

4.7 HYDROLOGY AND WATER QUALITY

4.7.1 Introduction

This section evaluates the impacts of the proposed General Plan Update associated with hydrology and water quality within the City of Newport Beach. Existing data sources used to prepare this section were taken from California Department of Water Resources (DWR), California's Groundwater—Bulletin 118, 2004, City of Corona, Technical Background Report 2003, Irvine Ranch Water District (IRWD), Annual Water Quality Report, 2005, City of Newport Beach, Draft Local Coastal Program, Coastal Land Use Plan 2005, City of Newport Beach, Draft Local Coastal Program, Hazards Assessment Study, July 2003, City of Newport Beach, Draft Local Coastal Program, Storm Drain Master Plan, July 2000, City of Newport Beach, Draft Local Coastal Program, *Technical Background Report*, June 2004, Orange County Health Care Agency Environmental Health (HCA), 2002 Annual Ocean and Bay Water Quality Report, June 2003, Orange County Water District (OCWD), Groundwater Replenishment System: <http://www.gwrsystem.com>. Accessed February 28, 2006, OCWD, Groundwater Management Plan. March, 2004, Orange County Watershed & Coastal Resources Division (OCWCRD), Newport Bay Watershed, http://www.ocwatersheds.com/watersheds/newportbay_intro.asp, accessed December 16, 2005, Orange County Watershed & Coastal Resources Division (OCWCRD), Newport Coast Watershed, <http://www.ocwatersheds.com/watersheds/newportcoast.asp>, accessed December 16, 2005, Orange County Watershed & Coastal Resources Division (OCWCRD), Regional Board Boundaries, http://www.ocwatersheds.com/watersheds/intro_regional_jurisdictions.asp, accessed December 22, 2005, Orange County Watershed & Coastal Resources Division (OCWCRD), San Diego Creek Watershed, <http://www.ocwatersheds.com/watersheds/sandiegocreek.asp>, accessed December 16, 2005, Orange County Watershed & Coastal Resources Division (OCWCRD), Talbert Watershed, <http://www.ocwatersheds.com/watersheds/talbert.asp>, accessed December 16, 2005, and Fong Tse, City of Newport Beach Public Works Department, Personal communication, January 14, 2005.

During the Initial Study process, it was determined that the proposed project could have potentially significant impacts related to nine of the ten CEQA criteria for determining significance. It was also determined during the Initial Study process that impacts related to violation of water quality standards or waste discharge requirements would be less than significant. However, all CEQA criteria were analyzed in this Draft EIR. Full bibliographic entries for all reference materials are provided in Section 4.7.6 (References) of this section.

One comment letter associated with hydrology and water quality was received in response to the IS/NOP circulated for the General Plan Update. The Environmental Quality Affairs Citizens Advisory Committee for the City of Newport Beach requested that the DEIR include an analysis of all potential impacts on water quality within the Planning Area. Section 4.7.5 (Project Impacts, Mitigation Measures, and Proposed Policies) provides such an analysis.

4.7.2 Existing Conditions

■ Watersheds

The Planning Area is located within the boundaries of four watersheds, each of which contain an interconnected system of surface water resources that feed into the underlying groundwater or drain into the ocean. The main tributaries and groundwater resources located within the Planning Area are discussed in detail below.

The watersheds within the Planning Area are the Newport Bay, Newport Coast, Talbert, and San Diego Creek Watersheds. Both the Newport Bay and Newport Coast Watersheds cover most of the Planning Area, with the remaining smaller portions covered by the Talbert and San Diego Creek Watersheds. The watersheds are further described below:

- The Newport Bay Watershed covers 13.2 square miles along the coast of central Orange County.³⁸ This watershed encompasses most of the western portion of the Planning Area in addition to the eastern portion of Costa Mesa. The East Costa Mesa, Santa Isabel, and other smaller channels of this watershed drain into Newport Bay.
- The Newport Coast Watershed covers 11.2 square miles, chiefly the Newport Coast area in the City north of Laguna Beach.³⁹ Buck Gully, Los Trancos, and Muddy Creek, which are the main tributaries of this watershed, drain the San Joaquin Hills.
- The Talbert Watershed, which encompasses a small northwestern portion of the Planning Area in the vicinity of the Banning Ranch area, covers 21.4 square miles straddling the mouth of the Santa Ana River, and has two main tributaries that drain into it.⁴⁰ On the western side, the Talbert and Huntington Beach Channels drain through the Talbert Marsh before emptying into the Pacific Ocean. On the eastern side, the Greenville-Banning Channel empties into the Santa Ana River. The Santa Ana River currently outlets into the Pacific Ocean near West Newport.
- The San Diego Creek Watershed, which encompasses the northern portion of the Planning Area, covers 112.2 square miles in central Orange County, with its main tributary, San Diego Creek, draining into Upper Newport Bay.⁴¹ Smaller tributaries of this watershed include Serrano Creek, Borrego Canyon Wash, Agua Chinon Wash, Bee Canyon Wash, Peters Canyon Wash, Sand Canyon Wash, Bonita Canyon Creek, and the Santa Ana Delhi Channel.

Climate in the Planning Area is Mediterranean, characterized by warm summers, cool winters, and markedly seasonal rainfall. Nearly all rain falls from late autumn to early spring; virtually no precipitation falls during the summer. The average annual rainfall in Newport Beach is approximately 12 inches.

³⁸ Orange County Watershed & Coastal Resources Division (OCWCRD). 2005 Newport Bay Watershed, http://www.ocwatersheds.com/watersheds/newportbay_intro.asp, accessed December 16.

³⁹ Orange County Watershed & Coastal Resources Division (OCWCRD). 2005 Newport Coast Watershed, <http://www.ocwatersheds.com/watersheds/newportcoast.asp>, accessed December 16.

⁴⁰ Orange County Watershed & Coastal Resources Division (OCWCRD). 2005 Talbert Watershed, <http://www.ocwatersheds.com/watersheds/talbert.asp>, accessed December 16.

⁴¹ Orange County Watershed & Coastal Resources Division (OCWCRD). 2005 San Diego Creek Watershed, <http://www.ocwatersheds.com/watersheds/sandiegocreek.asp>, accessed December 16.

Potential evapotranspiration in the region exceeds precipitation on an annual basis, and, under natural conditions, the lower reaches of rivers that drain the watersheds are dry during the summer.

Surface Water Resources

The Planning Area can be divided into three geographic areas: (1) a low elevation area comprised of Banning Ranch, West Newport, Balboa Peninsula, and Newport Bay, (2) elevated marine terrace areas that include Newport Heights and Westcliff, and (3) high relief terrain of the San Joaquin Hills in the southeastern portion of the City. The low elevation and terrace areas are generally drained by urbanized and relatively low relief streams that empty into Newport Bay, and the rugged natural streams with steeper gradients drain the Newport Ridge and Newport Coast areas.

The City of Newport Beach has over 30 miles of bay and ocean waterfront. Over 63 percent of the City is in the coastal zone. As shown in Figure 4.7-1, surface water resources such as freshwater wetlands, estuaries, tideland and submerged lands, reservoirs, and waterways are located within the Planning Area. Upper Newport Bay extends south of the Corona del Mar Freeway (SR 73) to the Pacific Ocean, virtually dividing the City into east and west sides. This bay area makes up many of the tidelands and submerged lands in the City, and connects with the estuary waters south of it, including Newport Dunes, Lido Channel, and Newport Channel. An additional estuary is also located in the northern portion of the Planning Area, east of Upper Newport Bay and south of SR 73. Small amounts of freshwater wetlands are scattered throughout the central portion of the City east of Upper Newport Bay and North Star Beach.

The Planning Area contains two above-ground reservoirs: Big Canyon and San Joaquin Reservoirs, which are generally located in the eastern portion of the City, as shown in Figure 4.7-1. Big Canyon Reservoir is located within a quarter mile north of San Joaquin Hills Road and San Joaquin Reservoir is located approximately 0.75 miles northeast of Big Canyon Reservoir. The main tributaries within the Planning Area are the Santa Ana River, San Diego Creek, and Big Canyon Wash, as shown in Figure 4.7-1 and described below.

Santa Ana River

Flowing over 100 miles from the San Bernardino Mountains to the Pacific Ocean, the Santa Ana River traverses portions of San Bernardino, Riverside, and Orange Counties. The River drains an area of over 2,700 square miles before flowing into the Pacific Ocean between Newport and Huntington Beaches (Corona 2003). The Santa Ana River transports more than 125 million gallons per day of reclaimed water from Riverside and San Bernardino Counties for recharge into the Orange County Groundwater Basin. This satisfies approximately 40 percent of the County's water demand.⁴²

The Santa Ana River is the “receiving waters” of the urban, industrial, and agricultural runoff from the inland cities that it traverses such as Santa Ana and Costa Mesa. Receiving water is defined as a river,

⁴² Orange County Watershed & Coastal Resources Division (OCWCRD). Regional Board Boundaries, http://www.ocwatersheds.com/watersheds/intro_regional_jurisdictions.asp, accessed December 22.

lake, ocean, stream, or other body of water into which wastewater or treated effluent is discharged. The River also provides water for recreation and for aquatic and wildlife habitat in the inland cities.

Three components make up the flow of the water in the Santa Ana River, and the ratio of these components varies throughout the year.⁴³ The first component is “storm flows,” directly resulting from rainfall, usually between the months of December and April. The rainfall and surface water runoff from the storms is captured and percolated into the groundwater basins. The “baseflow” makes up the second component of water supply, a large portion of which comes from the discharges of treated wastewater into the river, in addition to rising groundwater in the basin. This baseflow includes the nonpoint source discharges, as well as the uncontrolled and unregulated agricultural and urban runoff. The third component of the water supply is imported water, which is characterized by the Santa Ana Regional Water Quality Control Board (SARWQCB) as “nontributary flow.”

San Diego Creek

San Diego Creek is the main tributary to Newport Bay, has a drainage area of 118 miles, and drains all or portions of the cities of Irvine, Laguna Woods, Lake Forest, portions of Newport Beach, Orange, and Tustin.⁴⁴ Its headwaters lie about a mile east of the I-5 and I-405 Freeway intersection, at an elevation of about 500 feet. The creek flows westerly from its headwaters and empties into Newport Bay in the vicinity of Jamboree Road, one mile west of the University of California at Irvine campus. Flooding on this creek has historically caused significant damage. Portions of San Diego Creek were channelized in 1968 for flood protection purposes. However, channelization of the creek also resulted in increased sediment flow into Upper Newport Bay, requiring extensive dredging projects to restore the ecosystem.

Big Canyon Wash

Big Canyon Wash drains from the Big Canyon Reservoir area in a northwesterly direction towards Upper Newport Bay. A wash is a dry riverbed, area, or channel that only contains water during the rainy season. These riverbeds are completely dry throughout most of the year. Washes are formed when flooding occurs on a desert plain. The ground does not easily absorb water, generating a large amount of runoff that collects in the wash area. While providing rich habitat for a variety of wildlife species, rainstorms in remote locations can result in flash flooding of local washes.

Groundwater Resources

The Coastal Plain of the Orange County Groundwater Basin (Basin) underlies the northwestern portion of the Planning Area and provides groundwater for much of central and north Orange County, including the Newport Beach Planning Area.⁴⁵ The boundaries of the Basin within the City of Newport Beach are shown in Figure 4.7-1. The Basin underlies a coastal alluvial plain in the northwestern portion of Orange County, and is bounded by consolidated rocks exposed on the north in the Puente and Chino Hills. On

⁴³ Corona, City of. 2003. Technical Background Report.

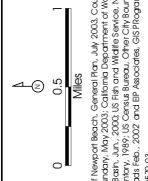
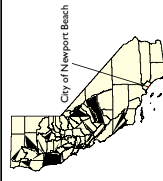
⁴⁴ Newport Beach, City of. 2003. Hazards Assessment Study, July.

⁴⁵ California Department of Water Resources (DWR). 2004. California's Groundwater – Bulletin 118.

CITY OF NEWPORT BEACH
 GENERAL PLAN UPDATE EIR
Figure 4.7-1
WATER
RESOURCES

- Legend**
- City Boundary
 - Water Resources**
 - Coastal Plain of Orange County Groundwater Basin
 - Freshwater Wetlands
 - Estuary
 - Tidelands and Submerged Lands
 - Waterway
 - Roads**
 - State and Federal Highway
 - Streets

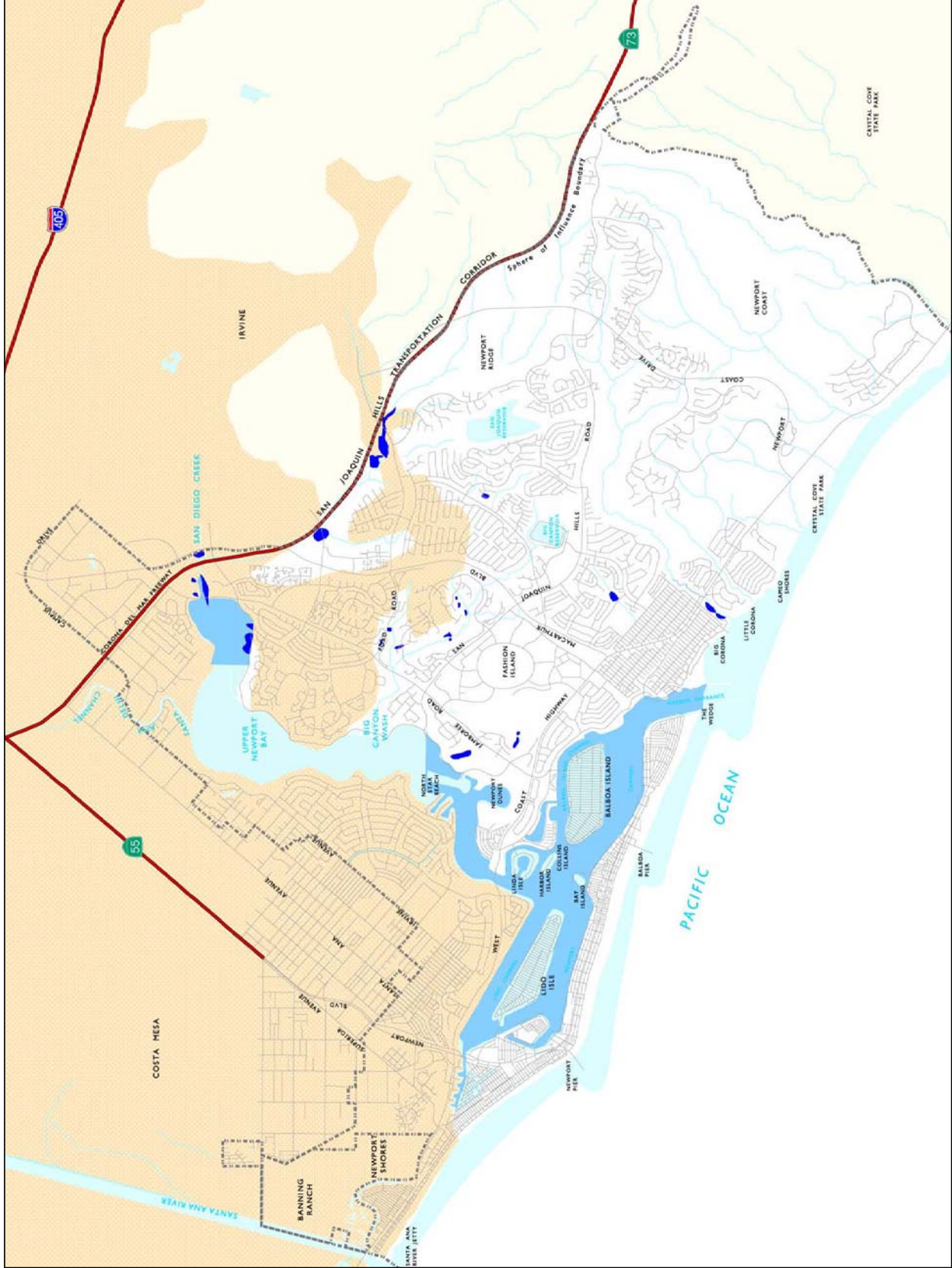
Note: GIS Data Projection - CA State Plane Zone 6, NAD83, feet



Source: City of Newport Beach, General Plan, July 2003; Counties, May 2004; Coastal Plain of Orange County Groundwater Basin, 2000 US Fish and Wildlife Service, National Wetlands Inventory, 1995 US Census Bureau, Other City Boundaries, 2000; City of Newport Beach, General Plan, July 2003; Project No. 10579-03.



EIP



the east are the Santa Ana Mountains, and on the south are the San Joaquin Hills. The Basin is bounded by the Pacific Ocean on the southwest and by a low topographic divide approximated by the Orange County-Los Angeles County line on the northwest. In addition, the Basin underlies the lower Santa Ana River watershed.

Shallow ground water levels (less than 50 feet from the ground surface) are known to occur along the coast, around Newport Bay, and along the major drainages in the Newport Beach area. Shallow ground water perched on bedrock may also be present seasonally in the canyons draining the San Joaquin Hills. Seasonal fluctuations in groundwater levels, and the introduction of residential irrigation requires that site-specific investigations be completed to support these generalizations in areas mapped as potentially susceptible to liquefaction.

Sediments containing easily recoverable fresh water extend to about 2,000 feet in depth. Although water-bearing aquifers exist below that level, water quality and pumping lift currently make these materials economically unviable to pump. Upper, middle, and lower aquifer systems are recognized in the Basin. Well yields range from 500 to 4,500 gallons per minute (gpm), but are generally 2,000 to 3,000 gpm. The total capacity of the Basin is approximately 38,000,000 acre-feet (AF).

Recharge to the Basin is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. The Santa Ana River flow contains natural flow, reclaimed water, and imported water that is spread in the Basin forebay, which is the upper region of the Basin. Infiltration primarily occurs in this area; the City of Newport Beach is in the pressure area of the Basin, which is an area that is not used for recharge.⁴⁶ There are no designated recharge areas in the City. Historical groundwater flow was generally toward the ocean in the southwest, but modern pumping has caused water levels to drop below sea level inland of the Newport-Inglewood fault zone. This trough-shaped depression encourages sea water to migrate inland, contaminating the groundwater supply. Strategic lines of wells in the Alamitos and Talbert Gaps, which are located in Fountain Valley, inject imported and reclaimed water to create a mound of water to protect the Basin from seawater intrusion. As such, the injection of water in the Alamitos and Talbert Gaps prevent saltwater intrusion into the upper region of the aquifer, where most of the pumping occurs.⁴⁷

The Groundwater Replenishment System (GRS), a joint venture by OCWD and the Orange County Sanitation District (OCSD), will help reduce Orange County and Newport Beach's reliance on imported surface water by taking treated wastewater and returning it into the Basin via injection or passive settling. Sewer water will be purified using a state-of-the-art, three-step process—microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide disinfection. Roughly half of the water from the GWR System will be injected into Orange County's seawater barrier. The remaining water will be piped to recharge lakes in Anaheim, where the water will take the natural path of rainwater as it filters through clay, sand and rock to the deep aquifers of the groundwater basin. The GWR System purified water will exceed all State and Federal drinking water standards and have water quality similar to, or better than,

⁴⁶ OCWD. 2004. Groundwater Management Plan. March.

⁴⁷OCWD. 2004. Groundwater Management Plan. March.

bottled water. The GRS will be online by 2007, and will produce approximately 70,000 acre feet of water per year.⁴⁸

■ Water Quality

Surface Water Quality

Newport Bay is designated as “water quality-limited” for four impairments under the Federal Clean Water Act’s Section 303(d) List, meaning that it is “not reasonably expected to attain or maintain water quality standards” due to these impairments without additional regulation.⁴⁹ Under Section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs) for these waters. Generally, a TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and requires a jurisdiction to allocate pollutant loadings among point and nonpoint pollutant sources to achieve that amount. Point sources are defined as discrete conveyances such as pipes or direct discharges from businesses or public agencies. Nonpoint pollution refers to the introduction of bacteria, sediment, oil and grease, heavy metals, pesticides, fertilizers, and other chemicals into rivers, bays, and oceans from less defined sources including roadways, parking lots, yards, and farms.⁵⁰

For these water quality-limited bodies, the Santa Ana Region Water Quality Control Board (SARWQCB) and the US Environmental Protection Agency (EPA) have developed TMDLs for the following substances in Newport Beach: sediment, nutrients, fecal coliform, and toxic pollutants (Newport Beach 2005). Descriptions of the TMDLs for each of these substances are provided below:

- *Sediment*. Adopted on October 9, 1998, the Sediment TMDL requires local partners (stakeholders in the watershed) to survey Newport Bay regularly and to reduce annual sediment delivered into the Bay from 250,000 cubic yards to 125,000 cubic yards (a 50 percent reduction) by 2008.
- *Nutrients*. Approved by US EPA on April 16, 1999, the Nutrient TMDL limits nitrogen and phosphorus inputs to Newport Bay. The Nutrient TMDL attempts to reduce the annual loading of nitrogen by 50 percent, from 1,400 pounds per day to approximately 850 to 802 pounds per day at San Diego Creek, by 2012. Phosphorus loading must fall from 86,912 pounds per year in 2002 to 62,080 pounds by 2007.
- *Fecal Coliform*. Approved in December 1999, the Fecal Coliform TMDL attempts to reduce the amount of fecal coliform inputs to Newport Bay enough to make the Bay meet water contact recreation standards (swimming, wading, surfing) by 2014 and shellfish harvesting standards (where waters support shellfish acceptable for human consumption) by 2019.
- *Toxic Pollutants*. Adopted by US EPA on June 14, 2002, the Toxic Pollutants TMDL addresses Newport Bay inputs like heavy metals (chromium, copper, lead, cadmium, zinc) and priority

⁴⁸ Orange County Water District (OCWD). 2006. Groundwater Replenishment System: <http://www.gwrsystem.com>. Accessed February 28.

⁴⁹ Newport Beach, City of. 2005. Draft Local Coastal Program, Coastal Land Use Plan.

⁵⁰ Newport Beach, City of. 2003. Hazards Assessment Study, July.

organics such as endosulfan, DDT, Chlordane, PCBs, Toxaphene, diazinon, and chlorpyrifos. It may lead to the reduction or elimination of pesticide use by residents, businesses, and municipal services in the Newport Bay watershed. This TMDL also addresses existing toxic deposits in sediments in the Rhine Channel and other areas in the Lower Bay.

The City of Newport Beach, SARWQCB, Department of Fish and Game, County of Orange, and other cities in the Newport Bay watershed have established the Newport Bay Watershed Executive Committee, which is advised by the Watershed Management Committee (WMC) to implement the TMDLs.⁵¹ The WMC typically meets quarterly to discuss compliance with the TMDLs established by the SARWQCB. Generally, all the TMDLs established by the SARWQCB require that watershed-based solutions be developed by the watershed stakeholders, followed by joint funding for the implementation of these projects throughout the watershed.

Additionally, a municipal separate storm sewer system (MS4) permit is provided to the City by the SARWQCB under the National Pollutant Discharge Elimination System (NPDES) to regulate the amount of storm water contaminants that are delivered into the City's waterways.⁵² MS4 permits require an aggressive water quality ordinance, specific municipal practices to maintain city facilities like the MS4, and the use of best management practices (BMPs) in many residential, commercial, and development-related activities to further reduce the amount of contaminants in urban runoff. MS4 permits also require local agencies to cooperatively develop a public education campaign to inform people about what they can do to protect water quality.

Water Quality Monitoring

As part of the Orange County Health Care Agency (HCA), Environmental Health's Ocean Water Protection Program is responsible for protecting the public from exposure to ocean and bay water that may be contaminated with sewage or urban runoff and may cause illness due to elevated bacteria levels along the County's coastline, as well as the harbor and bay shoreline. Over the past 40 years, the Health Care Agency and local sanitation agencies (OCSD and South Orange County Wastewater Authority) have been testing the coastal waters in Orange County for bacteria that indicate the possible presence of disease-causing organisms. The sanitation agencies and HCA program staff participate in the weekly collection of water samples at approximately 150 ocean, bay, and drainage locations throughout coastal Orange County, including the City of Newport Beach.⁵³

When a release of sewage is reported to the Ocean Water Protection Program staff, the ocean or bay water areas that may be affected by the sewage discharge are immediately closed to ocean water-contact sports. Other events such as rainstorms can also increase contaminant levels that exceed State standards. During and after a significant rainstorm event, storm drains, creeks, and rivers carry floodwaters and urban runoff (which may include fertilizers, road oils, litter, and large amounts of bacteria from a variety of sources such as animal waste and decomposing vegetation) to the ocean. The level of contamination

⁵¹ Newport Beach, City of. 2005. Draft Local Coastal Program, Coastal Land Use Plan.

⁵² Newport Beach, City of. 2005. Draft Local Coastal Program, Coastal Land Use Plan.

⁵³ Orange County Health Care Agency Environmental Health (HCA). 2003. 2002 Annual Ocean and Bay Water Quality Report, June.

of bacteria can rise significantly in ocean and bay waters close to discharging storm drains and outlets of creeks, rivers, and streams during and after rainstorms. The elevated bacterial levels in the coastal ocean waters may continue for a period of at least three days depending on the intensity of the rain and the volume of runoff.⁵⁴

Bacteriological water samples are collected each week at approximately two locations in Semeniuk Slough, and at 31 locations in Newport Bay. The total number of postings, total number of days posted, and total number of Beach Mile Days posted due to violations of AB 411 standards for the years 2000 through 2004 at Semeniuk Slough and Newport Bay are shown below in Table 4.7-1. The term Beach Mile Days (BMD) is used to present the measurement of the number of days and the area of ocean or bay waters that are closed due to a sewage spill or posted for a violation of the AB 411 standards. BMDs are calculated by multiplying the number of days of a closure or posting by the number of miles of beach closed or posted.

Table 4.7-1 Ocean and Bay Water Closure Postings			
Year	Postings	Days	Beach Mile Days
Newport Slough			
2000	N/A	N/A	N/A
2001	9	381	5.1
2002	13	339	3.9
2003	14	308	3.5
2004	4	98	1.1
Newport Bay			
2000	75	1483	64.0
2001	94	1663	67.7
2002	61	1514	58.4
2003	74	1409	57.6
2004	39	1366	54.4

SOURCE: Orange County Health Care Agency Environmental Health, 2004 Annual Ocean and Bay Water Quality Report, March 2005, pages 29–30.

Groundwater Quality

Groundwater within the Orange County Basin is primarily calcium and sodium bicarbonate in character. Impairments to the Basin include sea water intrusion near the coast and colored water from natural organic materials in the lower aquifer system. As discussed above, the Newport-Inglewood fault zone is a trough-shaped depression that encourages sea water to migrate inland, contaminating the groundwater supply. The injection of water in the Alamitos and Talbert Gaps prevent saltwater intrusion into the

⁵⁴ Orange County Health Care Agency Environmental Health (HCA). 2003. 2002 Annual Ocean and Bay Water Quality Report, June.

upper region of the aquifer, where most of the pumping occurs. In addition, the Basin is characterized with increasing salinity, high nitrates, and MTBE.⁵⁵

The most typical source of groundwater contamination in the Basin is the erosion of natural deposits, which could deliver chemicals such as arsenic, barium, fluoride, nickel, and selenium along with radiologicals such as radium and uranium into the groundwater. Additionally, the use of fertilizers in the County also contributes nitrate into the groundwater. Upon sampling of IRWD's Basin wells in 2003 and 2004, none of the regulated chemicals found in the groundwater violated their respective "Maximum Contaminant Levels" (MCLs) as set by the California EPA.⁵⁶

The Basin receives treated reclaimed water from the OCSD. As part of the GRS, the reclaimed water goes through reverse osmosis and enters or will enter the Basin in one of two ways: (1) direct injection into the seawater intrusion barrier by Water Factory #21; and (2) passive settling into settling ponds at the base of the Santa Ana River near Anaheim and Anaheim Hills.

The Basin's use of reclaimed water to recharge the Basin can and has caused limited contamination of the Basin by at least two "chemicals of concern" for which "action levels" (ALs) have been set by the California Health Services Department's Division of Drinking Water and Environmental Management. ALs are different from MCLs in that ALs simply require public agencies to notify appropriate agencies that an AL has been reached; water providers are not required to remove water from service that has attained an AL.

The chemicals found in the Basin include N-nitrosodimethylamine (NDMA) and 1,4-dioxane. In recent years, OCWD has detected both 1,4-dioxane and NDMA at levels at or near ALs at Newport Beach's four well sites, which are located in Fountain Valley. OCWD continues to monitor these and other chemicals of concern on an ongoing basis.

According to the US EPA, no facilities in the Newport Beach area have US EPA permits to discharge to local water sources.

Drinking Water Quality

The drinking water supply for the City is a blend of mostly groundwater from the Basin and also surface water imported by MWD. For further description of drinking water quality, post-filtration and post-treatment, refer to Section 4.14 (Utilities and Service Systems).

■ Storm Drain Infrastructure

Generally, the City provides storm drain service to the entire Planning Area. Currently, Banning Ranch contains no development, but the City intends to serve this area when the need for storm drain service arises. The Orange County Resources and Development Management Department (RDMD) maintains

⁵⁵ California Department of Water Resources (DWR). 2004. California's Groundwater—Bulletin 118.

⁵⁶ Irvine Ranch Water District (IRWD). 2005. Annual Water Quality Report.

the regional drainage facilities in the Planning Area, including the Santa Ana River, and San Diego Creek and is described further in Flood Hazards, below.

The existing storm drain system owned and operated by the City consists of pipelines, catch basins, manholes, tide valves, open channels and retention basins located throughout the system. Pipelines range from three to 120 inches in diameter, and are constructed of materials such as reinforced concrete, corrugated metal, plastic, ductile iron, steel, clay, and asbestos cement. Location of the existing storm drain infrastructure is shown in Figure 4.7-2. Some segments of the system are over 50 years old, while other segments have been recently constructed.⁵⁷

The City's storm drain system is characterized by two distinctly different geographical areas. The upland areas, generally inland of Coast Highway, have drainage characteristics similar to other coastal plain communities in Orange County. The low-lying areas, below Coast Highway, such as the Balboa Peninsula, Newport Island, and Balboa Island, are very flat and are affected by ocean tides.⁵⁸ A system of bayfront bulkheads and tide valves (gates) on storm drain outlets to Newport Bay are in place to protect these low lying areas from flooding due to high tides. The City has installed 6- to 36-inch-diameter tide valves on 89 storm drain outlets to Newport Bay to prevent seawater from backing through the storm drain pipes during high tide events. Of the 85 tide valves, six are operated by an electric motor that open and close the valves while the remaining valves are manually operated. The valves must be closed when the tide elevation reaches street elevations at each installation. When the tidal elevation drops below street elevation, the gates are reopened. When rain occurs simultaneously with a high tide, stormwater cannot be released until the tide has dropped sufficiently to open the tide gates. As a result, urban runoff is in effect dammed by these tide valves and the low-lying streets in the City can become inundated. In order to minimize this problem, portable pumps are used to discharge urban runoff collected at street ends into the ocean. Overall, urban street flooding is rarely considered a problem in the City of Newport Beach.⁵⁹

The City's storm drain system also includes retarding basins. These include the Koll Center retarding basin, located north of SR-73, the Farallon/El Paseo retarding basin, located between Avocado Street and MacArthur Boulevard, near Fashion Island, and the Harbor View retarding basin, located between Corona del Mar and San Joaquin Hills Road. The purpose of these retarding basins is to reduce the flow rate within the respective downstream storm drain systems so that older, possibly undersized, downstream facilities will be able to carry the discharge from new development areas upstream.⁶⁰

Existing Deficiencies and Proposed Upgrades

Inspections of the City's drainage system and, in particular, problem areas where street flooding occurred during the 1997/98 El Niño winter storm season, have been conducted, as outlined in the City's Storm Drain Master Plan (SDMP). It is important to note that the SDMP does not evaluate the existing storm

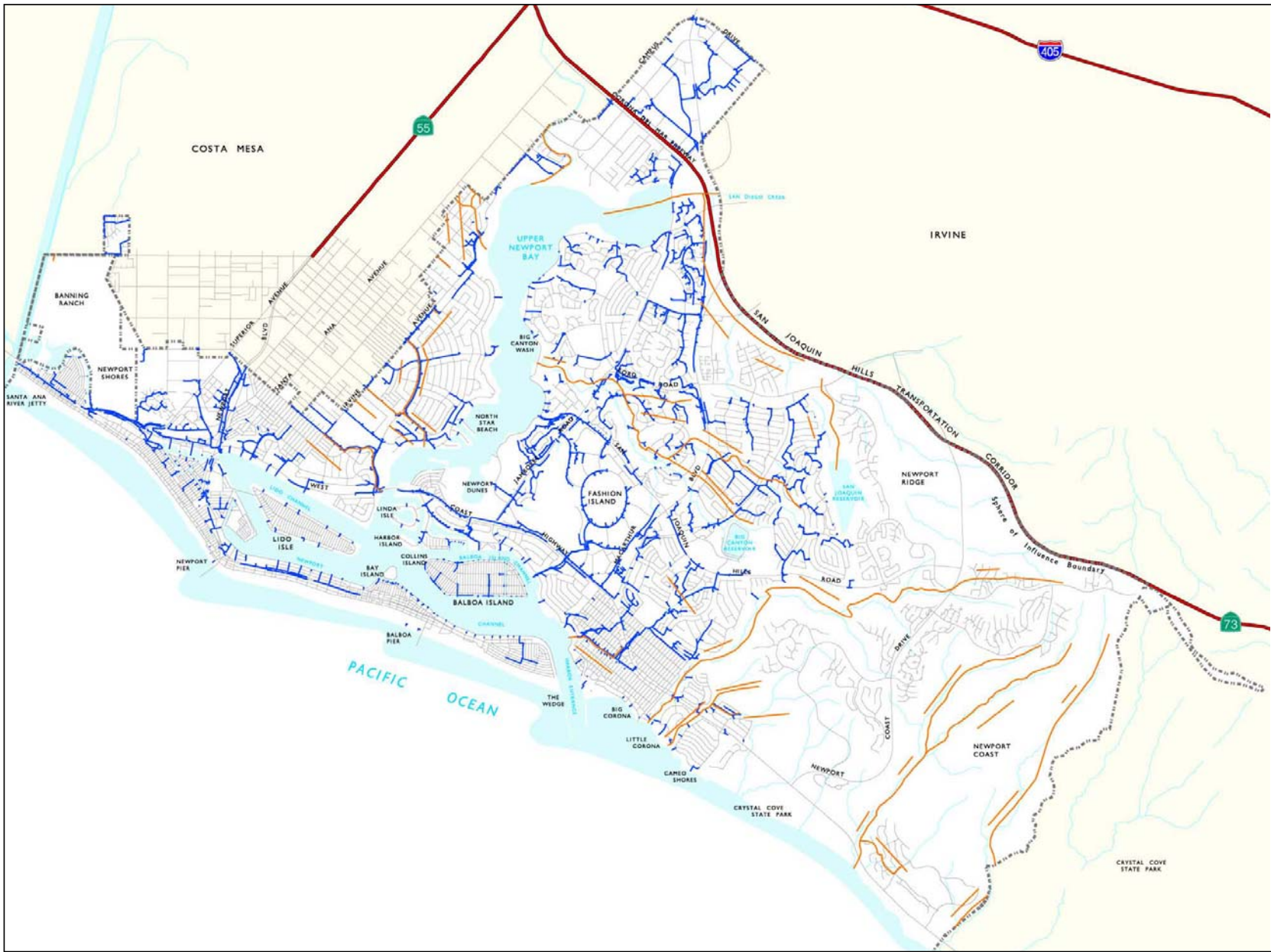
⁵⁷ Newport Beach, City of. 2000. Storm Drain Master Plan, July.

⁵⁸ Newport Beach, City of. 2000. Storm Drain Master Plan, July.

⁵⁹ Newport Beach, City of. 2003. Hazards Assessment Study, July.

⁶⁰ Newport Beach, City of. 2000. Storm Drain Master Plan, July.

CITY of NEWPORT BEACH
 GENERAL PLAN UPDATE EIR
Figure 4.7-2
STORM DRAINAGE
INFRASTRUCTURE



- Legend**
- City Boundary
 - Newport Beach Storm Drain Infrastructure
 - Orange County Storm Drain Infrastructure
- Hydrography**
- Tidelands and Submerged Lands
 - Waterway
- Roads**
- State and Federal Highway
 - Streets

Note: GIS Data Projection - CA State Plane, Zone 6, NAD83, Feet.



0 0.5 1
Miles

Source: City of Newport Beach, Storm Drain Lines, July 2003; City Boundary, May 2003; Surf, May 2003; Counties, May 2003; US Census Bureau, Other City Boundaries, 2000; ESR, Major Roads, February 2002; and EIP Associates, GIS Program, November 14, 2003.

Project No. 10579-03



drain system in recently annexed areas such as Newport Coast, Newport Ridge, Bay Knolls, and Santa Ana Heights. The SDMP also conducted hydrologic and hydraulic analyses of the entire City to determine the necessary structural upgrades for the City's storm drain system. Upgrades were deemed necessary by the plan where a storm drain that collected runoff at on-grade catch basins overflowed during a 10-year storm event, while upgrades were necessary where storm drain pipes that carried runoff collected at a sump overflowed during a 25-year storm event. In addition, existing streets that could not contain the peak runoff during a 100-year storm event within their street right-of-way were also designated for structural upgrades by the SDMP. Most of the proposed upgrades recommended in the SDMP are the result of increased imperviousness in drainage areas due to development since the design of the original system and the more conservative design criteria contained in the current Orange County Hydrology Manual.

Three types of upgrades are proposed for the City's storm drain system: Priority A, operational upgrades; Priority B, material upgrades; and Priority C, Hydraulic Upgrades. Operational upgrades include projects that are assumed to be of the highest priority due to occasional flooding. Material upgrades consist of upgrades to the drainage systems with known physical constraints and identified drainage system deterioration. Lastly, the hydraulic upgrades include upgrades for drainage systems with calculated capacity that does not meet current Orange County Hydrology Manual criteria for design level storm events. The total estimated cost of the recommended improvements is approximately \$18.5 million.

Additionally, according to the SDMP, approximately 35,000 linear feet of the storm drain system and the street capacity at 13 scattered locations within the City's service area required upgrades to their drainage and flow capabilities. In addition, approximately 24,000 feet of the storm drain system required upgrading due to their existing pipe size (less than 18 inches in diameter), pipe material (steel or corrugated metal pipe), and structures. Citywide inlet and structural improvements, located in the City's low-lying areas, are required.

With respect to the Newport Coast and Newport Ridge areas that were annexed in 2002, any development that occurred or began prior to this time was the responsibility of the County of Orange. Thus, those developments meet County regulations for adequate storm drain infrastructure, although any future improvements would be the responsibility of the City. In addition, any new development that occurred within these areas after annexation, are subject to City requirements. These new developments are planned communities where infrastructure was designed to adequately serve these uses, and thus, do not have any existing deficiencies at this time (Tse 2004). As such, there are no proposed upgrades to the existing infrastructure in the Newport Coast and Newport Ridge areas.

■ Flood Hazards

Flood Zones

Flooding can be a destructive natural hazard, and is a recurring event. Storm-induced flood hazards in Newport Beach can be classified into two general categories: flash flooding from small, natural channels; and more moderate and sustained flooding from the Santa Ana River and San Diego Creek.

The 100- and 500-year flood zones have been identified by the Federal Emergency Management Agency (FEMA), and include the low-lying areas in West Newport at the base of the bluffs, the coastal areas which surround Newport Bay, and all low-lying areas adjacent to Upper Newport Bay. 100- and 500-year flooding is also anticipated to occur along the lower reaches of Coyote Canyon, in the lower reaches of San Diego Creek and the Santa Ana Delhi Channel, and in a portion of Buck Gully. Most flooding along these second- and third-order streams is not expected to impact significant development. However, flooding in the coastal areas of the City will impact residential and commercial zones along West Newport, the Balboa Peninsula and Balboa Island, and the seaward side of Pacific Coast Highway. Figure 4.7-3 shows the 100- and 500-year flood zones.

Coastal Flood Hazards

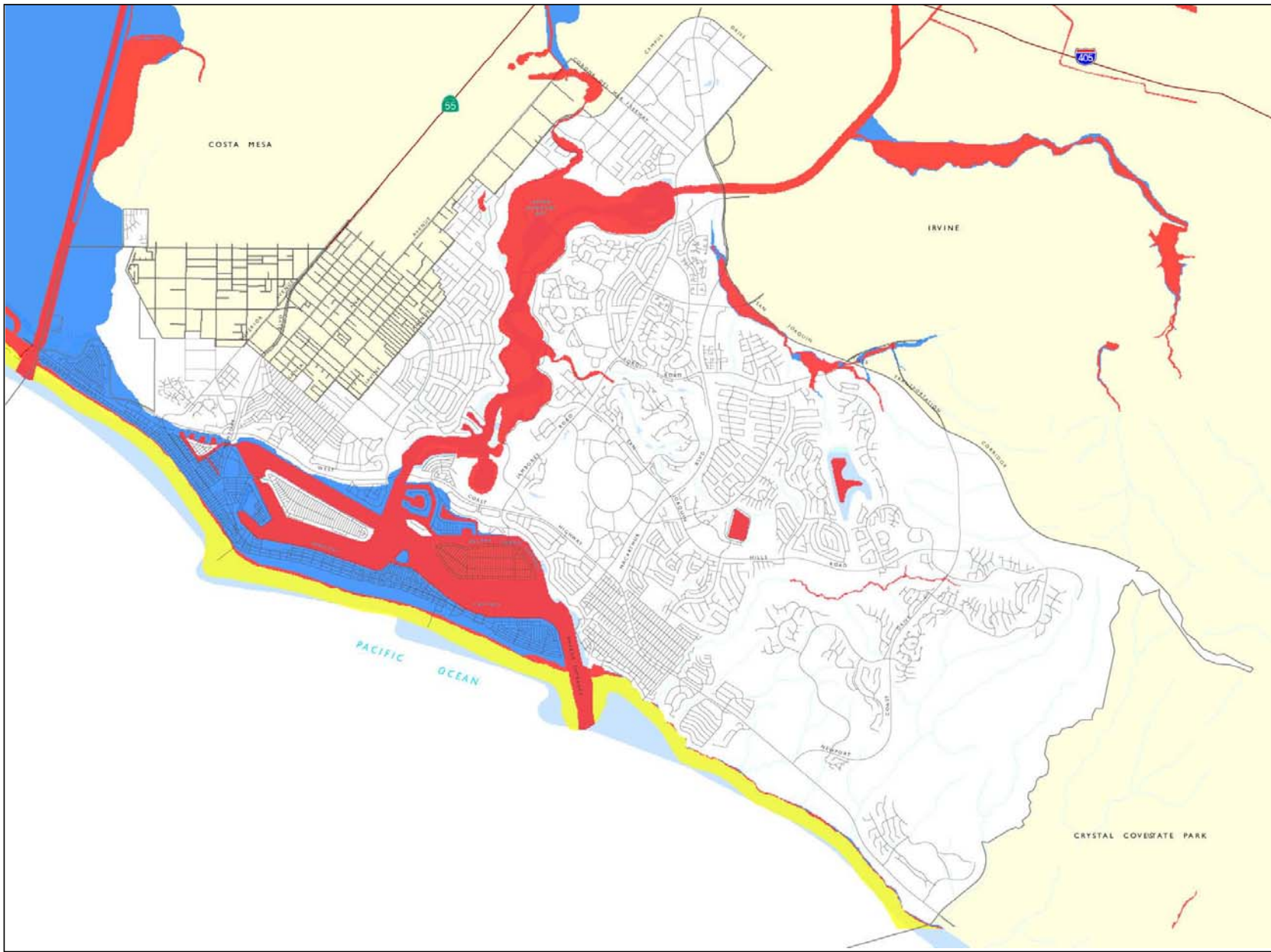
Newport Beach is susceptible to low-probability but high-risk events such as tsunamis, and more common, isolated hazards such as storm surges. Each of these has a potential to significantly impact Newport Beach residents and the built environment.

Newport Beach is generally protected from most distantly generated tsunamis by the Channel Islands and Point Arguello, except for those generated in the Aleutian Islands, off the coast of Chile, and possibly off the coast of Central America. Nevertheless, since the early 1800s, more than thirty tsunamis have been recorded in Southern California, and at least six of these caused damage in the area, although not necessarily in Newport Beach. Tsunamis generated in the Alaskan region take approximately six hours to arrive in the Southern California area, while tsunamis generated off the Chilean coast take 12 to 15 hours. Given those timeframes, coastal communities in Southern California can receive adequate warning, allowing them to implement evacuation procedures. Alternatively, very little warning time, if any, can be expected from locally generated tsunamis. Locally generated tsunamis caused by offshore faulting or landsliding immediately offshore from Newport Beach are possible, and these tsunamis have the potential to be worst-case scenarios for the coastal communities in Orange County. Modeling off the Santa Barbara coast suggests that locally generated tsunamis can cause waves between 2 and 20 meters (6 to 60 feet) high, and that these could impact the coastline with almost no warning, within minutes of the causative earthquake or slump. Areas within Newport Beach that are most likely to be impacted by a tsunami include West Newport, Balboa Peninsula, Lido Isle, Balboa Island, and Upper Newport Bay.

Rogue waves are very high waves that arise unexpectedly in the open ocean. These waves are difficult to plan for as they are unpredictable. Rogue waves have historically impacted the Orange County coast and have the potential to impact Newport Beach in the future.

Unlike tsunamis, which can occur anytime, storm surges are associated with inclement weather. Given that during inclement weather, fewer people are expected to be at the beach, storm surges are more likely to impact residents than tourists, and the potential number of casualties can be expected to be significantly less than tsunamis. The most common problem associated with storm surges is flooding of low-lying areas, including structures. This is often compounded by intense rainfall and strong winds. If a storm surge occurs during high tide, the flooded area can be significant. Coastal flooding in Newport Beach occurred in the past when major storms, many of these El Niño Southern Oscillation events, impacted the area. Storm surging associated with a tropical storm has been reported only once in the

CITY of NEWPORT BEACH
 GENERAL PLAN UPDATE EIR
Figure 4.7-3
FLOOD
ZONES



- Legend**
- Special Flood Hazard Areas inundated by 100-year flood
 - Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood
 - Zone VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.



Source: City of Newport Beach, 2006.
 Project No. 10579-03



history of Newport Beach, in 1939. This suggests that the hazard of cyclone-induced storm surges has a low probability of occurrence. Nevertheless, this incident caused millions of dollars in damage to Newport Beach. Storm surge events would affect development along the ocean, and to a lesser extent, Newport Bay.

Seismically Induced Inundation

Seismically induced inundation, which refers to flooding that results when water retention structures fail due to an earthquake, can also occur in the City. Portions of Newport Beach are threatened by flooding from Prado Dam, Santiago Creek Reservoir, Villa Park Reservoir, San Joaquin Reservoir, Big Canyon Reservoir, and Harbor View Reservoir. Seismically induced inundation can also occur if strong ground shaking causes structural damage to aboveground water tanks. Currently, there are no existing or planned above-ground water tanks in the City.

Reservoirs, lakes, ponds, swimming pools, and other enclosed bodies of water are subject to potentially damaging oscillations (sloshing) called seiches. This hazard is dependent upon specific earthquake parameters (e.g., frequency of the seismic waves, distance and direction from the epicenter), as well as site-specific design of the enclosed bodies of water, and thus difficult to predict. Areas of the City that may be vulnerable to this hazard are primarily improvements located next to waterways, such as Newport Harbor, and the southern part of Upper Newport Bay. However, the probability that damaging seiches would develop in these bodies of water was considered low in the 1975 Newport Beach Safety Element. The Hazards Assessment Study within the 2004 Technical Background Report concludes that no new information has been found to indicate otherwise.

Flood Control

Various flood control measures have helped mitigate flood damage in the City. Administered by the Orange County Resources & Development Management Department, the Orange County Flood Control District (OCFCD) provides, operates, and maintains public facilities and regional resources for the residents of Orange County. OCFCD operates and maintains flood control channels, dams, retarding basins, pump stations, and other flood control infrastructure that the OCFCD designs and constructs. Specifically, within the Planning Area, OCFCD is responsible for maintaining the regional drainage facilities such as the Santa Ana River, San Diego Creek, and Buck Gully. These structures help regulate flow in the Santa Ana River, San Diego Creek, and smaller streams and hold back some of the flow during intense rainfall periods that could otherwise overwhelm the storm drain system in Newport Beach. In addition, as described above, the City's storm drain system includes mechanisms that minimize flood hazards resulting from high tide events.

4.7.3 Regulatory Framework

■ Federal Regulations

Clean Water Act of 1972

The State Water Resources Control Board (SWRCB) and its RWQCBs are responsible for enforcing water quality standards within the State. As mandated by Section 303(d) of the Federal Clean Water Act, the RWQCB maintains and updates a list of “impaired waterbodies” that do not meet State and Federal water quality standards. The State is then required to prioritize waters/watersheds for TMDL development. This information is compiled in a list and submitted to the US EPA for review and approval. This list is known as the Section 303(d) list of impaired waters. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDLs. TMDLs developed for the City of Newport Beach are described above in Existing Conditions.

Section 404 of the Federal Clean Water Act authorizes the US Army Corps of Engineers to issue permits for the discharge of dredged or fill material into waters of the United States, including wetlands. This section of the Clean Water Act has been interpreted to give the US Army Corps of Engineers jurisdiction over permitting wetlands fill.

National Flood Insurance Act

Congress acted to reduce the costs of disaster relief by passing the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief efforts by restricting development in floodplains.

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in a floodplain. FEMA issues Federal Insurance Rate Maps (FIRMs), which delineate flood hazard zones in the community, of communities participating in the NFIP. Since the City of Newport Beach is a participating member of the NFIP, flood insurance is available to any property owner in the City.

■ State Regulations

California Coastal Act (1976)

The California Coastal Act established a permanent Coastal Commission whose mandate is to protect and enhance the resources of the coastal zone mapped by the State Legislature. The goals of the Coastal Act are as follows:

- Protect, maintain and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.

- Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the State.
- Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.
- Assure priority for coastal-dependent and coastal-related development over other development on the coast.
- Encourage State and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Implementation of Coastal Act policies designed to achieve the above goals is accomplished primarily through the preparation of a Local Coastal Program (LCP), reviewed and approved by the Coastal Commission. An LCP typically consists of a land use plan and an implementation plan. The land use plan indicates the kinds, location, and intensity of land uses, the applicable resource protection and development policies, and, where necessary, a listing of implementing actions. The implementation plan consists of the zoning ordinances, zoning district maps, and other legal instruments necessary to implement the land use plan. Any amendments to the certified LCP will require review and approval by the Coastal Commission prior to becoming effective.

The Coastal Land Use Plan (CLUP) prepared as part of the City's LCP is described further in Local Regulations, below.

California Wetlands Conservation Policy (1993)

The goal of the California Wetlands Conservation Policy is to ensure no net loss of wetlands within the State. This policy also encourages a long-term net gain in the State's quantity, quality, and permanence of wetlands acreage and values. Interpretation of this order indicates that any developer wishing to fill in wetlands for construction of new development must perform mitigation in the form of constructed wetlands elsewhere at ratios ranging from 2:1 to 10:1. In addition to the US Army Corps of Engineers, State regulatory agencies claiming jurisdiction over wetlands include the California Department of Fish and Game (CDFG) and the SWRCB.

California Department of Fish and Game (CDFG) Lake or Streambed Alteration Program

CDFG, through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may adversely be affected. Streams and rivers are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFG.

Typically, wetland delineations are not performed to obtain CDFG Agreements. The reason for this is that CDFG generally includes any riparian habitat present within the jurisdictional limits of streams and lakes. Riparian habitat includes willows, mulefat, and other vegetation typically associated with the banks

of a stream or lake shoreline. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFG jurisdiction based on riparian habitat will automatically include any wetland areas

SARWQCB National Pollutant Discharge Elimination System Permit

Industrial facilities and construction sites are regulated by the State Water Resources Control Board (SWRCB), through general stormwater permits. Cities and counties are regulated through permits issued by the Regional Water Quality Control Boards (RWQCBs). Since 1990, operators of large storm drain systems such as the City's have been required to do the following:

- Develop a stormwater management program designed to prevent harmful pollutants from being dumped or washed by stormwater runoff, into the stormwater system, then discharged into local waterbodies
- Obtain a NPDES permit

The NPDES permit programs in California are administered by the SWRCB and by nine regional boards that issue NPDES permits and enforce regulations within their respective region. Newport Beach lies within the jurisdiction of the Santa Ana Region. This regional board issues permits to the Orange County Permittees, which includes the County of Orange, Orange County Flood Control District and incorporated cities of Orange County. Since the program's inception, the County of Orange has served as the principal permittee.

The City of Newport Beach is listed as a co-permittee for the SARWQCB's NPDES permit and is bound to comply with all the aspects of the permit requirements. The NPDES permit program controls water pollution by regulating point and nonpoint sources that discharge pollutants into waters of the United States. The City holds a NPDES permit to operate its MS4s. Newport Beach's MS4 Permit (adopted January 2002) directs it to keep pollutants out of its MS4 to the maximum extent practicable and to ensure that dry-weather flows entering recreational waters from the MS4 do not cause or contribute to exceedances of water quality standards. The Permit requires the City to do the following:

- Control contaminants into storm drain systems
- Educate the public about stormwater impacts
- Detect and eliminate illicit discharges
- Control runoff from construction sites
- Implement "best management practices" or "BMPs" and site-specific runoff controls and treatments for new development and redevelopment
- Prevent pollution from municipal operations, including fixed facilities and field activities
- Inspect industrial and commercial sites for compliance with NPDES regulations

In addition to managing municipal stormwater discharges, the NPDES permit program requires permitting of construction-related stormwater discharges. Specifically, development that is greater than one acre in size is required to comply with the provisions of the General Construction Activity Stormwater Permit adopted by the SWRCB. Under this permit, applicants are required to prepare, retain, and implement at the construction site a Stormwater Pollution Prevention Plan (SWPPP). In addition, the permit would require the employment of Best Management Practices (BMPs) to limit the extent of eroded materials from discharging into the City's drainage system and affecting water quality. BMPs

would consist of any activity, prohibition, practice, procedure, program, or other measure designed to prevent or reduce the discharge of pollutants directly or indirectly into the City's drainage system. Under these regulations, implementation of programs and practices to control polluted stormwater runoff are required, including the inspection of construction sites and enforcement actions against violators.

Furthermore, Provision C.3 of the General Construction Activity Stormwater Permit requires local municipalities to evaluate water quality effects and identify appropriate mitigation measures when they conduct environmental review of proposed projects. In order to implement Clean Water Act provisions governing discharges to municipal storm drains, Provision C.3 requires new and redevelopment projects that would modify hydrographs (i.e., create or replace impervious area) to treat and/or detain stormwater runoff before it is discharged to creeks or stormdrains. The primary goals of Provision C.3 are to protect water quality by minimizing sediment and other pollutants in site runoff, and to prevent downstream erosion by ensuring that post-project runoff and volume do not exceed pre-project runoff and volume.

Santa Ana River Basin Water Quality Control Plan (Basin Plan)

The document for each region of the SWRCB's jurisdiction is the Water Quality Control Plan, commonly referred to as the Basin Plan. It is the foundation for the regulatory programs of each of the nine Regional Water Quality Control Boards (RWQCBs or Regional Boards). The Basin Plan documents the beneficial uses of the region's ground and surface waters, existing water quality conditions, problems, and goals, and actions by the regional board and others that are necessary to achieve and maintain water quality standards.

Reclaimed Water Regulations

Within the State of California, reclaimed water is regulated by the US EPA, SWRCB, RWQCBs, and the State Department of Health Services. The SWRCB has adopted Resolution No. 77-1, Policy with Respect to Water Reclamation in California. This policy states that the SWRCB and RWQCBs will encourage and consider or recommend for funding water reclamation projects that do not impair water rights or beneficial instream uses.

The RWQCBs implement the SWRCB's Guidelines for Regulation of Water Reclamation and issue waste discharge permits that serve to regulate the quality of reclaimed water based on stringent water quality requirements. The State Department of Health Services develops policies protecting human health and comments and advises on RWQCB permits.

Local Regulations

Orange County Stormwater Program

The City is a member of the Orange County Stormwater Program, which coordinates all cities and the county government in Orange County to regulate and control storm water and urban runoff into all Orange County waterways, and ultimately, into the Pacific Ocean. The Orange County Stormwater

Program administers the current NPDES MS4 Permit and the 2003 Drainage Area Management Plan (DAMP) for the County of Orange and the 34 incorporated cities within the region.

As a result of the NPDES MS4 Permits for Orange County, adopted by the Santa Ana and San Diego Regional Water Quality Control Boards in early 2002, the cities and County (collectively called Permittees) subsequently prepared a Drainage Area Management Plan (DAMP). The DAMP was prepared to meet the requirements of the stormwater permit by describing the overall storm water management strategies planned by the County to protect the beneficial uses of the receiving waters in the Santa Ana drainage area. Thus, developments within the City resulting from implementation of the proposed General Plan Update would also be subject to the provisions of the DAMP.

Ocean Water Protection Program

Orange County Health Care Agency's (HCA) Water Quality Section operates the Ocean Water Protection Program, which ensures that all public recreational waters meet applicable water quality standards for swimming and shellfish harvesting. It routinely:

- Conducts microbial monitoring of ocean waters
- Responds to sewage spills and other unauthorized discharges of waste
- Closes ocean and bay waters after sewage spills
- Directs the posting of warning signs when AB411 standards are exceeded
- Responds to illness complaints
- Issues health advisories
- Runs the Ocean and Bay Water Closure and Posting Hotline for ocean and bay waters in Orange County

Under the requirements stipulated by the California Health and Safety Code and Title 17 of the California Code of Regulations, the results of water samples are reviewed every day for bacteria levels. Ocean and bay water closures, postings and health advisories are issued, when necessary.

In 1999, bacteriological ocean water quality standards, which were that are more protective of public health than previous standards, were added to the Health and Safety and Code and the Code of Regulations; these standards are informally called AB 411 standards.

When a known release of sewage is reported to the Ocean Water Protection Program staff, the ocean or bay water areas that may be affected by the sewage discharge are immediately closed to ocean water-contact sports. The closed ocean or bay water area will be reopened or reduced in size when the contamination source has been eliminated and after two daily consecutive sampling results indicate the affected area meets the AB 411 Ocean Water-Contact Sports Standards.⁶¹

The Ocean Water Protection Program staff review the results of bacteriological water analyses to determine compliance with established standards. When a bacteriological water sample fails to meet any of the AB 411 Ocean Water-Contact Sports Standards the following occurs:

⁶¹ Orange County Health Care Agency Environmental Health (HCA). 2003. 2002 Annual Ocean and Bay Water Quality Report, June.

- Warning signs are posted at the affected ocean or bay areas indicating that the waters have exceeded health standards
- All the information regarding the posted area is updated on the Ocean and Bay Water Closure and Posting Hotline and Web Page
- Additional bacteriological water samples are collected at the posted areas and the results are evaluated daily to determine if the areas posted with warning signs should be increased, reduced, shifted, or removed

Coastal Land Use Plan

The CLUP of the City of Newport Beach LCP was prepared in accordance with the California Coastal Act of 1976, approved by the California Coastal Commission in October 2005, and adopted in December 2005. The CLUP sets forth goals, objectives, and policies that govern the use of land and water and the protection of Coastal resources in the coastal zone within the City of Newport Beach and its sphere of influence, with the exception of Newport Coast and Banning Ranch. The policies contained in the CLUP address public access, recreation, marine environment, land resources, and residential and commercial development.

Metropolitan Water District Groundwater Recovery Program

Metropolitan Water District (MWD) established the Groundwater Recovery Program, which provides financial assistance to member agencies to improve and enhance the quality of local ground waters that does not meet the regulatory standards of the US EPA and the State Department of Health Services. If available, this funding may be used to improve water quality within the Newport Beach area.

City of Newport Beach Municipal Code

Chapter 14.34 (Water Well Standards)

The purpose of the City's Water Well Standards is to control the construction and reconstruction of water wells such that the City's groundwater quality will not be impaired. Chapter 14.34 also provides for the destruction of abandoned or nuisance wells so that they will not impair the quality of groundwater.

Chapter 14.36 (Water Quality)

Chapter 14.36 (Water Quality) of the Municipal Code requires the City to participate as a "Co-permittee" under the NPDES Permits in the development and adoption of an ordinance to accomplish the requirements of the Clean Water Act. The purpose of this chapter is for the City to participate in the improvement of water quality and comply with Federal requirements for the control of urban pollutants to stormwater runoff, which enters the network of storm drains throughout Orange County.

Chapter 15.10 (Excavation and Grading Code)

As required by the City's Municipal Code, grading activities shall obtain a grading permit from the City's Building Official. The Building Official also issues drainage permits as appropriate. Chapter 15.10 contains grading, fill, drainage, and erosion control standards that shall be applied to the corresponding

construction activity. The purpose of this chapter is to safeguard life, limb, property and the public welfare by regulating grading, drainage and hillside construction on private property and for similar improvement proposed by private interests on City right-of-way where regulations are not otherwise exercised.

Chapter 15.50 (Flood Damage Prevention)

The purpose of Chapter 15.50 (Flood Damage Prevention) of the Municipal Code is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. To accomplish this purpose, this chapter includes methods and provisions to:

- Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction
- Control the alteration of natural floodplain, stream channels, and natural protective barriers, which help accommodate or channel flood waters
- Control filling, grading, dredging, and other development which may increase flood damage
- Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

Chapter 19.24 (Subdivision Design)

Chapter 19.24 (Subdivision Design) of the Municipal Code contains slope, grading, drainage, and flood protection provisions specific to the development of subdivisions.

4.7.4 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2005 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on hydrology and water quality, as well as the City's storm drain system, if it would result in any of the following:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)
- 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 substantial erosion or siltation on- or off-site
- 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
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Require or result in the construction and/or expansion of new storm drain infrastructure that would cause significant environmental effects

- Otherwise substantially degrade water quality
- 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
- Place within a 100-year flood hazard area structures which would impede or redirect flows
- Expose people or structures to a significant risk or loss, injury or death involving flooding, including flooding as a result of a levee or dam
- Expose people or structures to significant risk or loss, injury or death involving inundation by seiche, tsunami, or mudflow

4.7.5 Project Impacts, Mitigation Measures, and Proposed Policies

■ Effects Not Found to Be Significant

The IS/NOP prepared for the proposed project did not identify any effects not found to be significant associated with Hydrology and Water Quality. Therefore, all thresholds are addressed in this section.

■ Project Impacts

Threshold	Would the proposed project violate any water quality standards or waste discharge requirements?
-----------	---

Impact 4.7-1 **Development under the proposed General Plan Update could result in an increase in pollutants in stormwater and wastewater, although water quality standards and waste discharge requirements would not be violated.**

Construction

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

Construction materials and waste handling, and the use of construction equipment, could also result in stormwater contamination and impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. The potential demolition of buildings to allow for redevelopment activities, and the removal of waste material during construction could also result in tracking of dust and debris and release of contaminants in existing structures. Staging areas or building

sites can also be the source of pollution due to the use of paints, solvents, cleaning agents, and metals during construction. Pesticide use (including herbicides, fungicides, and rodenticides) associated with site preparation is another potential source of stormwater contamination. Larger pollutants, such as trash, debris, and organic matter could also be associated with construction activities. Water quality degradation could result in health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors.

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

Construction activities could include road improvements and realignments, installation and realignment of utilities, demolition of existing structures for new development or replacement, new development, and the potential replacement of facilities. Areas that disturb one or more acres of land surface are subject to the Construction General Permit, 99-08-DWQ adopted by the State Water Resources Control Board (SWRCB). Preparation of a Stormwater Pollution Prevention Plan (SWPPP) is required for compliance with the NPDES General Construction Stormwater Activity Permit. Compliance with the permit would involve filing a Notice of Intent with the SWRCB and preparing and submitting a SWPPP prior to construction activities. The SWPPP must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and nonstormwater management controls. Inspection of construction sites before and after storms is required to identify stormwater discharge from the construction activity and to identify and implement controls where necessary. The Construction General Permit requirements would need to be satisfied prior to beginning construction on any project located on a site greater than one acre. Certain other projects require the preparation of a Water Quality Management Plan (WQMP).

Water quality degradation from construction would be specific to each site within the project area, and depend largely on the areas affected and the length of time soils are subject to erosion, and construction activities on-site. All development would be subject to regional and local regulations, including Chapter 14.36 of the Municipal Code. Under the provisions of this chapter, any discharge that would result in or contribute to degradation of water quality via stormwater runoff is prohibited. Contractors constructing new development or redevelopment projects are required comply with provisions set forth in the DAMP, including the implementation of appropriate BMPs identified in the DAMP, to control stormwater runoff so as to prevent any deterioration of water quality that would impair subsequent or competing beneficial uses of the water.

Typical BMPs that could be incorporated into the SWPPP or a WQMP would include, but are not limited to, the following:

- Diversion of off-site runoff away from the construction site
- Vegetation of proposed landscaped/grassed swale areas as soon as feasible following grading activities
- Revegetation of exposed soil surfaces as soon as feasible following grading activities
- Perimeter straw wattles to prevent off-site transport of sediment

- Drop inlet protection (filters and sand bags or straw wattles), with sandbag check dams within paved roadways
- Regular watering of exposed soils to control dust during construction
- Specifications for construction waste handling and disposal
- Contained equipment wash-out and vehicle maintenance areas
- Erosion and sedimentation control measures maintained throughout the construction period
- Stabilized construction entrances to avoid trucks from imprinting debris on City roadways
- Training of subcontractors on general site housekeeping

Furthermore, City officers are given the authority to inspect facilities and perform sampling in areas with evidence of storm water contamination, illicit discharges of non-stormwater to the storm drain system, or similar factors. City officers may also establish conditions and requirements related to the reduction or elimination of pollutants in stormwater runoff from a given site within the project area and require the contractor's compliance.

Both the SWPPP and provisions for obtaining a grading permit require approval of an erosion control plan. The erosion control plan could include measures such as limitations on grading during the dry season and construction discharges, as well as requirements for soil stabilization and use of sediment traps. Unless waived by the City's Building Official, soil engineering and engineering geology reports would also be prepared and submitted for any grading permit application. The recommendations contained in the approved geotechnical reports, which may include measures associated with erosion control, would be incorporated into the grading plans and would become conditions of the grading permit.

The proposed General Plan Update also includes policies designed to minimize stormwater and erosional impacts during construction. Policy NR 3.10 requires new development applications to include a WQMP to minimize runoff during construction. Policies NR 3.11, NR 3.12, and NR 4.4 require improvement and implementation of BMPs to prevent or minimize erosion during construction.

Of particular concern is development adjacent to sensitive habitat areas. This includes Banning Ranch and the Caltrans Remnant property. Banning Ranch is located north and east of Semeniuk Slough, a recognized Environmentally Sensitive Area. Caltrans Remnant property, located between MacArthur Boulevard and SR 73, north of San Diego Creek, is adjacent to wetlands on the Circulation Improvement and Open Space Agreement (CIOSA) open space property southwest of the Jamboree and MacArthur intersection. Grading associated with construction adjacent to these areas has the potential, if not properly regulated, to temporarily increase erosion and subsequent deposition of soil particles into the sensitive habitat. Runoff produced during and after construction is subject to National Pollution Discharge Elimination System Regulations, as well as local water quality and runoff standards, including the DAMP. Projects disturbing greater than one acre would be required to prepare and implement a SWPPP, which would require BMPs, such as prevention of stormwater from flowing over unprotected slopes, sandbagging around appropriate borders of the project area, temporary catch basins, and hay bales to prevent additional runoff and/or sediment from washing into the adjacent wetland areas. Disturbed areas would also be stabilized as quickly as possible, using biotechnical techniques. In addition, California Stormwater BMPs for Construction Activity, as prepared by the California State Stormwater Quality Task Force, would also need to be incorporated into the construction plans.

Compliance with regulations discussed above would reduce the risk of water degradation within the City from soil erosion related and construction activities. Since violations of water quality standards would be minimized, impacts to water quality from construction activities within the Planning Area would be *less than significant*.

Operation

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

The proposed General Plan Update would allow infill development throughout the Planning Area, consistent with existing land use patterns, intensities and building types. The Update also would concentrate new development and redevelopment in several specified subareas: Newport Center/Fashion Island, Balboa Village, Balboa Peninsula, West Newport Mesa, West Newport Highway, Mariners' Mile, and the Airport Area, areas that are already largely developed. The potential for infill development to contribute to polluted runoff would be minimal. The primary area of vacant land in the planning area is Banning Ranch, where it is possible that new development would occur and would result in additional urban runoff. This area is adjacent to Semeniuk Slough, a recognized Environmentally Sensitive Area. The Caltrans Remnant property is also adjacent to potential wetlands, located on the CIOSA open space parcel. Runoff from urban development typically contains contaminants such as oil, grease, metals, and landscaping chemicals (pesticides, herbicides, fertilizers, etc.). These contaminants could be transported by stormwater runoff into the City's drainage system and ultimately degrade surface water and groundwater quality.

In addition to stormwater runoff, polluted wastewater would be discharged by development under the proposed General Plan Update. Although the proposed land use changes would eliminate much of the existing industrial uses and related industrial wastewater discharges throughout the Planning Area, the increase in residential land uses would result in increases in wastewater contaminated with household chemicals. Proposed development would include household wastewater that discharges to the local wastewater systems. Depending on the wastewater service provider (City, IRWD, or Costa Mesa Sanitary District), discharges originating from these facilities would be treated either at one of OCSD's two treatment plants and discharged to the Pacific Ocean or at the Michelson Water Reclamation Plant in Irvine and reclaimed for irrigation, industrial, and non-potable domestic uses. In addition, OCSD reclaims wastewater for landscape irrigation and injection into the groundwater seawater intrusion barrier. These wastewater treatment plants must discharge effluent at levels acceptable by State and Federal standards. Section 4.14 (Utilities and Service Systems) contains a more detailed description of the wastewater services provided to the Planning Area.

Under the Basin Plan for the Santa Ana River Basin, which establishes water quality objectives and standards for both surface and groundwater of the region, water quality discharge requirements meeting

area-wide surface water use objectives are established as permit requirements by the SARWQCB during permitting for operations of proposed developments. Under the SARWQCB's NPDES permit system, all existing and future municipal and industrial discharges to surface waters within the City would be subject to regulations. NPDES permits are required for operators of MS4s, construction projects, and industrial facilities. These permits contain limits on the amount of pollutants that could be contained in each facility's discharge. Specifically, all development within the City would be subject to the provisions of the City's NPDES MS4 Permit and the Orange County DAMP.

Developments within the City would also be subject to the provisions in Chapter 14.36 (Water Quality) of the City of Newport Beach Municipal Code. Under the provisions of this chapter, any discharge that would result in or contribute to degradation of water quality via stormwater runoff is prohibited. As is required for construction activities, operation of new development or redevelopment projects are required comply with provisions set forth in the DAMP, including the implementation of appropriate BMPs identified in the DAMP, to control stormwater runoff so as to prevent any deterioration of water quality that would impair subsequent or competing beneficial uses of the water. These structural BMPs would include a range of methods, including but not limited to hydrodynamic devices, swales/biofilters, basins, and various filters. Appropriate nonstructural BMPs listed in the DAMP that may be used on site to control typical runoff pollutants include tenant/homeowner education, activity restrictions, common area landscape management, BMP maintenance, common area litter and animal waste control, catch basin inspection, employee training, private street/lot sweeping, smart irrigation controllers to avoid over-watering, and use of native drought-tolerant landscaping. In addition, where concerns of runoff into adjacent sensitive areas adjacent to potential new development, such as Banning Ranch and Caltrans Remnant property, exist, operational discharges would be expected to be conveyed away from the sensitive habitat areas, consistent with Policy NR 3.6, which requires that development not result in the degradation of natural water bodies. The DAMP would also include requirements that would avoid degradation of the adjacent habitat. Furthermore, City officers are given the authority to inspect facilities and perform sampling in areas with evidence of storm water contamination, illicit discharges of non-stormwater to the storm drain system, or similar factors.

In an effort to further ensure the protection of the City's water quality, the proposed General Plan Update has established three goals; the enhancement and protection of water quality of all natural water bodies, the maintenance of water quality standards through compliance with TMDL standards, and minimization of adverse effects to water quality from sanitary sewer outflows. Policies NR 3.1 through NR 5.4 would achieve these goals by limiting the use of landscape chemicals detrimental to water quality, requiring development to result in no degradation of natural water bodies, requiring new development applications to include a WQMP to minimize construction and post-construction runoff, implementing and improving BMPs, requiring all street drainage systems to be designed to minimize adverse impacts on water quality, requiring grading/erosion control plans with structural BMPs that prevent or minimize erosion, and renovating all older sewer pump station and installing new plumbing according to most recent standards. Implementation of Policy NR 3.21 contained in the proposed General Plan Update would minimize the creation of and increase in impervious surfaces, while increasing the area of pervious surfaces, where feasible. Policy NR 5.2 would regulate food preparation facilities that produce grease as waste dischargers, and they and would be required to obtain waste discharge permits. For a complete list

of proposed General Plan Update Policies regarding water quality, see Proposed General Plan Update Policies below.

Compliance with NPDES permits requirements, the Orange County DAMP, the City’s Municipal Code, and General Plan Policies would reduce the risk of water degradation within the City from the operation of new developments to the maximum extent practicable. Therefore, since violation of waste discharge requirements or water quality standards would be minimized, this impact would be *less than significant*.

Threshold	Would the proposed project 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?
-----------	---

Impact 4.7-2 Development of the proposed General Plan Update could create additional impervious surfaces, which could interfere with groundwater recharge. Development could substantially deplete groundwater supplies or interfere substantially with groundwater recharge.

Construction

Construction activities would primarily occur as part of infill/redevelopment, with the exception of the potential for development on Banning Ranch. The City is not located within an identified recharge area, as recharge primarily occurs in the upper portions of the Basin.⁶²

Because the Planning Area is near the coast, the groundwater table underlying the Planning Area is shallow and can occur as little as 50 feet below ground surface. Pile driving, dewatering, and other construction activities that would encounter groundwater could potentially occur. While the insertion of support and foundation structures in the groundwater may reduce the storage capacity of groundwater, the displaced volume would not be substantial relative to the volume of the Basin. Likewise, while dewatering would remove groundwater, the volume of water removed would not likely be substantial relative to groundwater pumping for water supply. Also, water used during construction for cleaning, dust control, and other uses would be nominal. Thus, construction activities would not substantially deplete groundwater supplies nor interfere substantially with groundwater recharge. This impact is considered *less than significant*.

Operation

As discussed in Existing Conditions, above, the Orange County Groundwater Basin underlies the northwestern portion of the Planning Area, and provides groundwater for much of central and north Orange County, including the Newport Beach Planning Area. The OCWD manages the Basin with a total capacity of approximately 38,000,000 AF. Recharge to the Basin is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. New development occurring

⁶² OCWD. 2004. Groundwater Management Plan. March.

from implementation of the proposed General Plan Update would increase the demand for groundwater as supplied by the City, IRWD, and Mesa Consolidated Water District (Mesa). As analyzed in Section 4.14 (Utilities and Service Systems) under Impact 4.14.1-1, the City's Water Supply Plan, which accounts for demand resulting from implementation of the proposed General Plan Update, states that projected groundwater supplies will meet projected demand throughout the City. The Natural Resources Element of the proposed General Plan Update identifies goals and related policies designed to minimize water consumption and expand the use of alternative water sources to provide adequate water supplies for present use and future growth. See Chapter 4.14 (Utilities and Service Systems), Section 4.14.1 (Water Supply) for the complete list of proposed water supply policies. Implementation of these policies would ensure water conservation and reduce potential impacts to groundwater supply. As such, increased demand for groundwater supply within the City under the proposed General Plan Update would not substantially deplete groundwater supplies. This impact is considered *less than significant*.

Intensification of development and addition of impervious surfaces as a result of implementation of the proposed General Plan Update would not interfere with groundwater recharge. Recharge to the Basin is derived from (1) percolation of Santa Ana River flow, (2) injection into wells, (3) and infiltration of precipitation. Implementation of the proposed General Plan Update would not interfere substantially with percolation of Santa Ana River flow because the planning subareas targeted for development are not on and would not deplete the flow of the Santa Ana River. Also, because the Planning Area is at the outlet of the Santa Ana River, activities within the Planning Area do not greatly contribute to the river's flow. Injection wells in the County are operated and managed by OCWD. There are no injection wells located within the City. Thus, implementation of the proposed General Plan Update would not substantially interfere with injection into wells. The proposed General Plan Update could affect groundwater recharge by reducing the infiltration of precipitation by adding impervious surfaces.

New development on vacant lands would reduce the amount of pervious surfaces within the Planning Area. However, the City is not identified as a key area of groundwater recharge. The proposed General Plan Update would allow infill development throughout the Planning Area, consistent with existing land use patterns, intensities and building types. The Update also would concentrate new development and redevelopment in several specified subareas: Newport Center/Fashion Island, Balboa Village, Balboa Peninsula, West Newport Mesa, West Newport Highway, Mariners' Mile, and the Airport Area. These areas are already developed with existing uses and impervious surfaces. The primary area of vacant land in the planning area is Banning Ranch, where it is possible that new development would occur. Similar to the remainder of the City, this site is not a groundwater recharge area. Therefore, new development would not substantially affect groundwater recharge. Potential impacts to groundwater recharge would be *less than significant*.

Threshold	Would the proposed project 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 substantial erosion or siltation on- or off-site?
-----------	--

Impact 4.7-3 Development under the proposed General Plan Update could alter the existing drainage pattern of the Planning Area and potentially result in erosion and siltation.

Construction

Construction activities under the proposed General Plan Update would involve stockpiling, grading, excavation, dredging, paving, and other earth-disturbing activities resulting in the alteration of existing drainage patterns. These types of activities would constitute a temporary alteration of drainage patterns. The proposed General Plan Update includes policies designed to minimize stormwater and erosional impacts during construction. Policy NR 3.10 requires new development applications to include a WQMP to minimize runoff during construction. Implementation of this policy would, in turn, minimize runoff-induced erosion. Policies NR 3.11, NR 3.12, and NR 4.4 require improvement and implementation of BMPs to prevent or minimize erosion during construction. Compliance with this Federal regulation would minimize the potential for construction activities to alter natural drainages via the deposition of sediments. In addition, as described in Impact 4.7-1, above, compliance with SWRCB's NPDES General Construction Activity Stormwater Permit, NPDES MS4 regulations, and the City's Municipal Code would reduce the risk of short-term erosion resulting from drainage alterations during construction to a *less-than-significant* impact.

Operation

Development under the proposed General Plan Update would result in alterations to drainage, such as changes in ground surface permeability via paving, changes in topography via grading and excavation. Impact 4.7-1 discusses applicable regulations that would limit pollutant discharges from proposed development under the General Plan. NPDES permit requirements would be imposed on applicable projects to limit pollutant discharges. Further, all development within the City would be subject to the provisions of the City's NPDES MS4 Permit and the Orange County DAMP. DAMP provisions including the implementation of appropriate BMPs including a range of methods that could minimize off-site erosion, including but not limited to hydrodynamic devices, swales/biofilters, basins, and various filters.

The proposed General Plan Update includes policies designed to minimize post-construction erosional impacts. These policies include NR 3.10, NR 3.11, NR 4.4, NR 3.20, S 5.3, NR 3.16, and NR 3.21. These policies require preparation of a WQMP, implementation of BMPs, incorporation of stormwater detention facilities, design of drainage facilities to minimize adverse effects on water quality, and minimization of increases in impervious areas. Implementation of these policies would reduce the volume sediment-laden runoff discharging from sites within project area. Therefore, compliance with NPDES regulations, the City's Municipal Code, and CDFG regulations in addition to implementation of the proposed General Plan Update Policies identified in this impact analysis would reduce the risk of erosion resulting from drainage alterations during the operation of new developments to a *less-than-significant* impact.

For a description of non-runoff-induced erosion hazards and impacts, see Section 4.5 (Geology and Soils).

Threshold	Would the proposed project 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?
Threshold	Would the proposed project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Impact 4.7-4 Development under the proposed General Plan Update could alter the existing drainage pattern of the Planning Area and potentially result in increased downstream flooding through the addition of impervious surfaces, exceeding the capacity of existing or planned stormwater drainage systems, or providing substantial additional sources of polluted runoff.

Planning subareas where land use changes or new development or redevelopment could occur, and other areas of the City where infill development could occur, under the proposed General Plan Update would generally result in infill development or redevelopment, with the main exception of Banning Ranch. As such, most of the planning subareas would not result in new development that would substantially alter drainage patterns because these areas are already developed with existing uses and impervious surfaces. However, development of land that may currently be vacant and covered with permeable surfaces, such as bare soil or vegetation may occur. The primary area that would experience increased runoff from implementation of the proposed General Plan Update would be in the Banning Ranch area, if it is developed.

Increased impervious surfaces would increase stormwater runoff in the City. This increased runoff could exceed the capacity of existing and planned infrastructure and cause downstream flooding impacts. As described in Existing Conditions, the existing drainage system throughout the City is not adequate for existing needs. The City's SDMP, completed in 2000, evaluated the deficiencies in the City's existing storm drain system and proposed upgrades. Most of the proposed upgrades are the result of increased development in drainage areas due to development since the design of the original system. The SDMP primarily addressed drainage deficiencies existing in 2000 and did not include upgrades that would be necessary with implementation of the proposed General Plan Update. However, according to the SDMP upgrades were proposed in most of the subareas, including small upgrades in the Airport Area. Improvements to Banning Ranch were not included in the SDMP.

The proposed General Plan Update policies identified in Impact 4.7-3, above, designed to minimize stormwater runoff would also apply to runoff-related flooding impacts. These policies include NR 3.10, NR 3.11, NR 4.4, NR 3.20, S 5.3, NR 3.16, and NR 3.21. These policies require preparation of a WQMP, implementation of BMPs, incorporation of stormwater detention facilities, design of drainage facilities to minimize adverse effects on water quality, minimize increases in impervious areas. As analyzed in Impact 4.7-3, implementation of these policies would also reduce the volume of runoff generated, and potential for flooding, throughout the Planning Area.

Additional policies that, if implemented, would minimize flooding are contained in the Safety Element of the proposed General Plan Update. These include Policies S 2.6, S 5.1, and S 5.3 Policies would require storm drain maintenance; mitigation of flood hazards by including onsite drainage systems that are connected to the City’s storm drain system, grading of sites within the project area such that runoff does not impact adjacent properties, or elevating buildings above flood levels; and incorporation of stormwater detention basins.

Compliance with the methods and provisions contained in Chapter 15.50 of the City’s Municipal Code would also minimize flood hazards resulting from drainage alterations. Specifically, Section 15.50.160 requires that the flood carrying capacity within watercourses proposed for alteration or relocation is maintained. If development proposes changes to drainages, this would occur in compliance with CDFG Streambed Alteration regulations in order to maintain drainage patterns. Therefore, implementation of the proposed General Plan Update policies and compliance with NPDES regulations, the City’s Municipal Code, and CDFG regulations would reduce the risk of flooding resulting from drainage alterations to a *less-than-significant* impact.

Operation of the proposed General Plan Update would degrade runoff water quality by contributing chemicals associated with household, commercial, transportation, and landscape uses. However, activities during operation of the proposed developments would not provide additional sources of polluted runoff apart from those described in Impact 4.7-1, above. This impact would be *less than significant*.

Threshold	Would the proposed project require or result in the construction and/or expansion of new storm drain infrastructure that would cause significant environmental effects?
-----------	---

Impact 4.7-5 Increases in stormwater runoff could require expansion of existing or construction of new storm drain facilities, the construction of which could result in significant environmental effects.

As described in Existing Conditions, the capacity of the existing storm drain infrastructure throughout the Planning Area is not sufficient to handle existing stormwater flows. Implementation of the upgrades proposed in the City’s SDMP would help alleviate existing deficiencies but would not provide adequate infrastructure to support development upon implementation of the proposed General Plan Update. While development in many urbanized portions of the Planning Area may not substantially exceed existing storm drain facilities, proposed development in currently vacant and underdeveloped areas, such as Banning Ranch, would necessitate of the construction of new or the expansion of existing storm drain infrastructure. Policies contained in the General Plan Update would ensure that new development can be adequately supported by utilities such as storm drainage infrastructure. In adhering to this policy, expansion of existing or construction of new facilities would take place prior to development. To further ensure new facilities are provided, the Public Infrastructure Plan in the proposed General Plan Update specifies that the City and County will review the Storm Drain Master Plan to assure that adequate facilities are provided to serve permitted land use development. As part of this process, the adequacy of facilities serving underdeveloped areas, such as Banning Ranch, will be evaluated to determine future needs.

Storm drain facility upgrades could result in short-term construction impacts due to earth trenching and other earth moving activities. These impacts would be similar to those described under Impact 4.7-1. However, the other construction impacts anticipated to result from implementation of the General Plan Update are comprehensively analyzed in Section 4.2 (Air Quality), Section 4.3 (Biological Resources), Section 4.9 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR. It is not anticipated that this construction of necessary storm drainage upgrades in and of itself would result in impacts separate from the General Plan Update. Nonetheless, upgrades, expansion, and construction of necessary utilities to accommodate new development would be subject to project-specific environmental review. Impacts are, therefore, *less than significant*.

Threshold	Would the proposed project otherwise substantially degrade water quality?
-----------	---

Impact 4.7-6 Development under the proposed General Plan Update could result in the degradation of groundwater quality.

Construction

The Planning Area is located along the coast and is underlain by a shallow groundwater table. In addition to potential degradation of surface water resources, as analyzed in Impacts 4.7-1 and 4.7-3, above, construction of development under the proposed General Plan Update could result in degradation of groundwater resources. Construction would involve earth-disturbing activities, such as trenching for underground utilities and pile driving for foundations, which could encounter and contaminate groundwater resources. Compliance with Chapter 15.10 of the Municipal Code would ensure that these earth-disturbing activities would not result in adverse groundwater conditions.

In addition, hazardous materials used during construction could contaminate surface water and percolate into the groundwater underlying the project area if the materials are not properly contained. Such risks of contamination would be minimized by implementation of Policy S7.4 of the proposed General Plan Update. This policy also requires remediation of surface water and groundwater impacted by construction activities. If previously unknown groundwater contamination is discovered during new construction activities, Policy NR 3.4 would require the remediation of the groundwater contamination. As discussed previously, impacts associated with the degradation of groundwater quality during construction activities would be *less than significant*.

For a description of existing groundwater contamination in the City and an analysis of hazardous materials impacts to groundwater under the proposed General Plan Update, see Section 4.6 (Hazards and Hazardous Materials).

Operation

In coastal groundwater basins, such as the Orange County Groundwater Basin, groundwater quality can be degraded through the intrusion of seawater primarily by pumping for domestic and irrigation water supply. As groundwater is extracted, the ability is created for seawater to migrate into the area from which the groundwater was extracted. For this reason, the injection wells were established along the

Alamitos and Talbert gaps, which protect groundwater quality in the upper portions of the Basin, where the majority of the pumping occurs. Degradation of groundwater quality would reduce the groundwater basin yield, diminishing production from existing activities and limiting future groundwater development. As determined in Impact 4.14.1-1 in Section 4.14 (Utilities and Service Systems) of this EIR, development under the proposed General Plan Update would not be adequately served by the existing water supply; however, it is not anticipated that the construction of new wells would be necessary. Because operation of the proposed General Plan Update would not substantially increase groundwater pumping, the project would not adversely impact groundwater quality due to saltwater intrusion.

Common sources of groundwater contamination are leaking underground storage tanks, septic systems, oil fields, landfills, and general industrial land uses. Implementation of the proposed General Plan Update would not construct oil fields or landfills and would eliminate 406,000 square feet of industrial land uses throughout the Planning Area. Under Section 19.28.070 of the City’s Municipal Code, new subdivisions are prohibited from constructing septic tanks. All lots intended for building development are required to be connected to a public sewer system. Therefore, degradation of groundwater quality from these sources would not result from development under the proposed General Plan Update. For further analysis of hazardous material impacts to groundwater, see Section 4.6 (Hazards and Hazardous Materials).

Implementation of the proposed General Plan Update policies would minimize any other potential sources of water quality degradation. Implementation of Policies NR 3.1 through NR 5.4 work towards enhancement and protection of water quality of all natural water bodies, the maintenance of water quality standards through compliance with TMDL standards, and minimization of adverse effects to water quality from sanitary sewer outflows. Implementation of Policies S 7.1, S 7.4, and S 7.6 of the Safety Element would achieve the goal of minimizing exposure of people and the environment to hazardous materials, including the contamination of groundwater by hazardous materials. Thus, with implementation of the proposed General Plan Update policies and compliance with the Municipal Code, development under the proposed General Plan Update would not otherwise degrade water quality. Impacts would be *less than significant*.

Threshold	Would the proposed project 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?
-----------	--

Impact 4.7-7 Development under the proposed General Plan Update could place housing within a 100-year flood zone.

As shown in Figure 4.7-3, the 100-year flood zone is primarily contained in and along the edges of Newport Bay and along the coastline of the Planning Area. Specifically, several of the nine planning subareas targeted for residential development under the proposed General Plan Update lie within a 100-year flood zone. Parts of Mariners’ Mile, the western portion of Banning Ranch, Balboa Village, Balboa Peninsula, Balboa Island, and West Newport Highway are susceptible to 100-year flood conditions. Development in Banning Ranch would occur on upland areas, outside of the 100-year flood zone. In other subareas within the 100-year flood zone, residential development already exists, and development

under the proposed General Plan Update would increase the number of multi-family and single-family development units within the 100-year flood zone in these subareas.

The Safety Element of the proposed General Plan Update has established a goal to protect human life and public and private property from the risks of flooding. The Safety Element includes flood policies that, if implemented, would achieve this goal. Under Policy S 5.1, all new development within 100-year flood zones would be required to mitigate flood hazards by including onsite drainage systems that are connected to the City's storm drain system, grading of sites within the project area such that runoff does not impact adjacent properties, or elevating buildings above flood levels. If building pads are elevated out of the floodplain, a Letter of Map Revision (LOMR) would be required from FEMA that certifies the land has been elevated out of the floodplain.

Furthermore, Chapter 15.50 of the City's Municipal Code establishes methods and provisions that would minimize flood damage to residential development. In particular, Section 15.50.200 and 15.50.220 require the lowest floor of residential structures and structures within subdivisions to be elevated to or above the base flood level. Floodproofing measures included in the proposed General Plan Update and existing municipal code would be sufficient to protect new structures from damage in the event of a 100-year flood.

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

Threshold	Would the proposed project place within a 100-year flood hazard area structures which would impede or redirect flows?
-----------	---

Impact 4.7-8 Development under the proposed General Plan Update could place structures within a 100-year flood zone, but not in a manner that would substantially impede or redirect flows.

Development under the proposed General Plan Update would include structures that could potentially be placed in a 100-year flood zone. Specifically, several of the nine planning subareas targeted for development under the proposed General Plan Update lie within the 100-year flood zone. Parts of Mariners' Mile, the western portion of Banning Ranch, Balboa Village, Balboa Peninsula, Balboa Island, and West Newport Highway are susceptible to 100-year flood conditions. With the exception of Banning Ranch, structures in 100-year flood zones already exist in these subareas. Intensification of development could alter existing passages through which flood waters flow, particularly during a 100-year storm event where rainfall would exceed capacity of storm drain systems.

Flood waters that exceed the capacities of existing and improved drainages would travel by overland flow on any available ground surface, such as streets, lawns, and spaces between buildings. Intensification of development would increase the area of land covered by structures, leaving less available ground surface area over which flood flows could travel. Building density under the proposed General Plan Update is not anticipated to increase to such an extent that would substantially increase obstructions to flood flows, with the exception of potential development in Banning Ranch. Displacement of flows would also occur

where land is elevated out of the floodplain area, which would displace flood waters that would otherwise cover the project area.

A water displacement analysis would be required to investigate the effect of new structural development or fill on flooding depth, pursuant to FEMA regulation 44 CFR 60.3 (c)(10).

Preparation of water displacement analyses where appropriate and compliance with FEMA regulations would ensure that General Plan development would not substantially impede or redirect flows. Impacts would be *less than significant*.

Threshold	Would the proposed project expose people or structures to a significant risk or loss, injury or death involving flooding, including flooding as a result of a levee or dam?
-----------	---

Impact 4.7-9 Development under the proposed General Plan Update could expose people and structures to flood risks.

As described in Existing Conditions, above, several dams are located within and in the vicinity of the City of Newport Beach. Portions of Newport Beach are downstream from Prado Dam, Santiago Creek Reservoir, Villa Park Reservoir, San Joaquin Reservoir, Big Canyon Reservoir, and Harbor View Reservoir (Newport Beach 2004). Dam failure inundation zones in the Planning Area are similar to the 100-year flood zones. That is, areas that would be inundated in the event of dam failure are those that are near the Santa Ana River, San Diego Creek, and Newport Bay. In addition, the stretch of land between Big Canyon Reservoir and Newport Bay is within the Big Canyon Reservoir inundation area. Land within the Harbor View Reservoir inundation area includes several blocks of urban development adjacent to Newport Harbor. Of the nine planning subareas targeted for development under the proposed General Plan Update, portions of Banning Ranch and West Newport Highway lie within a dam failure inundation zone. The proposed residential, visitor, and commercial uses identified for these subareas would be subject to dam failure inundation. Because the holding-capacity of dams is greater than that of other structures, failure of other flood control and water storage structures, such as levees and water tanks, would not result in inundation impacts greater than those resulting from dam failure.

The probability of dam failure is low. Development under the proposed General Plan Update would not increase the risk of dam failure, although it would increase the number of persons and amount of development exposed to this hazard. Dam failure could also result due to a seismic event. Implementation of the flood protection policies contained in the proposed General Plan Update, and existing City Municipal Code, as described in Impact 4.7-8, would minimize the impact of flooding. These protective measures would also reduce impacts from flooding as a result of dam failure to the extent feasible. Thus, risks associated with flooding, including dam failure inundation, would be *less than significant* in the Planning Area.

Threshold	Would the proposed project expose people or structures to significant risk or loss, injury or death involving inundation by seiche, tsunami, or mudflow?
-----------	--

Impact 4.7-10 Development under the proposed General Plan Update could expose people and structures to flood risks.

As described in Existing Conditions, above, potential risks from seiche and tsunami exist throughout the City. Seiches in large, enclosed bodies of water, such as the reservoirs in the City and, to an extent, Newport Harbor and Newport Bay, would inundate immediate areas surrounding the body of water. Of the nine planning subareas targeted for development under the proposed General Plan Update, Mariners' Mile, Balboa Peninsula, and Balboa Village would be at risk of inundation resulting from seiche in Newport Harbor. Coastal flood hazards, such as tsunamis and rogue waves, would inundate primarily the low-lying areas of the City's coastline, including, but not limited to, the West Newport Highway, Mariners' Mile, Balboa Peninsula, Balboa Island, and Balboa Village subareas. Potential risks from mudflow (i.e., mudslide, debris flow) are also prevalent, as steep slopes exist throughout the City. Prolonged rainfall during certain storm events would saturate and could eventually loosen soil, resulting in slope failure. Within the Planning Area, the San Joaquin Hills and areas downslope of the bluffs along Upper Newport Bay, Newport Harbor, the Pacific Ocean, and Newport Coast are the most susceptible to mudflow inundation.

Development under the proposed General Plan Update would increase the exposure of people to the low-probability but high-risk events such as seiche, tsunami, and mudflows by increasing development in certain areas of the City, including Mariners' Mile and Banning Ranch. The Safety Element of the proposed General Plan Update has established a goal to minimize adverse effects of coastal hazards related to tsunamis and rogue waves. Implementation of Policies S 1.1 through S 1.5 would achieve this goal by identifying evacuation routes in areas susceptible to tsunami inundation, developing and implementing response plans for adoption by the City's emergency services, and maintaining beach width to provide protection against tsunami run-up, developing and implementing an educational program for people in susceptible areas, and supporting tsunami research. The Safety Element also includes a goal to minimize adverse effects of coastal hazards related to storm surges and seiches. Implementation of Policies S2.1 through S2.7 would achieve this goal by preparing impact reports for shoreline and coastal bluff areas that will be made available to applicants for new development, developing and implementing shoreline management plans, using sand dunes as shoreline protective structures, maintaining storm drains in low-lying areas such that flood waters can be effectively conveyed away from structures, requiring residential structures to raise floor elevations, and enforcing policies that prohibit the construction of hard devices for protection of public property from storm surges.

In addition, implementation of the flood protection policies contained in the Safety Element of the proposed General Plan Update, as described in Impact 4.7-8, would also help minimize the impact of flooding, including flooding as a result of seiche and tsunami inundation. Furthermore, all new development in the City occurring in areas that are subject to flood hazards would be required to comply with the flood damage prevention provisions of the City's Municipal Code. Thus, risks associated with inundation by seiche, tsunami, and mudflow are considered to be *less than significant* in the Planning Area.

■ Cumulative Impacts

Water Quality

The geographic context for the analysis of cumulative impacts associated with water quality is the area covered by the Newport Bay, Newport Coast, Talbert, and San Diego Creek Watersheds, which are described above in Existing Conditions. Buildout of the proposed General Plan Update, in combination with all other development that would occur within the watershed, would involve construction activities, new development from which runoff would discharge into waterways, increases in stormwater runoff from new impervious surfaces, and reduction in groundwater recharge areas. Construction of new development throughout the watersheds could result in the erosion of soil, thereby cumulatively degrading water quality within the watershed. In addition, the increase in impermeable surfaces and more intensive land uses within the Santa Ana Watershed resulting from future development may also adversely affect water quality by increasing the amount of stormwater runoff and common urban contaminants entering the storm drain system. However, new development would be required to comply with existing regulations regarding construction practices that minimize risks of erosion and runoff. Among the various regulations are the applicable provisions of Orange County Ordinance 3988 (Stormwater Management and Urban Runoff—Orange County Flood Control District Regulations), Best Management Practices, compliance with appropriate grading permits, and NPDES permits. This would minimize degradation of water quality at individual project construction sites. As such, cumulative impacts would be *less than significant*. Compliance by the City and SOI with applicable SWRCB and RWQCB regulations and the City of Newport Beach Municipal Code, as discussed in Impact 4.7-1, would ensure that water quality is maintained to the maximum extent practicable for new development under the proposed General Plan Update. Thus, impacts associated with water quality from implementation of the proposed General Plan Update would be *less than significant*, and the proposed General Plan Update would not have a cumulatively considerable contribution to the cumulative effects related to water quality.

Groundwater

The geographic context for the analysis of cumulative impacts associated with groundwater is the area underlain by the Coastal Plain of Orange County Groundwater Basin, which is described in Existing Conditions. Continued development within the Basin could also interfere with groundwater recharge. New development occurring in vacant areas that currently serve as groundwater recharge areas would reduce recharge potential within the watershed. The potential impacts to groundwater recharge in the City and SOI, as analyzed in Impact 4.7-2, would be *less than significant* from implementation of the proposed General Plan Update. Although implementation of the proposed General Plan Update would not have a cumulatively considerable contribution to the adverse effects on groundwater recharge in the Basin, the overall growth and development that would take place throughout Basin would directly and/or indirectly result in the loss of groundwater recharge areas. This loss would be mitigated by OCWD via operation of the GRS. Implementation of the GRS would increase groundwater supplies by injecting reclaimed water into the Basin and protecting it against saltwater intrusion. Thus, impacts associated with groundwater from implementation of the proposed General Plan Update would be *less*

than significant, and the project would not have a cumulatively considerable contribution to the cumulative effects related to groundwater.

Storm Drainage

The existing storm drain system in the City is currently owned and operated by the City, while the Orange County RDMD is responsible for all regional drainage facilities within the County. Since some local storm drain facilities within the City ultimately flow into the County facilities, the geographic context for cumulative impacts is the Orange County. Buildout of the proposed General Plan Update, in combination with all other development that would occur within the County, would involve development that would increase stormwater runoff from new impervious surfaces. This increased development would require the construction of new, or expansion of existing, storm drain facilities; however, all new development would be required to comply with existing State and local regulations regarding construction and operation practices that minimize the amount of stormwater runoff that enters the storm drain system. In addition, the proposed General Plan Update policies require that adequate storm water conveyance and storage control facilities be maintained and/or constructed for all development. As such, the project's contribution to the cumulative effects related to storm drains as well as the overall cumulative impact within the County would be *less than significant*.

Flood Hazards

The geographic context for the analysis of cumulative impacts associated with flooding hazards is the area covered by the Newport Bay, Newport Coast, Talbert, and San Diego Creek Watersheds, which are described above in Existing Conditions. Cumulative growth and development throughout the watersheds could result in the introduction of new structures and impervious surfaces that would increase stormwater runoff, which could subsequently lead to increased flood hazards. However, it is anticipated that applicable State and local regulations would prevent the placement of housing and structures in 100-year flood hazard areas unless flood control improvements are made to reduce the risk from 100-year floods. Within Orange County, for instance, future development that could potentially affect floodwater conveyance, which in turn could adversely affect public health and general safety, would be subject to the requirements of the OCFCD, County General Plan policies related to flood hazards, and other cities' flood plain management ordinances. As such, this cumulative impact would be *less than significant*. The proposed project's contribution to cumulative impacts associated with flood hazards in the Newport Bay, Newport Coast, Talbert, and San Diego Creek Watersheds would be *less than significant*.

Cumulative development in the watershed would not expose people or structures to a significant risk of loss, injury, or death involving flooding or inundation. Although cumulative development could potentially result in increases in the number of people living in potential dam, levee, seiche, tsunami, and mudflow inundation areas, the occurrence of these events at a catastrophic level is considered remote. In addition, it is anticipated that applicable policies related to inundation hazards from the general plans of each jurisdiction encompassed by the watershed would ensure that development would be protected against potential structural failures and severe weather conditions. The Orange County General Plan, for instance, has a policy to identify areas subject to dam failure inundation. Implementation of this policy would ensure that applications for future development in Orange County would be aware of significant

adverse impacts from dam failure. Thus, this cumulative impact would be *less than significant*. Therefore, the proposed General Plan Update’s contribution to cumulative impacts associated with the potential failure of a dam would be *less than significant*.

■ Proposed General Plan Update Policies

The Natural Resources and Safety Elements of the proposed General Plan Update include policies that would address issues related to hydrology and water quality. The policies that are applicable to the project are included below. Policies identified below that are also contained in the Harbor and Bay Element are denoted with an “HB”.

Natural Resources Element

Water Quality

Goal NR 3 Enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands. (Goal HB8)

Policy NR 3.1 Information and Education on Water Quality Issues

Support the development of a model (physical and/or mathematical) of the Bay and coastline that provides information regarding the nature and extent of the water quality problem and enables prediction of the effects of changes on the entire system. (Policy HB8.1)

Policy NR 3.2 Chemical Use Impacts

Support regulations limiting or banning the use insecticides, fertilizers, and other chemicals which are shown to be detrimental to water quality. (Policy HB8.2)

Policy NR 3.3 Water Pollution Prevention

Promote pollution prevention and elimination methods that minimize the introduction of pollutants into natural water bodies. (Policy HB8.3)

Policy NR 3.4 Ground Water Contamination

Suspend activities and implement appropriate health and safety procedures in the event that previously unknown groundwater contamination is encountered during construction. Where site contamination is identified, implement an appropriate remediation strategy that is approved by the City and the state agency with appropriate jurisdiction. (Policy HB8.4)

Policy NR 3.5 Storm Sewer System Permit

Require all development to comply with the regulations under the City's municipal separate storm sewer system permit under the National Pollutant Discharge Elimination System. (Policy HB8.5)

Policy NR 3.6 Natural Water Bodies

Require that development not result in the degradation of natural water bodies. (Policy HB8.6)

Policy NR 3.7 Watershed Runoff Quality Control

Support and participate in watershed-based runoff reduction, water quality control, and other planning efforts with the California Regional Water Quality Control Board (RWQCB), the County of Orange, and upstream cities. (Policy HB8.7)

Policy NR 3.8 Newport Beach Water Quality Ordinance

Update and enforce the Newport Beach Water Quality Ordinance. (Policy HB8.8)

Policy NR 3.9 Permit Review Process

Develop and maintain a water quality checklist to be used in the permit review process to assess potential water quality impacts. (Policy HB8.9)

Policy NR 3.10 Water Quality Management Plan

Require new development applications to include a Water Quality Management Plan (WQMP) to minimize runoff from rainfall events during construction and post-construction. (Policy HB8.10)

Policy NR 3.11 Best Management Practices

Implement and improve upon Best Management Practices (BMPs) for residences, businesses, development projects, and City operations. (Policy HB8.11)

Policy NR 3.12 Site Design and Source Control

Include site design and source control BMPs in all developments. When the combination of site design and source control BMPs are not sufficient to protect water quality as required by the National Pollutant Discharge Elimination System (NPDES), structural treatment BMPs will be implemented along with site design and source control measures. (Policy HB8.12)

Policy NR 3.13 Reduction of Infiltration

Include equivalent BMPs that do not require infiltration, where infiltration of runoff would exacerbate geologic hazards. (Policy HB8.13)

Policy NR 3.14 Natural Wetlands

Promote the use of natural wetlands to improve water quality. (Policy HB8.14)

Policy NR 3.15 Runoff Reduction on Private Property

Retain runoff on private property to prevent the transport of pollutants into recreational waters, to the maximum extent practicable. (Policy HB8.15)

Policy NR 3.16 Street Drainage Systems

Require all street drainage systems and other physical improvements created by the City, or developers of new subdivisions, to be designed, constructed, and maintained to minimize adverse impacts on water quality. Investigate the possibility of treating or diverting street drainage to minimize impacts to water bodies. (Policy HB8.16)

Policy NR 3.17 Siting of New Development

Require that development be located on the most suitable portion of the site and designed to ensure the protection and preservation of natural and sensitive site resources that provide important water quality benefits. (Policy HB8.17)

Policy NR 3.18 Parking Lots and Rights-of-Way

Require that parking lots, and public and private rights-of-way be maintained and cleaned frequently to remove debris and contaminated residue. (Policy HB8.18)

Policy NR 3.19 Water Quality Education

Effectively communicate water quality education to residents and businesses, including the development of a water quality testing lab and educational exhibits at various educational facilities. (Policy HB8.19)

Policy NR 3.20 Natural Drainage Systems

Require incorporation of natural drainage systems and stormwater detention facilities into new developments, where appropriate and feasible, to retain stormwater in order to increase groundwater recharge. (Policy HB8.20)

Policy NR 3.21 Impervious Surfaces

Require new development and public improvements to minimize the creation of and increases in impervious surfaces, especially directly connected impervious areas, to the maximum extent practicable. Require redevelopment to increase area of pervious surfaces, where feasible. (Policy HB8.21)

Goal NR 4 Maintenance of water quality standards through compliance with the total maximum daily loads (TMDLs) standards

Policy NR 4.1 Total Maximum Daily Loads

Develop and implement the TMDLs established by the RWQCB, Santa Ana Region and guided by the Newport Bay Watershed Executive Committee (WEC).

Policy NR 4.2 Funding for Restoration and Dredging Projects

Secure funding for the Upper Newport Bay Ecosystem Restoration Project and long-term funding for successor dredging projects for Upper and Lower Newport Bay.

Policy NR 4.3 Restore Natural Hydrologic Conditions

Preserve, or where feasible, restore natural hydrologic conditions such that downstream erosion, natural sedimentation rates, surface flow, and groundwater recharge function near natural equilibrium states.

Goal NR 4 Maintenance of water quality standards through compliance with the total maximum daily loads (TMDLs) standards.

Policy NR 4.4 Erosion Minimization

Require grading/erosion control plans with structural BMPs that prevent or minimize erosion during and after construction for development on steep slopes, graded, or disturbed areas.

Goal NR 5 Sanitary Sewer Outflows—Minimal adverse effects to water quality from sanitary sewer outflows

Policy NR5.1 City Sewer Management and Master Plans

Implement the Sewer System Management Plan and the Sewer Master Plan.

Policy NR 5.2 Waste Discharge Permits

Require waste discharge permits for all food preparation facilities that produce grease.

Policy NR 5.3 Sewer Pump Stations

Renovate all older sewer pump stations and install new plumbing according to most recent standards.

Policy NR 5.4 Waste Discharge Permits

Comply with the RWQCB's Waste Discharge Requirements (WDRs) associated with the operation and maintenance of the City's sewage collection system.

Land Use Element

Goal LU 2 A living, active, and diverse environment that complements all lifestyles and enhances neighborhoods, without compromising the valued resources that make Newport Beach unique. It contains a diversity of uses that support the needs of residents, sustain and enhance the economy, provide job opportunities, serve visitors that enjoy the City's diverse recreational amenities, and protect its important environmental setting, resources, and quality of life.

Policy LU 2.8 Adequate Infrastructure

Accommodate the types, densities, and mix of land uses that can be adequately supported by transportation and utility infrastructure (water, sewer, storm drainage, energy, and so on) and public services (schools, parks, libraries, seniors, youth, police, fire, and so on).

Goal LU 3 A development pattern that retains and complements the City's residential neighborhoods, commercial and industrial districts, open spaces, and natural environment.

Policy LU 3.4 Banning Ranch

Prioritize the retention of Banning Ranch as an open space amenity for the City and region, consolidating oil operations, enhancing wetland and other habitats, and providing parkland amenities to serve nearby neighborhoods. If the property cannot be acquired in a timely manner, allow for the development of a compact residential village that preserves the majority of the site as open space and restores critical habitat in accordance with Policies 6.3.1 through 6.5.5.

Goal LU 6.4 If acquisition for open space is not successful, a high-quality residential community with supporting uses that provides revenue to restore and protect wetlands and important habitats.

Policy LU 6.4.10 Sustainable Development Practices

Require that any development of Banning Ranch achieve high levels of environmental sustainability that reduce pollution and consumption of energy, water, and natural resources to be accomplished through land use patterns and densities, site planning, building location and design, transportation and utility infrastructure design, and other techniques. Among the strategies that should be considered are the concentration of development, reduction of vehicle

trips, use of alternative transportation modes, maximized walkability, use of recycled materials, capture and re-use of storm water on-site, water conserving fixtures and landscapes, architectural elements that reduce heat gain and loss, and preservation of wetlands and other habitats.

Safety Element

Coastal Hazards

Minimization of Tsunamis and Rogue Wave Hazards

Goal S1 Adverse effects of coastal hazards related to tsunamis and rogue waves to people and property are minimized.

Policy S 1.1 **Evacuation Routes**

Review local and distant tsunami inundation maps for Newport Beach and adjacent coastal communities as they are developed to identify susceptible areas and plan evacuation routes.

Policy S 1.2 **Evacuation Response Plans**

Participate in any regional effort to develop and implement workable response plans that the City's emergency services can adopt immediately for evacuation in the case of a tsunami warning.

Policy S 1.3 **Beach Replenishment**

Continue projects like the Surfside-Sunset/West Newport Beach Replenishment program to maintain beach width. Wide beaches provide critical protection against tsunami run-up for structures along the oceanfront.

Policy S 1.4 **Education Program**

Develop and implement a tsunami educational program for residents, visitors, and people who work in the susceptible areas.

Policy S 1.5 **Tsunami Research**

Support tsunami research in the Newport Beach offshore and Newport Bay areas.

Minimization of Storm Surge and Seiche Hazards

Goal S2 Adverse effects of coastal hazards related to storm surges and seiches to people and property are minimized.

Policy S 2.1 Wave Up-Rush and Impact Reports

Prepare and periodically update (every 5 years) comprehensive wave up-rush and impact reports for shoreline and coastal bluff areas subject to wave action that will be made available to applicants for new development on a beach or coastal bluff property.

Policy S 2.2 Shoreline Management Plans

Develop and implement shoreline management plans for shoreline areas subject to wave hazards and erosion. Shoreline management plans should provide for the protection of private property, public improvements, coastal access, public opportunities for coastal recreation, and coastal resources.

Policy S 2.3 Use of Temporary Shoreline Protection

Continue to utilize temporary sand dunes in shoreline areas to protect buildings and infrastructure from wave up-rush, while minimizing significant impacts to coastal access and resources.

Policy S 2.4 Use of Existing Shoreline Protection

Encourage the use of existing sand dunes with native vegetation as a protective device in beach areas.

Policy S 2.5 Shoreline Protection Alternatives

Encourage the use of nonstructural methods, such as dune restoration and sand nourishment, as alternatives to shoreline protective structures.

Policy S 2.6 Maintenance of Storm Drains

Maintain and regularly clean out storm drains in low lying areas, as necessary, such that flood waters can be effectively conveyed away from structures.

Policy S 2.7 Residential Design

Require new or remodel of residential structures in areas susceptible to storm surge to raise floor elevations as required by building codes.

*Minimization of Coastal Erosion Hazard***Goal S3 Adverse effects of coastal erosion to people and property are minimized.****Policy S 3.1 Coastal Hazard Studies**

Prepare and periodically update comprehensive studies of seasonal and long-term shoreline change, episodic and chronic bluff retreat, flooding, and local changes in sea levels, and other coastal hazard conditions.

Policy S 3.2 Beach Width Monitoring

Continue to monitor beach width and elevations and analyze monitoring data to establish approximate thresholds for when beach erosion or deflation will reach a point that it could expose the backshore development to flooding or damage from storm waves. (Policy HB 13.5)

Policy S 3.3 Maintenance of Beach Width and Elevations

Develop and implement a comprehensive beach replenishment program to assist in maintaining beach width and elevations. Analyze monitoring data to determine nourishment priorities, and try to use nourishment as shore protection, in lieu of more permanent hard shoreline armoring options. (Policy HB 13.4)

Policy S 3.4 Minimization of Shoreline Process Effects

Maintain existing groin fields and jetties and modify as necessary to eliminate or mitigate adverse effects on shoreline processes.

Policy S 3.5 Protection of Coastal-Dependent Uses

Permit revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls and other structures altering natural shoreline processes or retaining walls when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

Policy S 3.6 Siting of Shoreline Protective Devices

Design and site protective devices to minimize impacts to coastal resources, minimize alteration of natural shoreline processes, provide for coastal access, minimize visual impacts, and eliminate or mitigate adverse impacts on local shoreline sand supply.

Policy S3.7 Shoreline Protective Devices on Public Land

Discourage shoreline protective devices on public land to protect private property/development. Site and design any such protective devices as far landward as possible.

Policy S 3.8 Shoreline Protective Device Use

Limit the use of protective devices to the minimum required to protect existing development and prohibit their use to enlarge or expand areas for new development or for new development. “Existing development” for purposes of this policy shall consist only of a principle structure, e.g. residential dwelling, required garage, or second residential unit, and shall not include accessory or ancillary structures such as decks, patios, pools, tennis courts, cabanas, stairs, landscaping etc.

Policy S 3.9 Shoreline Protection for New Development

Require property owners to record a waiver of future shoreline protection for new development during the economic life of the structure (75 years) as a condition of approval of a coastal development permit for new development on a beach or shoreline that is subject to wave action, erosion, flooding, landslides, or other hazards associated with development on a beach or bluff. Shoreline protection may be permitted to protect existing structures that were legally constructed prior to the certification of the LCP, unless a waiver of future shoreline protection was required by a previous coastal development permit.

Policy S 3.10 Bluff Stabilization

Site and design new structures to avoid the need for shoreline and bluff protective devices during the economic life of the structure (75 years), unless an environmentally acceptable design to stabilize the bluff and prevent bluff retreat is devised.

Policy S 3.11 New Development Impact on Coastal Erosion

Require that applications for new development with the potential to be impacted or impact coastal erosion include slope stability analyses and erosion rate estimates provided by a licensed Certified Engineering Geologist or Geotechnical Engineer.

Policy S 3.12 Minimization of Coastal Bluff Recession

Require new development adjacent to the edge of coastal bluffs to incorporate drainage improvements, irrigation systems, and/or native or drought-tolerant vegetation into the design to minimize coastal bluff recession.

Flood Hazards

Protection from Flooding Risks

Goal S 5 Protection of human life and public and private property from the risks of flooding

Policy S 5.1 New Development Design within 100-year Floodplains

Require that all new development within 100-year floodplains incorporate sufficient measures to mitigate flood hazards including the design of onsite drainage systems that are connected with the City's storm drainage system, gradation of the site such that runoff does not impact adjacent properties, and buildings are elevated.

Policy S 5.2 Facility Use or Storage of Hazardous Materials Standards

Require that all new facilities storing, using, or otherwise involved with substantial quantities of onsite hazardous materials within flood zones comply with standards of elevation, anchoring, and flood proofing, and hazardous materials are stored in watertight containers.

Policy S 5.3 Minimization of Flood Hazard Risk

Require stormwater detention basins, where appropriate, to reduce the potential risk of flood hazards.

Hazardous Materials

Minimization of Hazardous Materials Exposure

Goal S 7 Exposure of people and the environment to hazardous materials associated with methane gas extraction, oil operations, leaking underground storage tanks, and hazardous waste generators is minimized.

Policy S 7.1 Known Areas of Contamination

Require proponents of projects in known areas of contamination from oil operations or other uses to perform comprehensive soil and groundwater contamination assessments in accordance with American Society for Testing and Materials standards, and if contamination exceeds regulatory action levels, require the proponent to undertake remediation procedures prior to grading and development under the supervision of the County Environmental Health Division, County Department of Toxic Substances Control, or Regional Water Quality Control Board (depending upon the nature of any identified contamination).

Policy S 7.2 Development Design within Methane Gas Districts

Ensure that any development within identified methane gas districts be designed consistent with the requirements of the Newport Beach Municipal Code.

Policy S 7.3 Education

Educate residents and businesses about how to reduce or eliminate the use of hazardous materials, including using safer non-toxic equivalents.

Policy S 7.4 Implementation of Remediation Efforts

Minimize the potential risk of contamination to surface water and groundwater resources and implement remediation efforts to any resources adversely impacted by urban activities.

Policy S 7.5 Siting of Sensitive Uses

Develop and implement strict land use controls, performance standards, and structure design standards including development setbacks from sensitive uses such as schools, hospitals, day care facilities, elder care facilities, residential uses, and other sensitive uses that generate or use hazardous materials.

Policy S 7.6 Regulation of Companies Involved with Hazardous Materials

Require all users, producers, and transporters of hazardous materials and wastes to clearly identify the materials that they store, use, or transport, and to notify the appropriate City, County, State and Federal agencies in the event of a violation.

Disaster Planning

Adequate Disaster Planning

Goal S 9 Effective emergency response to natural or human-induced disasters that minimizes the loss of life and damage to property, while also reducing disruptions in the delivery of vital public and private services during and following a disaster.

Policy S 9.7 Existing Development within 100-year Flood Zones

Implement flood warning systems and evacuation plans for areas that are already developed within 100-year flood zones.

■ Impacts and Mitigation Measures

No mitigation measures are necessary, as the proposed General Plan Update policies fully mitigate the impacts.

Level of Significance After Policies/Mitigation Measures

Impacts associated with hydrology and water quality within the Planning Area would be *less than significant* upon implementation of the identified proposed General Plan Update policies. Cumulative impacts would also be *less than significant*.

4.7.6 References

- California Department of Water Resources (DWR). 2004. California's Groundwater—Bulletin 118.
- Corona, City of. 2003. Technical Background Report.
- Irvine Ranch Water District (IRWD). 2005. Annual Water Quality Report.
- Newport Beach, City of. 2005. Draft Local Coastal Program, Coastal Land Use Plan.
- . 2003. Hazards Assessment Study, July.
- . 2000. Storm Drain Master Plan, July.
- . 2004. *Technical Background Report*, June.
- Orange County Health Care Agency Environmental Health (HCA). 2003. 2002 Annual Ocean and Bay Water Quality Report, June.
- Orange County Water District (OCWD). 2006. Groundwater Replenishment System: <http://www.gwrsystem.com>. Accessed February 28.
- OCWD. 2004. Groundwater Management Plan. March.
- Orange County Watershed & Coastal Resources Division (OCWCRD). 2005 Newport Bay Watershed, http://www.ocwatersheds.com/watersheds/newportbay_intro.asp, accessed December 16.
- . 2005 Newport Coast Watershed, <http://www.ocwatersheds.com/watersheds/newportcoast.asp>, accessed December 16.
- . 2005 Regional Board Boundaries, http://www.ocwatersheds.com/watersheds/intro_regional_jurisdictions.asp, accessed December 22.
- . 2005 San Diego Creek Watershed, <http://www.ocwatersheds.com/watersheds/sandiegocreek.asp>, accessed December 16.
- . 2005 Talbert Watershed, <http://www.ocwatersheds.com/watersheds/talbert.asp>, accessed December 16.
- Fong Tse, City of Newport Beach Public Works Department. 2005. Personal communication, January 14.

