

5.3 HYDROLOGY AND WATER QUALITY

This section evaluates the potential impacts to hydrology and water quality conditions associated with the Proposed Project. Hydrology deals with the distribution and circulation of water, both on land and underground. Water quality deals with the quality of surface and groundwater. Surface water is water on the surface of the land and includes lakes, rivers, streams, and creeks. Groundwater is water below the surface of the earth. Water supply and wastewater treatment issues are addressed in Section 5.10, *Utilities and Service Systems*.

The project site is located within the Platinum Triangle, which has been evaluated previously in terms of potential hydrology impacts in:

- *The Platinum Triangle Subsequent Environmental Impact Report (FSEIR) No. 332*, The Planning Center, October 2005.
- *The Platinum Triangle Water Supply Assessment*, Psomas, July 2009.

FSEIR No. 332 and its associated studies are incorporated by reference as if set forth in full and are available for review at the City of Anaheim Planning Department and on the City's website, www.anaheim.net (go to the Planning Department and click on the link to the Platinum Triangle). The Platinum Triangle Water Supply Assessment is included as Appendix G to this document.

5.3.1 Environmental Setting

FSEIR No. 332 analyzes impacts associated with the increased development intensity within the Platinum Triangle. As discussed in the Initial Study (Appendix A), the Proposed Project involves redevelopment of an underutilized industrial area and would not change the project boundaries or increase the impervious surface area. Therefore, the water quality impact analysis contained in the FSEIR No. 332 is adequate and no further analysis is necessary. As discussed in Section 5.5, *Hydrology and Water Quality* of the FSEIR No. 332, pollutant concentrations for the project condition are anticipated to decrease both with and without the best management practices (BMPs). Even without any mitigation, concentrations of all considered constituents are predicted to decrease for the project under the proposed land use conditions as compared to existing conditions. The decreases in concentrations are the result of changes in land use, which in general would result in less light industrial/commercial and more mixed uses. With implementation of the mitigation measures recommended in FSEIR No. 332, these pollutant concentrations are expected to further decrease and the project water quality impacts (if any) are fully mitigated. Therefore, with proper implementation of the recommended BMPs (structural and nonstructural), project water quality conditions are expected to be better than existing conditions.

Clean Water Act

The Proposed Project is subject to federal permit requirements under the Clean Water Act (CWA). In 1972, the Federal Water Pollution Control Act (later referred to as the CWA) was amended to require that the discharge of pollutants to waters of the United States from any point source be effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to add the Section 402(p), requiring that USEPA establish regulations for the permitting of stormwater discharges by municipal and industrial facilities and construction activities under the NPDES permit program. USEPA published final regulations directed at municipal separate storm sewer systems (MS4s) serving a population of 100,000 or more, and stormwater discharges associated with industrial activities, including construction activities, on



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November 16, 1990. The regulations require that MS4 dischargers to surface waters be regulated by a NPDES permit (Phase I Final Rule, 55 Fed. Reg. 47990). USEPA published final regulations directed at stormwater discharges not covered in the Phase I Final Rule, including, as applicable here, small construction projects of one to five acres, on December 8, 1999 (Phase II Final Rule, 64 Fed. Reg. 68722).

Section 402(p) of the CWA provides that MS4 permits must “require controls to reduce the discharge of pollutants to the maximum extent practicable [MEP], including management practices, control techniques and system, design and engineering methods and such other provisions as the [USEPA] Administrator or the State determines appropriate for the control of such pollutants.” The Office of Chief Counsel of the SWRCB has issued a memorandum interpreting the meaning of MEP to include technical feasibility, cost, and benefit derived with the burden being on the municipality to demonstrate compliance with MEP by showing that Best Management Practices (BMPs) are not technically feasible in the locality or that BMP costs would exceed any benefit to be derived (dated February 11, 1993).

The CWA authorizes USEPA to permit a state to serve as the NPDES permitting authority in lieu of USEPA. The State of California has in-lieu authority for an NPDES program. The Porter-Cologne Water Quality Control Act (Cal. Water Code §§ 13000 et seq.) authorizes SWRCB, through SARWQCB, to regulate and control the discharge of pollutants into waters of the state. SWRCB entered into a memorandum of agreement with USEPA on September 22, 1989, to administer the NPDES program governing discharges to waters of the U.S.

In addition, CWA requires the states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality objectives necessary to support those uses. Water quality objectives can be numerical concentrations or levels of constituents, such as lead, or suspended sediment, or narrative statements that represent the quality of water needed to support a particular use. Because California had not established a complete list of acceptable water quality objectives to USEPA, the USEPA, EPA Region IX (in which California lies) has established numeric water quality criteria applicable to all receiving waters for certain toxic constituents in the form of the California Toxics Rule (CTR) (40 CFR 131.38).

When designated beneficial uses of a particular water body are compromised and fail to meet water quality objectives, Section 303(d) of the CWA requires identifying and listing that water body as “impaired.” Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each water quality constituent that compromises a beneficial use. A TMDL is an estimate of the total load of pollutants, from point, nonpoint, and natural sources, that a water body may receive without exceeding applicable water quality standards (often with a “factor of safety” included). Once established, the TMDL is allocated among current and future dischargers into the water body.

Pursuant to Section 303(d) of the CWA, the reach of the river in which the Platinum Triangle lies (Reach 2 of the Santa Ana River) has not been listed as being impaired for any pollutants, nor has the downstream reach, Reach 1. Likewise, no TMDLs have been developed for any reach of the Santa Ana River.

Water Quality Control Basin Plan

All of the activities under the NPDES program are aimed at meeting water quality objectives of receiving waters, which eventually discharge into receiving waters that often traverse multiple counties and cities. The Water Quality Control Plan for the Santa Ana Region designates the beneficial uses of receiving waters, including Reach 2 of the Santa Ana River to which the project area currently discharges to and

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would discharge to at build-out. The Basin Plan also specifies both narrative and numerical water quality objectives for these receiving waters in Orange County. Because these standards are applicable to receiving waters, they are not a direct measure of storm water quality from the Platinum Triangle. However, water quality criteria from the Basin Plan are useful as benchmarks.

Reach 2 of the Santa Ana River lies between Prado Dam and 17th Street in Santa Ana and beneficial uses include agriculture, groundwater, contact water recreation, non-contact water recreation, water freshwater habitat, wildlife habitat, and rare, threatened or endangered species. The downstream reach of the Santa Ana River (Reach 1) has no additional beneficial uses. Both reaches have been excepted from municipal uses.

The California Toxic Rule (CTR) is a federal regulation issued by USEPA providing water quality criteria for protection of surface waters of the State of California with designated uses protective of human health or aquatic life. However, CTR water quality criteria and water quality objectives and beneficial uses do not apply directly to discharges of stormwater runoff. Nonetheless, these standards can provide a useful benchmark to assess the potential for project discharges to affect the water quality of receiving waters when pollutant load analysis are preformed.

City of Anaheim

The City of Anaheim is required by the Santa Ana Regional Municipal Permit to minimize short and long-term impacts on receiving waters from new development and significant redevelopment to the maximum extent practicable. The City of Anaheim's General Plan provides a general overview of requirements for development/redevelopment within the City to ensure adequate watershed and water quality protection to receiving



Hydrology

The Platinum Triangle is located within the Santa Ana River watershed and the Westminster watershed. Drainage from the project area is generally conveyed by two major subdrainages, the Southeast Anaheim Channel (E12) and the Spinnaker Storm Drain (CO5P21). E12 generally parallels State College Boulevard and discharges into the Santa Ana River north of Chapman Avenue and CO5P21 discharges into the East Garden Grove-Wintersburg/Oceanview Channel System.

Santa Ana River Watershed

The Platinum Triangle east of State College Boulevard is in the Santa Ana River watershed. The Santa Ana River watershed is the largest in Orange County, covering 153.2 square miles. The river begins almost 75 miles away in the San Bernardino Mountains, crossing central Orange County before emptying into the Pacific Ocean; this outlet to the ocean is in Huntington Beach. The watershed is divided into two sections, the Upper and Lower Watershed. Between the San Gorgonio Peak east of Big Bear and Prado Basin at the SR-91 and SR-71 is the Upper Watershed and south of Prado Basin to the Pacific Ocean is the Lower Watershed. The Orange County portion of the watershed includes portions of the cities of Anaheim, Brea, Huntington Beach, Orange, Placentia, Santa Ana, Villa Park, and Yorba Linda. The river serves as the main tributary to the watershed, with Santiago Creek being the largest tributary within Orange County. This reach is not listed as impaired according the 2002 Clean Water Act Section 303(d) list published by State Water Resources Control Board.

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Westminster Watershed

The Platinum Triangle west of State College Boulevard is in the Westminster watershed. The Westminster Watershed covers 74.1 square miles in the southwestern corner of Orange County. It includes portions of the cities of Anaheim, Cypress, Fountain Valley, Garden Grove, Huntington Beach, Los Alamitos, Santa Ana, Seal Beach, Stanton, and Westminster. Three main tributaries drain to this watershed. The Los Alamitos Channel drains into the San Gabriel River. The Bolsa Chica Channel empties into the Anaheim Bay-Huntington Harbor complex. The East Garden Grove-Wintersburg Channel drains through Bolsa Bay into Huntington Harbor. Based on the 2002 section of the 303(d) list of Water Quality Limited Segments, Huntington Harbor is listed as an impaired water body for nickel, dieldrin, copper, pathogens, and PCBs.

Flooding

The project area is located within a Federal Emergency Management Agency (FEMA) flood insurance study area within Zone A99 and X designation.

Groundwater

The primary source of groundwater for the City is the Orange County Groundwater Basin (Basin) that underlies the north half of Orange County beneath broad lowlands. The Basin covers an area of approximately 350 square miles, bordered by the Coyote Hills and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminating at the Orange County line to the northwest, where its aquifer systems continue into the Central Basin of Los Angeles County. The Basin is dominated by a deep structural depression containing a thick accumulation of fresh water-bearing imbedded marine and continental sand, silt, and clay deposits. The sediments containing easily recoverable fresh water extend to approximately 2,000 feet in depth. Although water bearing aquifers exist below that level, reduced water quality and pumping make these materials economically unviable at present. However, upper, middle, and lower aquifer systems are recognized in the Basin with well production yields ranging from 500 to 4,500 gallons per minute, but are generally 2,000 to 3,000 gallons per minute. The Basin is one of the richest and most plentiful sources of groundwater in the entire State, holding millions of acre-feet (af) of water, of which about 1.25 to 1.5 million af is available for use. To ensure that the Basin is not overdrawn, OCWD recharges the Basin with local and imported water. Groundwater conditions in the Basin are influenced by the natural hydrologic conditions and the Basin is recharged primarily by four sources: 1) local rainfall, which varies due to the extent of the annual seasonal precipitation; 2) storm and base flows from the Santa Ana River, which includes recycled wastewater from treatment plants in Riverside and San Bernardino counties; 3) imported water; and 4) highly treated recycled wastewater. The production capability of the Basin has increased as a result of increased wastewater reclamation and the blending of waters of different qualities to produce high-quality potable water for public distribution.

OCWD is a special district that manages the Basin largely through the basin production percentage (BPP) that is established each water year. The BPP is set based on groundwater conditions, availability of imported water supplies, ideal precipitation, Santa Ana River runoff, and basin management objectives. The BPP represents a set percentage identifying the amount of groundwater all pumpers in the basin can pump without paying a high pumping tax or basin equity assessment (BEA) to OCWD. Groundwater production equal to or less than the BPP pays a replenishment assessment and if groundwater production greater than the BPP, a BEA is paid on each af of water pumped above the BPP. According to OCWD's Engineer's Report for fiscal year 2006–2007, total groundwater production from the Basin in OCWD's jurisdiction was 349,858 af.

Groundwater Recharge

OCWD is responsible for managing groundwater basin that provides most of northern and central Orange County's drinking water. OCWD maintains one of the most advanced managed aquifer recharge systems to replace the water that is pumped from about 400 wells belonging to local water agencies, cities and other groundwater users. The recharge basins are located solely in the cities of Anaheim and Orange, including a six-mile section of the Santa Ana River channel from Imperial Highway to Ball Road in the City of Anaheim. OCWD has invested heavily in infrastructure to maximize the recharge capacity of its facilities. Key improvements include two inflatable rubber dams on the Santa Ana River, multiple pumping stations, miles of pipelines, numerous valves, flow meters, water level sensors, and a sophisticated computerized control system that slows the system to be controlled remotely via a computer. The most recent improvement to OCWD's recharge system is the completion of the Groundwater Replenish System. This system takes highly treated sewer water from OCWD's treatment plant in Fountain Valley via a 13-mile long pipeline and purifies it to levels that meet state and state federal drinking water standards, allowing high quality water for year-round recharge.

Basin recharge occurs largely in the following recharge basins: 1) Warner Basin, a 50-foot deep recharge basin located next to the Santa Ana River at the intersection of the SR-55 and SR-91 freeways; 2) Burris Pit, located between Lincoln Avenue and Ball Road; 3) Kraemer Basin, located adjacent to Burris Pit, and 4) Santiago Creek. All of these recharge facilities are located in or adjacent to the City of Anaheim. A large portion of the recharge of the OCWD groundwater basin comes from water flowing in the Santa Ana River south of the Prado Dam, located in San Bernardino County, just east of the Orange County's jurisdictional boundary. With the exception of contractual rights conveyed to Bryant Ranch landowners in east Yorba Linda, which have contractual rights to approximately 2,800 afy of Santa Ana River water, OCWD has the legal rights to all of the Santa Ana River flow south of the Prado Dam.



5.3.2 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.

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- 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.
- HYD-11 Substantially degrade water quality by contributing pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling, or storage, delivery areas, loading docks or other outdoor work areas.
- HYD-12 Substantially degrade water quality by discharge which affects the beneficial uses (e.g., swimming, fishing) of the receiving waters.

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

- Threshold HYD-1
- Threshold HYD-3 through Threshold HYD-12.

These impacts will not be addressed in the following analysis.

5.3.3 Environmental Impacts

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

IMPACT 5.3-1: THE PROPOSED PROJECT WOULD PLACE ADDITIONAL DEMANDS ON GROUNDWATER SUPPLIES DUE TO THE CONSTRUCTION OF A NEW WATER WELL. [THRESHOLD HYD-2]

Impact Analysis: According to the Water Supply Assessment prepared for the Proposed Project, the increased development intensities within the Platinum Triangle would result in additional demands on groundwater supplies. The City owns and operates a network of groundwater wells to supply groundwater to their users. Groundwater production wells are scattered throughout the water distribution system in the flatland area (555 pressure zone and below) of the City and move from flatland area to hill and canyon areas (585 pressure zone and above) through booster station.

In 2007/08, the City received approximately 79 percent of its water supply from groundwater and 21 percent from imported water. The average BPP, set by OCWD for the past twenty years is 72.9 percent. Based on discussions with OCWD staff and background analysis provided for the January 7, 2009 OCWD Board of Directors meeting on annual water budget and water replenishment, an average projected BPP between 65 percent and 69 percent was documented. Therefore, as shown in Table 5.3-1, an average of 67 percent of total water supply is projected through 2030.

**Table 5.3-1
Projected Normal Year Groundwater Pumping
(in acre-feet per year)**

<i>Basin Name</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
Orange County Groundwater Basin	52,110	54,500	56,460	58,360	59,310
Percent of Total Water Supply into the System	67%	67%	67%	67%	67%

Source: The Platinum Triangle Water Supply Assessment Amendment, Psomas, July 2009.

There are two groundwater wells located on the project area: a monitoring well on the eastern border of the project area and a production well located north of Angel Stadium of Anaheim. To meet the project water demands the City proposes to upgrade the initial production rate of a previously proposed new water well in the Platinum Triangle (located adjacent to planned Fire Station No. 12, between Anaheim Way and Santa Cruz Street and designated as Well No. 57) and drill an additional new water well at a location to be determined. The Well No. 57 would have a capacity between 3,000 and 4,000 gallons per minute (gpm), and equipped at an initial production rate of 1,500 gpm. Discharge piping for the new well will connect to the existing 12-inch diameter main in Anaheim Way and the existing 10-inch diameter main in Santa Cruz Street. Well No. 57's production rate would be upgraded from 1,500 gpm to 3,500 gpm. A possible future recycled water plant location is proposed adjacent to the proposed Well No. 57 building. However, this future water reclamation facility will be subject to a separate environmental review process and is not a part of the current project. The proposed additional new water well, whose location has not yet been determined, would have an initial production rate of 4,000 gpm and also serve the 335 pressure zone.

The OCWD drills one new well every one or two years to replace existing shallow and deteriorated wells and provide additional production capacity. Construction of an additional water well to serve the Platinum Triangle would provide the necessary production capacity. The proposed water well is one of the water facility improvements identified in Rule 15D – Water Facility Fee for the Platinum Triangle and would not result in substantial depletion of groundwater supplies. OCWD monitors and ensures that the Basin is not overdrawn. For example, OCWD recharges the Basin with imported water and through the Groundwater Replenish System, if necessary, to ensure that a net deficit in aquifer volume or a lowering of the local groundwater table level does not occur.

The WSA determined that adequate water supplies are available to support the proposed expansion of the Platinum Triangle MLUP under the conservative 40 percent reduction in SWP deliveries to MWD in response to the Bay-Delta ecosystem issue, provided that certain conservation measures are implemented. Additional water supply and demand discussion from the WSA and applicable conservation measures are included in Chapter 5.10, *Utilities and Service Systems*, of this SEIR. Although additional groundwater would be drafted with the new water well, because of the location of the City's wells in relation to the OCWD Groundwater Basin, impacts would be less than significant. Many of the City's wells are located adjacent to the Santa Ana River and in the northeast part of the groundwater basin, especially the six wells near Anaheim Lake. From a hydro-geological standpoint, City wells are ideally located within the Basin, that they pump from geological structures which are relatively high up and geologically differentiated from other parts of the OCWD groundwater basin. In addition, because the City's wells are located relatively near to the Prado Dam outlet to the Santa Ana River, particularly as compared to the well locations of other producers in the Basin, the City's well fields draw water from easily accessible groundwater tables that are recharged on a naturally-occurring priority basis due to: 1) the location of OCWD recharge basins in or adjacent to the City, and 2) the City's wells' location in or near the upper reaches of the Santa Ana River. In essence, Santa Ana River water has the natural effect of recharging the portion of the OCWD Basin that provides groundwater to the City wells prior to such



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Santa Ana River water reaching the lower portion of the river. Thus, construction of an additional groundwater well in the City would not substantially deplete groundwater supplies or substantially affect the production of groundwater production wells operated by other producers located in other portions of the Basin. Furthermore, the Proposed Project would not 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.

5.3.4 Cumulative Impacts

The 20-year projection of water demand will be met by 67 percent groundwater and 33 percent imported water, confirmed reliable by MWD. Since there are adequate water supplies to meet the project water demands without substantially depleting groundwater supplies or interfere substantially with groundwater recharge, the cumulative impacts are considered less than significant.

5.3.5 Existing Regulations and Standard Conditions

- Future projects shall comply with the Storm Drain Impact and Improvement Fee in the Anaheim Municipal Code. The Fee is designed to implement the goals in the Master Plan of Drainage for the South Central Area, the Anaheim Resort Specific Plan, the City of Anaheim General Plan, and the Sanitary Sewer and Storm Drain Financial Implementation Plan for the South Central City Area, mitigating flooding and storm drainage impacts.

5.3.6 Level of Significance Before Mitigation

Upon implementation of existing regulatory requirements and standard conditions of approval, Impact 5.5-1 would be less than significant.

5.3.7 Mitigation Measures

Applicable Mitigation Measures from MMP No. 106A

The following mitigation measures were included in the Updated and Modified Mitigation Monitoring Program No. 106A for the Platinum Triangle, adopted by the City Council on October 25, 2005, as part of the Subsequent Environmental Impact Report No. 332 and are applicable to the Proposed Project. Additions are shown in **bold** and deletions are indicated in ~~strikeout~~ format. The mitigation reference numbers from MMP No. 106A are shown in *(italics)*.

3-1 Prior to issuance of a grading permit, the property owner/developer shall submit plans documenting that the design of all aboveground structures (with the exception of parking structures) shall be at least three feet higher than the 100-year flood zone, where applicable, unless otherwise required by the City Engineer. All structures below this level shall be floodproofed to prevent damage to property or harm to people. (5.5-1)

3-2 At least 90 days prior to the initiation of grading activities, for projects greater than one acre, an NOI shall be filed with the Regional Water Quality Control Board (RWQCB) by the property owner/developer pursuant to State and Federal National Pollution Discharge Elimination System (NPDES) requirements. As part of the NOI, a Surface Water Pollution Prevention Plan (SWPPP) shall be prepared. The property owner/developer shall also prepare and submit to RWQCB, a Water Quality Management Plan (WQMP) in accordance with the City's municipal NPDES requirements and the Orange County Drainage Area Management Plan. The SWPPP,

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in conjunction with the WQMP, will describe the structural and nonstructural BMPs that will be implemented during construction (short-term) within the Project Area as well as BMPs for long-term operation of the Project Area. Long-term measures could include, but may not be limited to, street sweeping, trash collection, proper materials storage, designated wash areas connected to sanitary sewers, filter and grease traps, and clarifiers for surface parking areas. ~~The BMPs selected shall be consistent with the Water Quality Technical Report set forth in for the Proposed Project (Appendix G) of SEIR No. 332. (5.5-2)~~

Additional Mitigation Measures

No additional mitigation measures are required.

5.3.8 Level of Significance After Mitigation

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



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