5.6 HYDROLOGY AND WATER QUALITY

This section of the Draft Supplemental Environmental Impact Report (SEIR) evaluates the potential impacts to hydrology and water quality conditions in areas proposed for land use changes under the General Plan Land Use Element Amendment. Hydrology deals with the distribution and circulation of water on land and underground. Water quality deals with the quality of surface and groundwater. Surface water is on the surface of the land, such as lakes, rivers, streams, and creeks. Groundwater is below the surface of the earth.

Hydrology and water quality impacts were identified as less than significant in the Initial Study (see Appendix A). However, in response to a comment letter submitted on the Notice of Preparation by Orange County Public Works, potential water quality impacts associated with the proposed project are addressed in this section. Watershed and drainage are described here as needed to understand water quality setting and impacts.

5.6.1 Environmental Setting

5.6.1.1 REGULATORY FRAMEWORK

Clean Water Act

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

National Pollutant Discharge Elimination System

Under the National Pollutant Discharge Elimination System (NPDES) program promulgated under Section 402 of the CWA, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain an NPDES permit. The term pollutant broadly includes any type of industrial, municipal, and agricultural waste discharged into water. Point sources are discharges from publicly owned treatment works (POTWs), discharges from industrial facilities, and discharges associated with urban runoff. While the NPDES program addresses certain specific types of agricultural activities, the majority of agricultural facilities are defined as non-point sources and are exempt from NPDES regulation. Pollutant contributors come from direct and indirect sources. Direct sources discharge directly to receiving waters,

whereas indirect sources discharge wastewater to POTWs, which in turn discharge to receiving waters. Under the national program, NPDES permits are issued only to direct point source discharges. The National Pretreatment Program addresses industrial and commercial indirect dischargers. Municipal sources are POTWs that receive primarily domestic sewage from residential and commercial customers. Specific NPDES program areas applicable to municipal sources are the National Pretreatment Program, the Municipal Sewage Sludge Program, Combined Sewer Overflows, and the Municipal Storm Water Program. Nonmunicipal sources include industrial and commercial facilities. Specific NPDES program areas applicable to these industrial/commercial sources are: Process Wastewater Discharges, Non-process Wastewater Discharges, and the Industrial Storm Water Program. NPDES issues two basic permit types: individual and general. Also, the EPA has focused on integrating the NPDES program further into watershed planning and permitting (USEPA 2004).

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

Porter-Cologne Water Quality Act

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

County of Orange MS4 Permit, Drainage Area Management Plan, and Local Implementation Plans

In May 2009, the Santa Ana RWQCB reissued the North Orange County MS4 Stormwater Permit as WDR Order R8-2009-0030 (NPDES Permit No. CAS618030) to the County of Orange, the incorporated cities of Orange County, and the Orange County Flood Control District (OCFCD) within the Santa Ana Region. Pursuant to this "Fourth-Term" MS4 permit, the co-permittees were required to develop and implement a drainage area management plan for their jurisdiction, as well as local implementation plans that describe the urban runoff management programs for their local jurisdictions, such as the City of Newport Beach.

City of Newport Beach Water Quality Management Plan

One component of the New Development/Significant Redevelopment Section of the City's local implementation plan is the provision to prepare a project-specific WQMP for specified categories of development aimed at reducing pollutants in postdevelopment runoff. Specifically, a project-specific WQMP includes Santa Ana RWQCB–approved BMPs, where applicable, that address postconstruction management of stormwater runoff water quality. This includes operation and maintenance requirements for all structural or treatment control BMPs required for specific categories of developments (termed "Priority Development Projects") to reduce pollutants in postdevelopment runoff to the maximum extent practicable. The categories of development that require preparation of a project-specific Priority Project WQMP include:

- All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site;
- Commercial and industrial development greater than 100,000 square feet including parking areas;
- Residential developments of 10 units or more;
- Automotive repair shops;
- Restaurants where the land area of development is 5,000 square feet or more including parking area;
- All hillside developments on 10,000 square feet or more, which are located on areas with known erosive soil conditions or where natural slope is 25 percent or more;
- Developments of 2,500 square feet or more of impervious surface adjacent to (within 200 feet) or discharging directly into environmentally sensitive areas, such as areas designated in the Ocean Plan as Areas of Special Biological Significance or water bodies listed on the CWA Section 303(d) list of impaired waters;
- Parking lots with 5,000 square feet or more of impervious surface exposed to stormwater runoff;
- Streets, roads, highways and freeways of 5,000 square feet or more of paved surface shall incorporate US EPA guidance, "Managing Wet Weather with Green Infrastructure: Green Streets" in a manner consistent with the maximum extent practicable standard;

- Retail gasoline outlets of 5,000 or more square feet with a projected average daily traffic of 100 or more vehicles per day.

As required by the City of Newport Beach's local implementation plan and municipal ordinances on stormwater quality management, projects that result in 5,000 square feet or more of impervious surfaces must submit a Priority Project-Specific WQMP to the City for approval prior to the City issuing any building or grading permits.

City of Newport Beach Municipal Code 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.

Storm Water Pollution Prevention Plans

Pursuant to the CWA, in 2012, the SWRCB issued a statewide general NPDES Permit for stormwater discharges from construction sites (NPDES No. CAS000002). Under this Statewide General Construction Activity permit, discharges of stormwater from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or to be covered by the General Permit. Coverage by the General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). Each applicant under the General Construction Activity Permit must ensure that a SWPPP is prepared prior to grading and is implemented during construction. The SWPPP must list BMPs implemented on the construction site to protect stormwater runoff, and must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a monitoring plan if the site discharges directly to a water body listed on the state's 303(d) list of impaired waters.

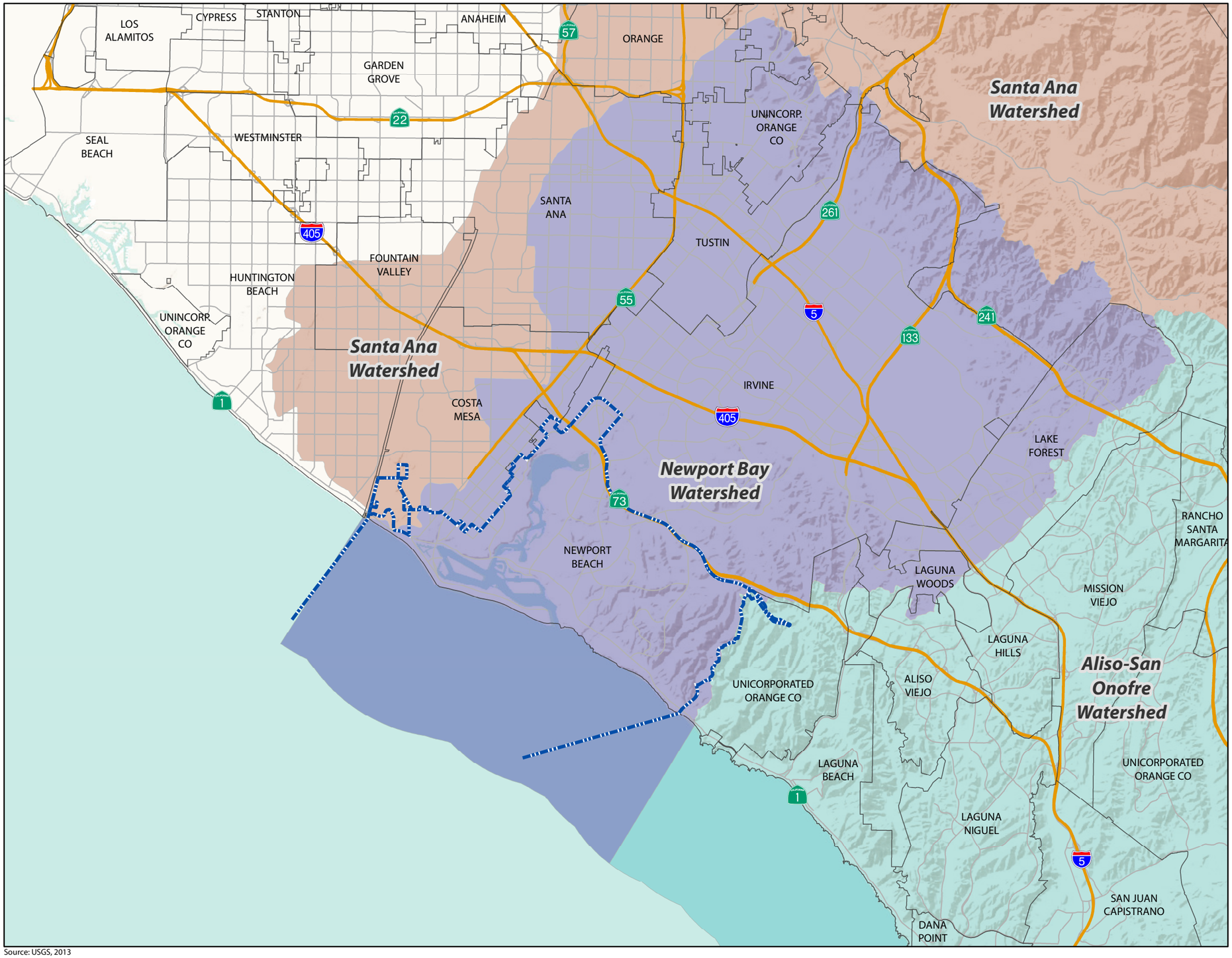
5.6.1.2 EXISTING CONDITIONS

Watersheds

Most of the City is in the Newport Bay Watershed that spans 152 square miles in central and south-central Orange County, extending from the coast northeast to Loma Ridge in the foothills of the Santa Ana Mountains. San Diego Creek is the primary waterway in the watershed. Drainage in most of the watershed is to the southwest and west toward Upper Newport Bay and then Newport Bay (See Figure 5.6-1, *Watersheds*).

Figure 5.6-1

Watersheds



Source: USGS, 2013

City Boundary

Watersheds

- Aliso-San Onofre
- Newport Bay
- Santa Ana

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HYDROLOGY AND WATER QUALITY

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The west end of the City is in the Santa Ana River Watershed, which includes much of Orange County, the northwestern corner of Riverside County, part of southwestern San Bernardino County, and a small portion of Los Angeles County. The watershed is bounded by the Santa Margarita watershed to the south, on the east by the Salton Sea and Southern Mojave watersheds, and on the north/west by the Mojave and San Gabriel watersheds, respectively. The watershed covers approximately 2,800 square miles with about 700 miles of rivers and major tributaries. The Santa Ana River extends 96 miles from the San Bernardino Mountains in San Bernardino County to the Pacific Ocean at the boundary between the cities of Huntington Beach and Newport Beach.

The southeasternmost part of the City is in the Newport Coast Watershed, which covers 7.8 square miles of seaward slopes of the San Joaquin Hills. The primary waterways in this watershed are Buck Gully, Los Trancos, and Muddy Creek (OCWatersheds 2013a, 2013b, 2013c).

Local Surface Waters and Drainage

Orange County Flood Control District drainage facilities in the City are listed from west to east in each watershed:

Santa Ana River Watershed

- Santa Ana River

Newport Bay Watershed

- The East Costa Mesa Channel, a concrete channel, discharges into the west side of Upper Newport Bay near the alignment of 17th Street.
- The Santa Isabel Channel discharges into the west side of Upper Newport Bay near the alignment of 23rd Street.
- The Santa Ana-Delhi Channel, a concrete channel, discharges into the north end of Upper Newport Bay.
- San Diego Creek, an earthen channel, discharges into the northeast margin of Upper Newport Bay.
- Bonita Channel, an earthen channel, passes along the northeast City boundary, discharging into San Diego Creek just north of State Route 73 (SR-73) overcrossing University Drive.

Newport Coast Watershed

- Buck Gulley, a natural canyon, discharges into the Pacific Ocean at Little Corona Del Mar Beach.
- Los Trancos Canyon and Muddy Creek, both natural canyons, discharge into the Pacific Ocean in Crystal Cove State Park (see Figure 5.6-2, *County Flood Control Channels*) (OCFlood 2010).

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Only channels that are named on the Orange County Flood Control Facilities Map are listed here; there are several other channels in the City that are only identified on that map by reference number.

Surface Water Quality

Beneficial Uses

Beneficial uses are ways that water can be used for the benefit of people and/or wildlife. For surface waters and groundwater in the Santa Ana River Basin, beneficial uses are described in the Santa Ana River Basin Plan. Beneficial uses of Upper Newport Bay are recreation (both body-contact and non-body-contact); wildlife habitat, including habitat for rare, threatened, or endangered species; marine and estuary habitat; and shellfish harvesting (SARWQCB 2008).[1]

Water Quality Limited Segments

Upper Newport Bay and Buck Gully Creek are included on the Section 303(d) List of Water Quality Limited Segments for contaminants specified below in Table 5.6-1.

Table 5.6-1 Upper Newport Bay Water Quality Impairments

Contaminant	Total Maximum Daily Load (TMDL) Status; Completion Date for Proposed TMDLs
Upper Newport Bay	
Chlordane (organochlorine pesticide)	Proposed 2019
Copper	Proposed 2007
DDT (organochlorine pesticide)	Proposed 2019
Metals	Proposed 2019
Nutrients	Completed
PCBs (polychlorinated biphenyls)	Proposed 2019
Pesticides	Completed
Sediment Toxicity	Proposed 2019
Sedimentation/Siltation	Completed
Buck Gully Creek	
Fecal coliform bacteria	Proposed 2019
Total coliform bacteria	Proposed 2019
Los Trancos Canyon	
Fecal coliform bacteria	Proposed 2019
Total coliform bacteria	Proposed 2019

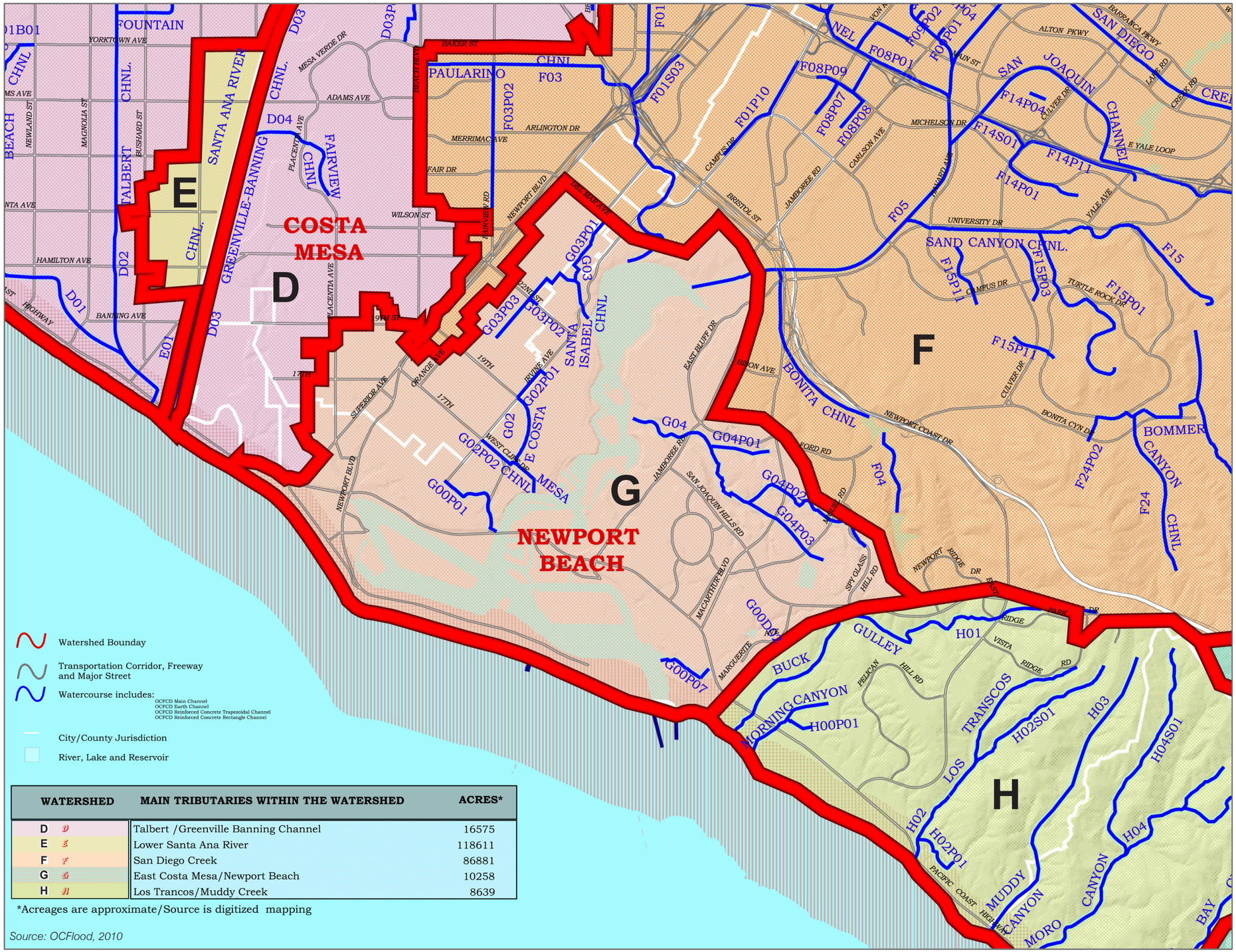
Source: SWRCB 2013.

[1] An estuary is a partially enclosed bay where fresh water and sea water mix.

5. Environmental Analysis

Figure 5.6-2

County Flood Control Channels



WATERSHED	MAIN TRIBUTARIES WITHIN THE WATERSHED	ACRES*
D	Talbert /Greenville Banning Channel	16575
E	Lower Santa Ana River	118611
F	San Diego Creek	86881
G	East Costa Mesa/Newport Beach	10258
H	Los Trancos/Muddy Creek	8639

*Acreages are approximate/Source is digitized mapping

Source: OCFlood, 2010

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Area of Special Biological Significance

Two areas of Newport Beach are listed as Critical Coastal Areas (CCA) by the California Coastal Commission (CCC): Upper Newport Bay and the Newport Beach Marine Life Refuge. The CCA program aims to ensure that effective measures to minimize pollution from runoff, also known as nonpoint-source pollution, are implemented by coordinating the efforts of multiple agencies and stakeholders, and directing resources to CCAs. Criteria for designation as a CCA include a coastal water body listed on the Section 303(d) List that flows into a marine State Water Quality Protection Area. The CCC has identified 101 CCAs along the coast and in San Francisco Bay (CCC 2013).

Upper Newport Bay

There are three protected areas in Upper Newport Bay: Upper Newport Bay State Marine Conservation Area, the part of Upper Newport Bay below mean high water, is managed by the California Department of Fish and Wildlife. Upper Newport Bay Ecological Reserve is 752 acres of coastal wetland above mean high water, and Upper Newport Bay Nature Preserve is about 135 acres of bluffs above the wetland. The Nature Preserve and Ecological Reserve are both managed by OCParks (CDFW 2013; OCParks 2013).

The Newport Beach Marine Life Refuge

This area includes 0.7 mile of coast at a distance of 200 feet offshore; this area is also known as Robert E. Badham State Marine Park (see Figure 5.6-3, *Newport Beach Marine Life Refuge*). Buck Gully Creek and Los Trancos Canyon, which flow into the Marine Life Refuge, are each listed on the Section 303(d) List for fecal coliform bacteria and total coliform bacteria (CCC 2006; SWRCB 2013).

Groundwater

The Coastal Plan of Orange County Groundwater Basin (basin) underlies the northwestern portion of the City (see Figure 5.6-4, *Coastal Plain of Orange County Groundwater Basin*). Clay and silt layers at shallow depths limit percolation of near-surface groundwater into deeper layers of the basin.

The basin groundwater is part of the water supply for each of the three water purveyors providing water to the City: the City, Irvine Ranch Water District, and Mesa Consolidated Water District.

Groundwater Quality

Groundwater quality is not expected to constrain water supplies through 2035 (Malcolm Pirnie 2011).

5.6.2 Thresholds of Significance

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

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

HYD-2 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater

table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.

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

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

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

HYD-6 Otherwise substantially degrade water quality.

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

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

HYD-9 Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

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

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

- Thresholds HYD-1 through HYD-10

Thresholds HYD-1 and HYD-6 are discussed here in response to the Orange County Public Works comment letter on the Notice of Preparation.

Figure 5.6-3

Newport Beach Marine Life Refuge

Source: SARWQCB 2003

200' Marine Life Refuge Area

ASBS — Area of Special Biological Significance designated by the State Water Resources Control Board

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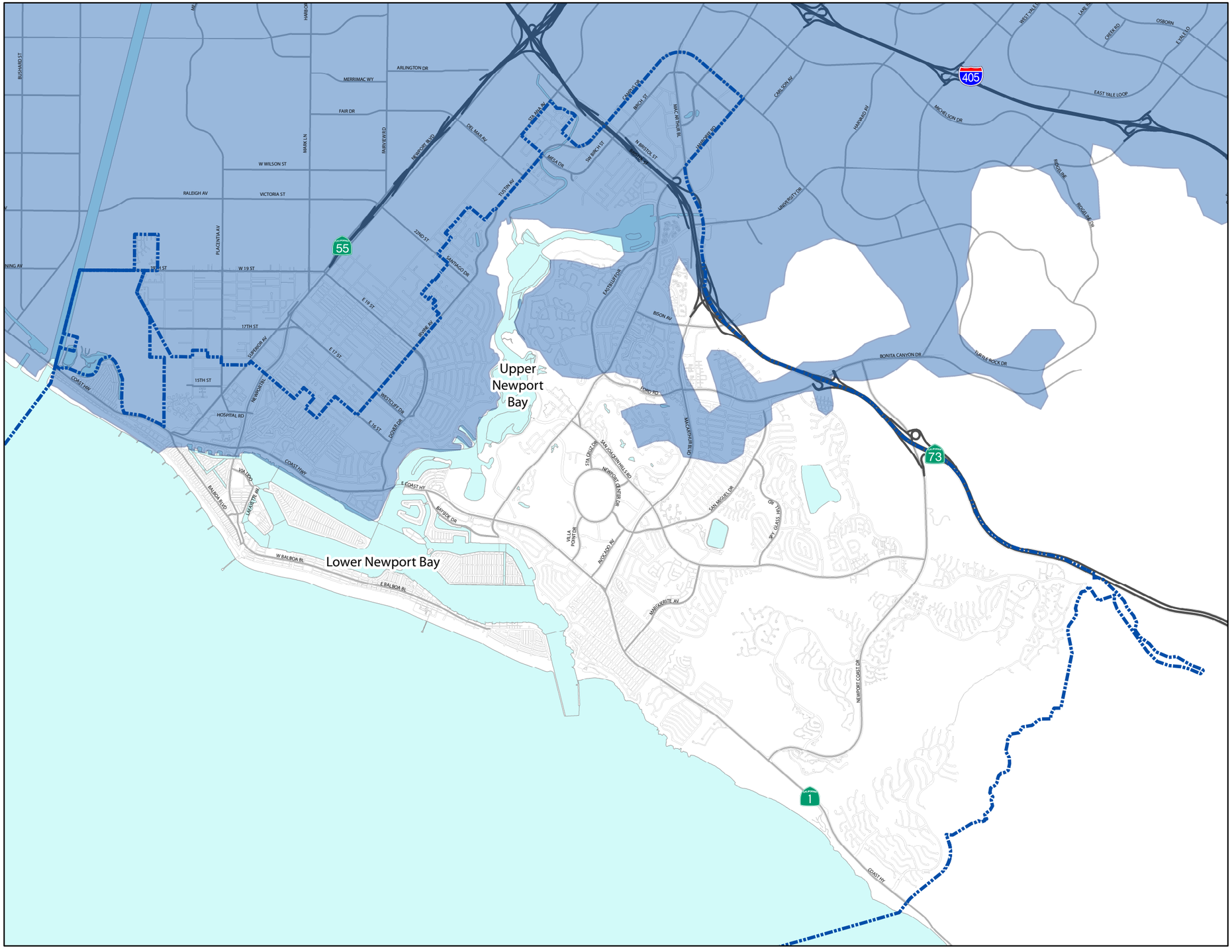
5. Environmental Analysis

Figure 5.6-4

Coastal Plain of Orange County Groundwater Basin



City Boundary

Coastal Plain of Orange County Groundwater Basin

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5.6.3 Environmental Impacts

2006 General Plan EIR

The 2006 General Plan EIR found that development under the 2006 General Plan could increase pollutants in stormwater and wastewater, although water quality standards and waste discharge requirements would not be violated.

Development of the 2006 General Plan could create additional impervious surfaces, which could interfere with groundwater recharge. Development could substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Most new development would be focused in areas that are currently developed. The main area of vacant land that could be developed, Banning Ranch, is not in a groundwater recharge area.

Development under the 2006 General Plan could change the existing drainage pattern of the planning area and could cause erosion and siltation.

General Plan LUE Amendment (Proposed Project)

The following impact analysis addresses the potential for development in accordance with the proposed General Plan LUE Amendment to impact water quality. The applicable thresholds are identified in brackets after the impact statement.

Buildout of the proposed General Plan LUE Amendment would involve net increases of 123,094 square feet of retail and commercial land uses, 738,077 square feet of office land uses, 1,323 residential units, school space for 72 students, and a net decrease of 726 hotel rooms, compared to development intensity permitted in the 2006 General Plan.

Impact 5.6-1:	During the construction phase of the proposed project, there is potential for short-term unquantifiable increases in pollutant concentrations. After project development, the quality of storm runoff (sediment, nutrients, metals, pesticides, pathogens, and hydrocarbons) may be altered. [Thresholds HYD-1 and HYD-6]

Impact Analysis:

Areas of Proposed Increases in Development Capacity or Changed Land Use Designations

All of the areas of proposed increases in development capacity or proposed changes in land use designation are in the Newport Bay Watershed. Drainage facilities maps from the Orange County Flood Control District were reviewed to determine which subareas are in areas tributary to Upper Newport Bay and which subareas are tributary to Lower Newport Bay (OCFlood 2000).[2]

The following subareas are tributary to Upper Newport Bay:

[2] Sheets 54 and 55 of the Drainage Facilities Maps were reviewed.

- Airport Area: all subareas
- Westcliff Plaza

The following subareas are tributary to Lower Newport Bay:

- King's Liquor Store
- Gateway Park
- Fashion Island/Newport Center
- Bayside Commercial Center
- 813 East Balboa Boulevard

Priority Development Projects

Redevelopment in the following areas pursuant to the General Plan LUE Amendment would be classified priority projects based on the preliminary information currently available. Development plans for specific projects that would be built in accordance with the General Plan LUE Amendment are not yet available.

- Airport Area: all four subareas.
- Newport Center – Fashion Island Area
- Harbor Day School

It is currently uncertain whether redevelopments at 1526 Placentia Avenue (King's Liquor) and 813 East Balboa Boulevard would be classified priority projects.

Potential Water Pollution Impacts from Construction of Projects

Construction of projects pursuant to the General Plan LUE Amendment would involve use of grading and construction equipment that could result in pollution of stormwater with oil and greases, fuels, and metals. Disturbance of soil during grading and construction could leave soil vulnerable to erosion. Project construction could also generate water pollution from paving and grinding operations, concrete work, and use of paints and other coatings onsite. Installation of landscaping could result in water pollution with fertilizers and pesticides.

All construction projects of one acre or more are required to prepare and implement SWPPPs to obtain coverage under the Statewide General Construction Permit, Order No. 2012-0006-DWQ, issued by the SWRCB in 2012. A project SWPPP estimates sediment risk from construction activities to receiving waters and specifies BMPs that would be used by that project to minimize pollution of stormwater.

Construction Best Management Practices

Categories of BMPs that are included in SWPPPs include:

- Erosion controls and wind erosion controls: cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. Erosion control BMPs include mulch, soil binders, and mats.

- Sediment controls: Filter out soil particles that have been detached and transported in water. Sediment control BMPs include barriers, and cleaning measures such as street sweeping.

- Tracking controls: Tracking control BMPs minimize the tracking of soil offsite by vehicles; for instance, stabilizing construction roadways and entrances/exits.

- Non-stormwater management: Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Non-stormwater management BMPs also prescribe conducting various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.

- Waste and Materials Management: management of materials and wastes to avoid contamination of stormwater. Waste and materials management BMPs include spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Potential Water Pollution Impacts from Operation of Project

Pollutants of Concern

Anticipated and potential pollutants generated by operation of various types of land uses are listed in Table 5.6-2 and described below in Table 5.6-3.

Table 5.6-2 Anticipated and Potential Pollutants Generated by Land Use Type

Priority Project Categories	Pathogens	Heavy Metals	Nutrients	Pesticides	Organic Compounds	Sediments	Trash & Debris	Oxygen Demanding Substances	Oil & Grease
Detached Residential Development	X		X	X		X	X	X	X
Attached Residential Development	P		X	X		X	X	P	P
Commercial/ Industrial Development >100,000 ft2	P		P	P	P	P	X	P	X
Automotive Repair Shops		X			X		X		X
Restaurants	X						X	X	X
Parking Lots		X	P	P		P	X	P	X
Roadways		X	P		X	X	X	P	X

Source: CASQA 2003.

Table 5.6-3 Pollutants of Concern

Pollutant	Description
Suspended Solids/Sediment	Sediments are solid materials that are eroded from the land surface. Sediments can increase the turbidity (cloudiness) of water, clog fish gills, reduce spawning habitat, lower survival rates of young aquatic organisms, smother bottom-dwelling organisms, and suppress aquatic vegetation growth.
Nutrients	Nutrients are inorganic substances such as nitrogen and phosphorous; the primary sources of these substances in urban runoff are fertilizers and eroded soils. Excessive discharge of nutrients to water bodies and streams causes eutrophication, where overgrowth of aquatic plants and algae can lead to excessive decay of organic matter in the water, loss of oxygen in the water, and eventual death of aquatic organisms.
Heavy Metals	Metals of concern as water contaminants include cadmium, chromium, copper, lead, mercury, and zinc. Lead and chromium have been used as corrosion inhibitors; metals are also raw materials used in nonmetal products such as fuels, adhesives, and paints. At low concentrations naturally occurring in soil, metals may not be toxic. However, certain metals at higher concentrations can be harmful to aquatic life and to humans. Humans can be impacted from groundwater contaminated with metals. Metals can become concentrated in fish and shellfish, and can subsequently harm humans who consume those animals. Environmental concerns have already led to restrictions on some uses of metals.
Pathogens (Bacteria/Virus)	Bacteria and viruses are microorganisms that thrive under certain environmental conditions. Water contamination by animal or human fecal wastes and contamination by excess organic wastes are common causes of proliferation of these microorganisms. Water containing excessive bacteria and viruses can alter the aquatic habitat and harm humans and aquatic life.
Pesticides	Relatively low concentrations of the active ingredients in pesticides can be toxic in water. Excessive or improper use of pesticides can cause toxic contamination in runoff.
Oil and Grease	Oil and grease in water bodies decrease their aesthetic value as well as water quality; one of the most important sources of oil and grease is leakage from motor vehicles.
Toxic Organic Compounds	Organic compounds are carbon based. Commercially available or naturally occurring organic compounds are found in pesticides, solvents, and hydrocarbons. Organic compounds at certain concentrations can be hazardous to life or health. Toxic levels of solvents and cleaning compounds can be discharged to storm drains during cleaning and rinsing operations.
Trash and Debris	Trash and debris, such as paper, plastic, polystyrene foam, aluminum, and biodegradable organic matter such as leaves, grass cuttings, and food waste, may significantly impair aquatic habitat and the recreational value of a water body. In addition, trash impacts water quality by increasing biochemical oxygen demand.

New development applications must include a WQMP specifying operation and maintenance requirements for all structural or treatment control BMPs required to reduce pollutants in postdevelopment runoff to the maximum extent practicable.

Best Management Practices

Three categories of BMPs are included in water quality management plans:

- Low-Impact Development BMPs. The design goal for LID BMPs is to maintain or replicate pre-development hydrologic conditions through site preservation techniques and the use of integrated and distributed micro-scale stormwater infiltration, retention, detention, evapotranspiration,[3] and filtration and treatment systems as close as feasible to the source(s) of runoff.

- Source Control BMPs control sources of pollutants. Source control BMPs are divided into two types:

[3] Evapotranspiration is the reduction in runoff via evaporation and via transpiration through plants.

- Structural Source Control BMPs, which are included in project design, aim to reduce the potential for pollutants to enter runoff. Common means include roof runoff controls; protection of slopes and channels; efficient irrigation; and storm drain system signage.

- Nonstructural Source Control BMPs, which are used during project operation, aim to reduce the potential for pollutants resulting from activities onsite to enter runoff. Common means include education of owners and employees; activity restrictions, such as requiring that trash can lids be closed at all times; and periodic inspections of water quality features such as catch basins and filters.

- Treatment Control BMPs treat contaminated stormwater before the water is discharged offsite. Common means include biofiltration through constructed project landscape elements such as bioswales, infiltration trenches, and/or infiltration basins; and filters (CASQA 2004).

5.6.4 Relevant General Plan Policies

Existing Policies

Natural Resources Element (NR)

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

- **NR 3.2 - Water Pollution Prevention:** Promote pollution prevention and elimination methods that minimize the introduction of pollutants into natural water bodies.

- **NR 3.3** - **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.

- **NR 3.4** - **Storm Drain Sewer System Permit:** Require all development to comply with the regulations under the City's municipal separate storm drain system permit under the National Pollutant Discharge Elimination System.

- **NR 3.5 - Natural Water Bodies:** Require that development does not degrade natural water bodies.

- **NR 3.6 - Watershed Runoff Quality Control:** Represent Newport Beach by participating 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. Promote regulation of upstream dischargers (cities, Orange County, residential and commercial uses) in the San Diego Creek and Santa Ana/Delhi Channel watersheds.

- **NR 3.7 - Newport Beach Water Quality Ordinance:** Update and enforce the Newport Beach Water Quality Ordinance.

- **NR 3.8 - Permit Review Process:** Develop and maintain a water quality checklist to be used in the permit review process to assess potential water quality impacts.

- **NR 3.9 - 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.

- **NR 3.10 - Best Management Practices:** Implement and improve upon Best Management Practices (BMPs) for residences, businesses, development projects, and City operations.

- **NR 3.11 - 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.

- **NR 3.12 - Reduction of Infiltration:** Include equivalent BMPs that do not require infiltration, where infiltration of runoff would exacerbate geologic hazards.

- **NR 3.13 - Natural Wetlands:** Promote the use of natural wetlands to improve water quality.

- **NR 3.14 - Runoff Reduction on Private Property:** Retain runoff on private property to prevent the transport of pollutants into natural water bodies, to the maximum extent practicable.

- **NR 3.15 - 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.

- **NR 3.16 - 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.

- **NR 3.17 - 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.

- **NR 3.18 - 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.

- **NR 3.19 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.

- **NR 3.20 - 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.

New and/or Modified Policies

No new or modified LUE policies are directly relevant to the topic of hydrology and water quality.

5.6.5 Existing Regulations

Federal

- United States Code, Title 33, Sections 1251 et seq.: Clean Water Act
- Code of Federal Regulations Title 40 Parts 122 et seq.: National Pollutant Discharge Elimination System

State

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act

Regional

Santa Ana Regional Water Quality Control Board

- MS4 Permit, Order No. R8-2009-0030
- Drainage Area Management Plan

City of Newport Beach

- Municipal Code Chapter 14.36, Water Quality
- Local Implementation Plan

5.6.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, Impact 5.6-1 would be less than significant.

5.6.7 Mitigation Measures

No mitigation measures are required.

5.6.8 Level of Significance After Mitigation

Impacts would be less than significant.

5.6.9 References

California Coastal Commission (CCC). 2013, December 11. Critical Coastal Areas Program Description. http://www.coastal.ca.gov/nps/Web/cca_project.htm.

———. 2006, June 19. Upper Newport Bay. http://www.coastal.ca.gov/nps/Web/cca_pdf/socoastpdf/CCA69UpperNewportBay.pdf.

———. 2006, June 19. Newport Beach (Robert E. Badham). http://www.coastal.ca.gov/nps/Web/cca_pdf/socoastpdf/CCA70NewportBeachMLR.pdf.

California Department of Fish and Wildlife (CDFW). 2013, November 14. Guide to the Southern California Marine Protected Areas. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43293&inline=true.

Malcolm Pirnie. 2011, May. City of Newport Beach 2010 Urban Water Management Plan. http://www.newportbeachca.gov/Modules/ShowDocument.aspx?documentid=10182.

OCFlood. 2010, August 12. OCFCD Drainage System. http://ocflood.com/civicax/filebank/blobdload.aspx?BlobID=8335.

OCFlood. 2000, January 12. Drainage Facilities Map Sheets 54 and 55. http://ocflood.com/civicax/filebank/blobdload.aspx?BlobID=32717.

OCParks. 2013, December 10. Upper Newport Bay Nature Preserve. http://ocparks.com/parks/newport.

OCWatersheds. 2013, December 10. Newport Bay Watershed. http://ocwatersheds.com/programs/ourws/npb.

———. 2013, December 10. Newport Coast Watershed. http://ocwatersheds.com/programs/ourws/newportcoastalstreams.

———. 2013, December 10. Santa Ana River Watershed. http://ocwatersheds.com/programs/ourws/snariver.

Orange County Water District (OCWD). 2009, July 9. Ground Water Management Plan 2009 Update. http://www.ocwd.com/Portals/0/News/PublicationsReports/GWMPJuly2009Update.pdf.

Santa Ana Regional Water Quality Control Board (SARWQCB). 2008, February. Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). http://www.swrcb.ca.gov/rwqcb8/water_issues/programs/basin_plan/index.shtml.

State Water Resources Control Board (SWRCB). 2013, August 5. Impaired Water Bodies. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

US Environmental Protection Agency (EPA). 2004, September. Water Permitting 101. Office of Wastewater Management, Water Permitting. http://www.epa.gov/npdes/pubs/101pape.pdf.