPPP that specifies BMPs that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters

- Eliminate or reduce nonstorm water discharges to storm sewer systems and other waters of the nation

- Perform inspections of all BMPs.

The postconstruction phase of developments considered for approval under the Torrance General Plan update would be required to comply with Los Angeles RWQCB Order Number 01-182 regulating municipal stormwater and urban runoff discharges in Los Angeles County and incorporated cities in the county, except for Long Beach. Certain projects would be required to prepare and comply with a water quality management plan that would specify BMPs for minimizing pollution of stormwater from postconstruction phases of those projects. Such BMPs would include:

- **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 grading such areas 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; and a spill contingency plan.

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

Buildout of the proposed general plan update is not expected to have substantial adverse effects on water quality.

IMPACT 5.8-5: PORTIONS OF THE CITY ARE WITHIN THE INUNDATION AREA OF THE WALTERIA RESERVOIRS. [THRESHOLD HYD-9]

Impact Analysis: An area of roughly 215 acres in the southeastern part of the City is within the dam inundation areas of the Walteria and Ben Haggot Reservoirs. The area extends from the reservoirs near Crenshaw Boulevard and the southern City boundary northward and northeastward, covering part of the Torrance Municipal Airport and reaching the eastern City boundary, as shown in Figure 5.8-4, *Walteria Dams Inundation Area*. Existing land uses in the inundation area include residential, commercial, and airport uses. Proposed general plan land use designations in the inundation area include residential, general commercial, and airport uses. The inundation area is built out; therefore, any development in the area that would be approved under the proposed general plan would replace existing development. As proposed land use designations in the inundation area are similar to the types of existing development, developments that would be approved pursuant to the proposed general plan would not be expected to substantially increase the numbers of persons or structures that could be exposed to flood hazards in the inundation area.

IMPACT 5.8-6: IMPLEMENTATION OF THE PROPOSED GENERAL PLAN UPDATE WOULD NOT RESULT IN SUBSTANTIAL HAZARDS ARISING FROM SEICHE, TSUNAMI, OR MUDFLOW. [THRESHOLD HYD-10]

Impact Analysis: Hazards arising from seiches in open bodies of water and from mudflows were concluded to be less than significant in the Initial Study for the proposed project (see Appendix A). Seismically induced dam failure that could result from seiches in reservoirs is addressed above in Impact 5.8-5.

There are a number of faults offshore from Torrance that could potentially generate tsunamis due to earthquakes. These faults include the Palos Verdes fault zone that trends northwest, crossing the coast near the southwest City boundary and extending into the ocean; the San Pedro Basin fault zone roughly 12 miles offshore; and the Santa Cruz–Santa Catalina Ridge fault zone, about 33 miles offshore. Along most of the western edge of the City at Torrance Beach, a bluff rises steeply above the beach to a height of between 100 and 150 feet. The area on that part of the western City boundary below that elevation consists of a beach and a bluff that do not contain developed land uses. A tsunami striking that part of the City would not create hazards to life or property. North of Paseo de Suenos the rise in elevation with increasing distance inland becomes more gradual. The 100-foot contour line crosses the Torrance city boundary near Palos Verdes Boulevard about 0.3 mile inland from the Pacific Ocean. This part of the City at elevations below 100 feet consists of Torrance County Beach that is developed with a parking lot and concession and restroom facilities; and residential and some commercial development. This area of the City is built out, and there is no vacant land except for a bluff just above the beach that would be designated PUB (Public/Quasi-Public/Open Space), and would not be developed with other land uses. The remainder of this area of the City would be designated R-MD (medium density residential, 18.1–31 dwelling units per acre). Any development that would be approved in this area of the City pursuant to the proposed general plan update would replace existing development, and so would not be expected to substantially increase the numbers of persons or structures that would be subject to inundation hazard from tsunamis.

5.8.4 Relevant General Plan Update Policies

Community Resources Element

- Promote continued research and programs by the Metropolitan Water District, the Water Replenishment District, the West Basin Municipal Water District, and county and state agencies regarding water recycling and desalination of groundwater for domestic use. (Policy CR.15.2)

- Enforce regulations aimed at reducing groundwater and urban runoff pollution, including the National Pollutant Discharge Elimination System (NPDES) requirements of the Regional Water Quality Control Board. (Policy CR.15.5)

- Support the dual use of drainage detention and retention basins for open space, recreation, and/or wildlife habitat opportunities, and increased groundwater recharge as long as the secondary use does not conflict or interfere with the operation and maintenance of the primary function of flood control and drainage. (Policy CR.16.2)

Safety Element

- Provide and maintain adequate flood control facilities, and limit development within flood-prone areas. (Policy S.1.5)

5.8.5 Existing Regulations and Standard Conditions

Federal

- Clean Water Act: National Pollution Discharge Elimination System permits
- National Flood Insurance Program

State

- Porter-Cologne Water Quality Act

City of Torrance

- Development Impact Fees

5.8.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.8-1, 5.8-2, 5.8-3, 5.8-4, 5.8-5, and 5.8-6.

5.8.7 Mitigation Measures

No significant impacts have been identified and no mitigation measures are required.

5.8.8 Level of Significance After Mitigation

No significant impacts have been identified.