

---

## 4.11 WATER QUALITY

This section discusses General Aviation Improvement Program (“GAIP”)-related impacts to water quality at John Wayne Airport (“JWA” or “the Airport”). The term “water quality” is used to denote issues of surface water pollution and associated regulations and practices to manage surface water quality.

The GAIP would lead to the demolition and reconstruction of existing facilities and the construction of other improvements on an approximately 110-acre portion of JWA. The site would remain largely impervious, as under existing conditions. The GAIP would not directly affect underlying groundwater supplies; it would not place structures or housing in a 100-year flood hazard area; it would not expose the Airport to flooding as a result of failure of a levee or dam; and it would not be subject to inundation by seiche, tsunami, or mudflow. Thus, these topics are not discussed in this section (refer to the Notice of Preparation [“NOP”]/Initial Study in Appendix A).

### 4.11.1 REGULATORY SETTING

#### **Federal**

##### *Clean Water Act*

In 1972, the Federal Water Pollution Control Act (“Clean Water Act”) was amended to require National Pollutant Discharge Elimination System (“NPDES”) permits for the discharge of pollutants to waters of the United States<sup>1</sup> from any point source.<sup>2</sup> Final regulations regarding storm water discharges were issued on November 16, 1990, and require that municipal separate storm sewer system (“MS4”) discharges and industrial (including construction) storm water discharges to surface waters be regulated by an NPDES permit. MS4s are a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) and are owned or operated by a public body that has jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes. The MS4s are designated or used for collecting or conveying storm water only (i.e., not wastewater or combined sewage). NPDES permit requirements relevant to the Proposed Project and Alternative 1 are discussed later in this section.

##### Oil Pollution Act

The Spill Prevention, Control and Countermeasure (“SPCC”) Rule was originally published in 1973 under the Section 311(j)(1)(C) of the Clean Water Act as amended by the Oil Pollution Act of 1990. The regulation requires applicable facilities to develop and implement SPCC Plans and establish procedures, methods, and equipment requirements to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil.

---

<sup>1</sup> Waters of the United States include all waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide and all interstate waters, including interstate wetlands (33 *Code of Federal Regulations* 328.3).

<sup>2</sup> Point sources are discrete water conveyances, such as pipes or man-made ditches.

## Spill Prevention Control and Countermeasures Rule

40 CFR Part 112 requires that facilities subject to federal oil pollution prevention regulations develop and maintain a SPCC Plan. Federal oil pollution prevention regulations apply to facilities that have bulk oil storage or oil-filled electrical or operating equipment that exceed one or both of the following thresholds:

- aboveground storage or oil-filled equipment aggregate capacity: 1,320 gallons
- underground storage aggregate capacity: 42,000 gallons

The SPCC rule stipulates that only oil storage containers with capacities equal to or greater than 55 gallons are included in the aggregate capacity calculations. Aboveground oil containers with capacities less than 55 gallons are not counted toward a facility's aggregate capacity total, and are not subject to the requirements of 40 CFR Part 112. The SPCC rule also contains requirements for oil-filled equipment with an oil storage capacity equal to or greater than 55 gallons. The SPCC rule provides an exemption for underground storage tanks (USTs) that are subject to all of the technical requirements of 40 CFR Part 280, or a state program approved under 40 CFR Part 281. USTs that meet one of these criteria do not count toward the underground storage capacity threshold. The Airport has developed a SPCC, dated September 2016, which was prepared in compliance with 40 CFR Part 112 "Oil Pollution Prevention," outlines the requirements for both the prevention of and response to oil and oil product discharges, which in this case, is primarily jet fuel but also includes avgas and other petroleum-based fuels at the Airport.

## Clean Water Act Section 303(d)

Water bodies not meeting water quality standards are deemed "impaired" and, under Clean Water Act Section 303(d), are placed on a list of impaired waters for which a total maximum daily load ("TMDL") must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL allocates the loads (or concentrations) among current and future pollutant sources to the water body.

Receiving waters downstream of JWA include the Santa Ana Delhi Channel and the Upper and Lower Newport Bay. According to the 2014 and 2016 Clean Water Act Section 303(d) list approved by the State Water Resources Control Board ("SWRCB"), the Santa Ana Delhi Channel is no longer on the 303(d) list. The Upper and Lower Newport Bay are on the 303(d) list for various pollutants. It is noted that the SWRCB is in the process of amending the Industrial General Permit. The amendment is intended to incorporate TMDL requirements where industrial storm water was identified as a source of the receiving water impairment. The San Diego Toxics TMDL assigns Waste Load Allocations (WLAs) for cadmium, copper, lead, and zinc to industrial dischargers including those that discharge to the Santa Ana-Delhi Channel.

Table 4.11-1 below summarizes the pollutants affecting the water quality limited segments downstream of JWA, their TMDL requirement status, and potential pollutant sources, as provided on the 2014/2016 303(d) list.

**TABLE 4.11-1  
SUMMARY OF 303(d) LIST FOR JWA RECEIVING WATER BODIES**

| <b>Water Body</b>   | <b>Pollutant</b>        | <b>TMDL Requirement Status*</b> | <b>Potential Pollutant Sources (Where Identified)</b>                          |
|---|-------------------------|---------------------------------|--|
| Santa Ana Delhi Channel   | None                    | --                              | --   |
| Upper Newport Bay   | Chlordane (Pesticide)   | 5B (2013)                       | N/A  |
|   | Copper                  | 5A (2007)                       | Marinas and Recreational Boating   |
|   | DDT (Pesticide)         | 5B (2013)                       | N/A  |
|   | Indicator Bacteria      | 5B (2000)                       | N/A  |
|   | Malathion               | 5A (2027)                       | N/A  |
|   | Nutrients               | 5B (1999)                       | N/A  |
|   | PCBs                    | 5B (2013)                       | N/A  |
|   | Sedimentation/Siltation | 5B (1999)                       | Agriculture, Channel Erosion, Construction/Land Development, Erosion/Siltation |
| Toxicity  | 5A (2027)               | N/A                             |  |
| Lower Newport Bay   | Chlordane (Pesticide)   | 5B (2013)                       | N/A  |
|   | Copper                  | 5A (2019)                       | Marinas and Recreational Boating   |
|   | DDT (Pesticide)         | 5B (2013)                       | N/A  |
|   | Indicator Bacteria      | 5B (2000)                       | N/A  |
|   | Nutrients               | 5B (1999)                       | N/A  |
|   | PCBs                    | 5B (2013)                       | N/A  |
|   | Toxicity                | 5A (2019)                       | N/A  |
| TMDL: total maximum daily load; DDT: Dichlorodiphenyltrichloroethane; PCBs: Polychlorinated Biphenyls; N/A- source is unknown.                |                         |                                 |  |
| *5A - TMDL required (expected completion date reported in 303[d] list in parentheses);  |                         |                                 |  |
| 5B - pollutant being addressed by U.S. Environmental Protection Agency-approved TMDL.   |                         |                                 |  |
| Source: 2014 and 2016 Integrated Report, SWRCB 2017a and 2014 and 2016 California 303(d) List of Water Quality Limited Segments, SWRCB 2017b. |                         |                                 |  |

## **State/Regional**

### ***California Porter-Cologne Act***

California's Porter-Cologne Water Quality Control Act of 1970 ("Porter-Cologne Act") protects surface water and groundwater quality and is the primary vehicle for implementing California's responsibilities under the Clean Water Act. The Porter-Cologne Act grants the SWRCB and the

Regional Water Quality Control Boards (“RWQCBs”) the authority and responsibility to adopt plans and policies; to regulate discharges of waste to surface and groundwater; to regulate waste disposal sites; and to require cleanup of discharges of hazardous materials and other pollutants.

Each RWQCB must formulate and adopt a Water Quality Control Plan (“Basin Plan”) for its region. The Basin Plan must conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State Water Policy. The Basin Plan establishes beneficial uses for surface and groundwater in the region and sets forth narrative and numeric water quality standards to protect those beneficial uses.

The RWQCBs are also authorized to enforce discharge limitations, to take actions to prevent violations of these limitations from occurring, and to conduct investigations to determine the status of the quality of any of the waters of the State. Civil and criminal penalties are also applicable to persons who violate the requirements of the Porter-Cologne Act or any SWRCB/RWQCB orders.

### ***California Toxics Rule***

The Clean Water Act requires States to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. Environmental Protection Agency (“USEPA”). Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with the water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations, levels of constituents, or narrative statements that represent the quality of water that supports a particular use. Because the State of California was unable to develop these standards for priority toxic pollutants, the USEPA promulgated the California Toxics Rule (“CTR”) in 1992 (40 *Code of Federal Regulations* [“CFR”] 131.38), which fills this gap.

It is noted that the objectives of the Basin Plan prepared by each RWQCB under the Porter-Cologne Act and the CTR criteria do not currently apply directly to discharges of urban runoff, such as from JWA, but rather apply within the specified receiving waters. The SWRCB is in the process of amending the Industrial General Permit as stated below. The amendment is intended to incorporate TMDL requirements where industrial storm water was identified as a source of the receiving water impairment. The San Diego Toxics TMDL assigns WLAs for cadmium, copper, lead, and zinc to industrial dischargers including those that discharge to the Santa Ana-Delhi Channel. The San Diego Toxics TMDL uses the CTR equation with an average hardness of the San Diego Creek to calculate the criteria for translating each pollutant into a TMDL Numeric Action Level that will be applicable to the Airport and GAIP upon adoption of the amended Industrial General Permit.

The NPDES permit requirements applicable to the GAIP are described below.

### ***Santa Ana Region Basin Plan***

The Water Quality Control Plan for the Santa Ana River Basin (“Santa Ana Basin Plan”) identifies the beneficial uses and water quality objectives for the receiving water bodies in the Santa Ana

---

Region.<sup>3</sup> The definitions of the beneficial uses applicable to these receiving water bodies are as follows:

- **Municipal and Domestic Supply (MUN)** waters are used for community, military, municipal, or individual water supply systems, including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR)** waters are used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply (IND)** waters are used for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- **Industrial Process Supply (PROC)** waters are used for industrial activities that depend primarily on water quality, including, but not limited to, process water supply and all uses of water related to product manufacture or food preparation.
- **Groundwater Recharge (GWR)** waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.
- **Navigation (NAV)** waters are used for shipping, travel, or other transportation by private, commercial, or military vessels.
- **Hydropower Generation (POW)** waters are used for hydroelectric power generation.
- **Water Contact Recreation (REC1)** waters are used for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC2)** waters are used for recreational activities involving proximity to water but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Commercial and Sportfishing (COMM)** waters are used for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited to, uses involving organisms intended for human consumption.
- **Warm Freshwater Habitat (WARM)** waters support warm water ecosystems, including, but not limited to, preservation and enhancement of aquatic habitats, and vegetation, fish and wildlife, including invertebrates.

---

<sup>3</sup> A group of connected inland basins and open coastal basins between Los Angeles and San Diego that are drained by surface streams flowing generally southwestward to the Pacific Ocean.

- **Limited Warm Freshwater Habitat (LWRM)** waters support warm water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses and low, shallow, dry weather flows which result in extreme temperature, higher or lower acidity or alkalinity (pH), and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in LWRM waters.
- **Cold Freshwater Habitat (COLD)** waters support cold water ecosystems that may include, but are not limited to, preservations and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Preservation of Biological Habitats of Special Significance (BIOL)** waters support designated areas or habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance (“ASBS”), where the preservation and enhancement of natural resources requires special protection.
- **Wildlife Habitat (WILD)** waters that support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
- **Rare, Threatened, or Endangered Species (RARE)** waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.
- **Spawning, Reproduction and Development (SPWN)** waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
- **Marine Habitat (MAR)** waters support marine ecosystems that include, but are not limited to, preservation and enhancement of marine habitats, vegetation (e.g., kelp), fish and shellfish and wildlife (e.g., marine mammals and shorebirds).
- **Shellfish Harvesting (SHEL)** waters support habitats necessary for shellfish (e.g., clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins, and mussels) collected for human consumption, commercial, or sport purposes.
- **Estuarine Habitat (EST)** waters support estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish and shellfish, and wildlife, such as waterfowl, shorebirds, and marine mammals.

The receiving waters for runoff from the JWA, which include the Lower and Upper Newport Bay and Reach 1 of the Santa Ana Delhi Channel, and their associated beneficial uses are identified in Table 4.11-2.

**TABLE 4.11-2  
BENEFICIAL USES FOR JWA RECEIVING WATER BODIES**

| <b>Receiving Water</b>           | <b>Existing Beneficial Uses</b>  |
|----------------------------------|--|
| Santa Ana Delhi Channel, Reach 1 | Non-Contact Water Recreation<br>Limited Warm Freshwater Habitat<br>Wildlife Habitat<br>Rare, Threatened, or Endangered Species   |
| Upper Newport Bay                | Water Contact Recreation<br>Non-Contact Water Recreation<br>Commercial and Sport Fishing<br>Preservation of Biological Habitats of Special Significance<br>Wildlife Habitat<br>Rare, Threatened, or Endangered Species<br>Spawning, Reproduction, and Development<br>Marine Habitat<br>Shellfish Harvesting<br>Estuarine Habitat |
| Lower Newport Bay                | Navigation<br>Water Contact Recreation<br>Non-Contact Water Recreation<br>Commercial and Sport Fishing<br>Wildlife Habitat<br>Rare, Threatened, or Endangered Species<br>Spawning, Reproduction, and Development<br>Marine Habitat<br>Shellfish Harvesting   |
| Source: Santa Ana RWQCB 2016     |  |

### ***National Pollutant Discharge Elimination Program***

As discussed above, the NPDES permit program is administered in the State of California by the RWQCBs. There are nine RWQCBs in the State of California. These boards have the mandate to develop and enforce water quality objectives and implementation plans within their regions. If discharges from industrial, municipal, and other facilities go directly to surface waters, the dischargers must obtain permits from the applicable RWQCB. An individual NPDES permit is specifically tailored to a facility. A general NPDES permit covers multiple facilities within a specific activity category such as construction activities. JWA is located within the jurisdiction of the Santa Ana RWQCB.

### **Construction General Permit**

Pursuant to Clean Water Act (“CWA”) Section 402(p), the SWRCB issued a statewide general NPDES Permit for storm water discharges from construction sites (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ). The SWRCB’s NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities is referred to as the “Construction General Permit”. Under the Construction General Permit, construction sites with a disturbed area of one acre or more are

required to either obtain individual NPDES permits for storm water discharges or to be covered by the Construction General Permit.

Coverage under the Construction General Permit requires electronic filing of permit registration documents, which include a Notice of Intent (“NOI”), Storm Water Pollution Prevention Plan (“SWPPP”), and other compliance-related documents, to the SWRCB for General Permit coverage. The primary objectives of the SWPPP are (1) to help identify the sources of pollutants that could affect the quality of storm water discharges and (2) to describe and ensure the implementation of best management practices (“BMPs”) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site. The SWPPP also outlines the monitoring and sampling program required for the construction site to verify compliance with Numeric Action Levels (“NALs”) for specific discharges, as set by the Construction General Permit.

The Construction General Permit includes post-construction requirements for projects, but these standards do not apply as the GAIP is within a jurisdiction covered under a Phase 1 permit that is more protective.

### Industrial General Permit

The General Permit for Storm Water Discharges Associated with Industrial Activities (SWRCB Order No. 2014-0057-DWQ and amendment) or the Industrial General Permit implements the Section 402 of the Clean Water Act associated with industrial activities in California that discharge to waters of the United States. The Permit regulates discharges associated with specific industrial activities, such as facilities subject to storm water effluent limitations guidelines; manufacturing facilities; oil and gas/mining facilities; hazardous waste treatment, storage, or disposal facilities; landfills, land application sites, and open dumps; recycling facilities; steam electric power generating facilities; transportation facilities; and sewage or wastewater treatment works. It requires the electronic submission of permit registration documents for Notice of Intent or No Exposure Certification coverage, including a SWPPP that demonstrates compliance with the requirements of the Industrial General Permit and identifies the BMPs that would be implemented when necessary by the facility to support attainment of water quality standards (e.g., such as TMDLs, effluent limitation guidelines, and NALs). It also requires a Monitoring Implementation Plan which includes sampling, visual inspection and BMP effectiveness evaluations. The Permit requires self-reporting of violations, compliance with exceedance response actions, and to adequately address and respond to RWQCB comments on compliance reports, as necessary.

The areas of the Airport leased to fixed based operators (“FBOs”) and the maintenance areas (including areas used for washing and fueling operations) at JWA operate under the Industrial General Permit. The BMPs implemented at JWA pursuant to the Industrial General Permit are discussed below under Section 4.11.3, Existing Conditions.



---

## Municipal Storm Water Permitting

The passenger terminal, runways, and parking areas of the Airport are under the jurisdiction of Orange County's MS4 Permit for the Santa Ana region (North County MS4 Permit). In 2002, the Santa Ana RWQCB issued NPDES Permit Order No. R8-2002-0010 for discharges of urban runoff from public storm drains in northern Orange County. The Permittees are the County of Orange ("County"), the Orange County Flood Control District ("OCFCD"), and the northern Orange County cities (collectively "the Co-Permittees").

A revised North County MS4 Permit was adopted on May 22, 2009 (Order No. R8-2009-0030, Amended by Order No. R8-2010-0062). The revised MS4 Permit included several provisions for new development and significant redevelopment, including a requirement to revise the Drainage Area Management Plan ("DAMP") and Model Water Quality Management Plan ("WQMP") by May 2010. The MS4 Permit was subsequently reopened and revised for the limited purpose of extending deadlines for the preparation of the WQMP and related documents (Permit Order No. R8-2010-0062). The GAIP will be a priority development project as defined where there is the addition or replacement of 5,000 square feet or more of impervious surface on a developed site. Priority projects are required to submit and implement a WQMP in accordance with the model WQMP. The WQMP includes structural treatment control BMPs. The Santa Ana RWQCB is in the process of updating the North County MS4 Permit, which began in 2014 but is yet to be finalized and adopted. The GAIP would be subject to NPDES regulations or the approved model WQMP in effect at the time of issuance of building permits for construction.

## Waste Discharge Requirements

The Santa Ana RWQCB has adopted Order No. R8-2015-0004 (NPDES No. CAG998001), which includes updated general Waste Discharge Requirements ("WDRs") for discharges to surface water that pose an insignificant (de minimis) threat to water quality. This order allows specific wastewater discharges, including construction dewatering wastes, to be disposed into surface waters, subject to the regulations in the Order. Dischargers are required to apply for coverage under the Order by submitting a completed NOI prior to the start of discharge; compliance with the discharge prohibitions; groundwater testing to show the discharge would not exceed the set effluent limitations and applicable surface water limitations, including the provision of needed facilities and systems of treatment and control to meet the limitations; and implementation of a monitoring and reporting program. If the proposed discharge is not eligible for coverage under this Order, an individual NPDES permit would be needed.

## County of Orange

### ***Drainage Area Management Plan***

To implement the requirements of the North County MS4 Permit, the Co-Permittees developed the 2003 DAMP to serve as the foundation of the model programs, local implementation plan, and watershed implementation plans. The DAMP provides a framework and a process for following the North County MS4 Permit requirements and incorporates watershed protection/storm water quality management principles into the Co-Permittees' General Plan process, the environmental review process, and the development permit approval process. Among others, the DAMP discusses the activities, practices, and programs being implemented by

the various municipalities for reducing pollutant discharges into the MS4s. It includes a public education program to encourage the prevention of storm water pollution at the source. The DAMP also defines requirements for construction sites and for project-specific planning, selection, and design of BMPs in new development or significant redevelopment projects. It also includes the water quality monitoring programs being implemented in the County.

### Local Implementation Plan

Per the requirements in the DAMP and the North County MS4 Permit, the County of Orange and the OCFCD adopted a Local Implementation Plan (“LIP”), which is included as Appendix A of the DAMP. The LIP reflects the DAMP programs and measures and contains County policy and implementation documents for its compliance with the DAMP. Orange County last revised its LIP in September 2016. Section A-7 of the County’s LIP contains the requirements for new development and significant redevelopment within the unincorporated areas of the County, based on the Orange County Model WQMP.

### Model Water Quality Management Plan

In compliance with the North County MS4 Permit (Order No. R8-2009-0030, as amended), the Co-Permittees prepared and submitted a revised model WQMP, Technical Guidance Document (“TGD”), and supporting documents (collectively referred to as the “revised documents”), which were approved by the RWQCB on May 19, 2011, and became effective on August 17, 2011. The revised documents have been developed to aid the County of Orange, the OCFCD, and the Co-Permittees and developers with addressing post-construction urban runoff and storm water pollution from new development and significant redevelopment projects that qualify as Priority Projects. The revised documents include guidance for the preparation of conceptual or preliminary WQMPs to more effectively ensure that water quality protection, including low impact development (“LID”) principles, is considered in the earliest phases of a project. The revised documents also incorporate the latest information on BMPs and provide additional clarification regarding their effectiveness and applicability.

The Model WQMP requires certain new development and significant redevelopment projects considered Priority Projects to develop and implement a Conceptual or Preliminary WQMP and/or a final Project WQMP that includes LID and BMPs to address post-construction urban runoff and storm water pollution. These Priority Projects include:

1. New development projects that create 10,000 square feet or more of impervious surface
2. Automotive repair shops
3. Restaurants where the land area of development is 5,000 square feet or more including parking area
4. Hillside development greater than 5,000 square feet
5. Impervious surface of 2,500 square feet or more located within, directly adjacent to (within 200 feet), or discharging directly into receiving waters within Environmentally Sensitive Areas.
6. Parking lots 5,000 square feet or more, including associated drive aisle, and potentially exposed to urban storm water runoff

7. Streets, roads, highways, and freeways
8. All significant redevelopment projects, defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site
9. Retail gasoline outlets

The TGD serves as a technical companion to the Model WQMP, providing guidance on how to prepare the Conceptual/Preliminary or Project WQMP.

### ***Orange County Municipal Code***

Title 2, Division 1, Articles 4 and 5 of the Orange County Municipal Code sets regulations for commercial activities and airport operations. Specifically, Section 2.1-46 addresses the washing and waxing of aircraft at the Airport, including the prevention of any water, wash water, or rinsate from discharging into the storm sewer or drainage system. Regulations for other non-storm water discharges are also provided that prohibit any non-storm water discharge, with the exception of irrigation water and water being used to fight fires, to flow into the Airport's storm drain system or inlets. Aircraft maintenance and the use, storage, distribution and disposal of hazardous materials, non-hazardous materials, and non-storm water discharges are also regulated to comply with applicable federal and State-issued storm water permits. Section 2-1-56 regulates fire hazards and fueling operations to prevent fuel overflow, and Section 2-1-57 prohibits the dropping or spilling of trash from containers on sidewalks, roads, tie-down areas, or public areas of the Airport.

Title 4, Division 13 of the Orange County Municipal Code are regulations for storm water management and urban runoff. These regulations constitute the County's Water Quality Ordinance in compliance with County MS4 Permit and prohibits non-storm water discharges into the storm drain system and reduces the discharge of pollutants. It identifies illicit connections and discharge prohibitions and requirements for new development and significant redevelopment, consistent with the County MS4 Permit, DAMP, and LIP. It also sets the permit requirements for non-storm water discharges to the storm water drainage system that are not regulated by the USEPA, SWRCB, or RWQCBs.

In addition, Title 9 of the County Code contains the water quality regulations of the OCFCD and Division 1 sets storm water management and urban runoff regulations that generally reflect the Water Quality Ordinance in Title 4, Division 13 of the Orange County Municipal Code, as they relate to illicit connections and discharge prohibitions and requirements for new development and significant redevelopment and permit requirements for non-storm water discharges. However, Article 10 of Division 1 includes regulations for fats, oil, and grease disposal and requirements for grease control devices.

## **4.11.2 METHODOLOGY**

The effects of the GAIP on surface water quality were assessed by comparing the existing operational parameters with those of the Proposed Project and Alternative 1. This was done by first establishing the existing conditions baseline for water quality parameters currently implemented at JWA in compliance with applicable NPDES Permits, then characterizing the potential change in surface water quality (i.e., increase or decrease and types of pollutants) due to implementation of the Proposed Project and Alternative 1; this change was assessed in light of the existing water quality management program in place at JWA.

## **4.11.3 EXISTING CONDITIONS**

The Airport is located in the Newport Bay watershed, which drains approximately 152.02 square miles of Orange County into Newport Bay and the Pacific Ocean (OC Public Works 2017). The Newport Bay watershed is part of the Santa Ana Region. Most of JWA is located on Newport Mesa, a non-marine terrace deposit of Upper Pleistocene age that marks the coastal terminus of the Tustin Plain. The northern 20 percent of JWA is in the Tustin Plain. Newport Mesa consists of slightly consolidated sand and gravel deposits with minor amounts of clay and is up to several hundred feet thick. Bedrock is not exposed at the surface within the boundaries of JWA.

Surface water runoff at JWA discharges into a storm drain conveyance system, which includes storm drain lines in MacArthur Boulevard, Campus Drive, and Bristol Street. These lines connect to the Santa Ana Delhi Channel, which discharges into Upper Newport Bay. The Upper Newport Bay conveys water into the Lower Newport Bay prior to release into the Pacific Ocean (OCFCD 2012).

Activities and uses at JWA include aircraft storage, aircraft fueling services, air charter services, aircraft rental, aircraft maintenance, flying lessons, sale of aircraft and aviation-related supplies, ground transportation, and catering, which may be generating pollutants that could enter local storm drain lines and contribute to water quality impairments at downstream water bodies. The Orange County DAMP lists various commercial and industrial activities and associated potential pollutants. Those relevant to the Airport are identified in Table 4.11-3.

**TABLE 4.11-3  
POTENTIAL POLLUTANTS**

| Activity   | Sediments | Nutrients | Metals | Organics & Toxicants | Floatable Materials | Oxygen Demanding Substances | Oil & Grease | Bacteria | Pesticides |
|--|-----------|-----------|--------|----------------------|---------------------|-----------------------------|--------------|----------|------------|
| Automobile mechanical repair, maintenance, fueling, or cleaning  | X         | X         | X      | X                    |                     | X                           | X            |          |            |
| Airplane mechanical repair, maintenance, fueling, or cleaning  | X         | X         | X      | X                    |                     | X                           | X            |          |            |
| Equipment repair, maintenance, fueling, or cleaning  | X         | X         | X      | X                    |                     | X                           | X            |          |            |
| Automobile (or other vehicle) parking lots and storage facilities  |           |           | X      |                      | X                   |                             | X            |          |            |
| Retail or wholesale fueling  |           |           | X      | X                    | X                   |                             | X            |          |            |
| Eating or drinking establishments  |           | X         |        | X                    | X                   | X                           | X            | X        | X          |
| Notes:<br>1. Vehicles used at the general aviation facilities of JWA are not maintained or painted at the JWA.<br>2. In accordance with their lease agreements with JWA and the JWA Airport Rules and Regulations, the FBOs are allowed to do minor paint touchup (e.g., using small spray cans) but are not allowed to paint an entire plane or large parts of an airplane. |           |           |        |                      |                     |                             |              |          |            |
| Source: from Table 9-5 of 2007 DAMP, OC Public Works 2007  |           |           |        |                      |                     |                             |              |          |            |

## **Surface Water Quality Management**

As discussed above, FBO and maintenance areas of the Airport operate under the NPDES Industrial General Permit; and other areas operate under the MS4 Permit. However, runway flows are commingled with flows from industrial operation areas; thus, most of the Airport is covered under the Industrial General Permit. As part of the Industrial General Permit requirements, JWA has prepared and implements a SWPPP and a Monitoring Implementation Plan ("MIP"), which was submitted to the SWRCB for coverage under the Industrial General Permit. The SWPPP is designed to identify potential sources of pollutants that may add to storm water quality degradation at downstream facilities. It also identifies work practices and management procedures that are implemented to minimize pollutants from entering the storm water.

As part of the SWPPP and other regulatory programs such as the Business Emergency Response Plan and SPCC requirements (when applicable), all Airport fuelers and FBOs are required to prepare and implement spill and emergency notification and response plans and procedures.

These procedures include Mandatory Fueler Safety Training, which includes fuel spill notification and clean-up procedures. Likewise, aircraft maintenance and hazardous materials handling procedures are implemented at JWA to reduce the possibility of oil, coolant, and solvents from entering the storm drain system. All washing of aircraft or ground service equipment (“GSE”) must be conducted at approved wash racks or be conducted as approved in the SWPPP using “dry wash” methods to reduce pollutants from being mobilized and entering the storm drain system during wet weather events or wash water from discharging during dry weather.

In furtherance of the Airport’s SWPPP, JWA’s storm drain system includes four oil-water separators generally located at each corner of the Airport. These four oil/water separators are Petro Pack equipped and have alarm systems, automatic storm water samplers, and flow meters. These oil/water separators have 25,000- to 50,000-gallon capacities and serve large areas of the Airport. The commercial fuel farm and hydrant fuel systems have additional structural controls to prevent direct discharges into the storm drain system. Storm water from the commercial fuel farm is contained by a large containment berm. After visual inspection, storm water is directed to an 8,000-gallon oil/water separator with a Petro Pack to treat the storm water. The hydrant fuel system includes double-walled underground piping with leak detection and containment vaults that ultimately directs spills to a 6,000-gallon UST holding tank. An additional oil/water separator would be installed in conjunction with the Wickland Pipeline project that would treat storm water discharged from the secondary containment system associated with this additional pipeline tank farm. Additionally, clarifiers are located at the wash racks, which direct flow to the sanitary sewer. Exhibit 4.11-1 depicts the locations of the oil/water separators on the Airport.

For the past 18 years, JWA has complied with the Industrial General Permit by implementing the SWPPP and submitting various reports required to the Santa Ana RWQCB or to the SWRCB’s Storm Water Multiple Application and Report Tracking System (“SMARTS”), as required. The reports include annual reports, Ad Hoc sampling reports, and exceedance response actions. These reports provide supporting documentation that the Airport is in compliance with the Industrial General Permit. During the past two reporting years (2015-2016 and 2016-2017), two analytes exceeded the NALs, and a Level 1 Exceedance Response Action (“ERA”) Evaluation and Report and Level 2 ERA Action Plan were prepared in accordance with the requirements of the Industrial General Permit. As documented in the ERA reports submitted in SMARTS, the exceedances were likely attributed to non-industrial sources such as vehicle and airplane traffic. Amec Foster Wheeler was of the opinion that the exceedances were not from maintenance activities (Amec 2016 and 2017). During the 2017-2018 reporting year, additional grab samples are being collected to confirm that maintenance operations are not the source for the two analytes with exceedances. A Level 2 ERA Technical Report is being prepared as well to document these findings.

JWA is responsible for maintaining the parking areas (lots and structures), commercial aprons, and runways at the Airport, and the FBOs are responsible for maintaining the areas within their leaseholds consistent with the provisions in their leases. As discussed above, some areas of the Airport are under the jurisdiction of Orange County’s MS4 Permit. In accordance with MS4 Permit requirements, maintenance contractors are currently required to implement BMP procedures to reduce runoff and pollution into the storm drain system. Parking lots and sidewalks at JWA are no longer allowed to be washed off into the storm drains. Dirt, trash, leaves, grass-cuttings, and other types of debris are required to be swept up and properly disposed of

off-site. A self-contained scrubbing machine is also used to clean oil and grease from the parking lots. Wash water from this machine is disposed of into the industrial sewer system. JWA also cleans the commercial apron, removes rubber from the runways three to four times per year, and uses a sweeper four days each week within the roadways and commercial apron to remove particulates from paved surfaces (Amec 2016). While the FBOs are responsible for the maintenance of their leaseholds, the FBO areas are included in the monthly SWPPP inspections and periodic inspections of the airside portion<sup>4</sup> of JWA. The use of pesticides, herbicides, fertilizers, industrial cleaning products, and other hazardous materials are also tightly regulated and monitored through the requirements imposed by the MS4 Permit and Industrial General Permit.

JWA is a member of a County Task force, which prepares and submits an Annual Report to the Santa Ana RWQCB. This report is an assessment of the Municipal Activities Program's effectiveness. JWA submits data on BMPs implemented and BMP effectiveness and monitoring; documentation of training on the use of hazardous materials, pesticides, herbicides, and fertilizers; documentation on the quantity of fertilizers, herbicides, and fertilizers applied; and the status of required application permits.

## **Regional Water Quality**

The pollutants identified in the 303(d)-listed water bodies summarized in Table 4.11-1 above can be grouped into the following categories: pesticides, metals, pathogens, nutrients and other organics, and sediment. These are typical pollutants generated in urban areas with dense land development and a wide variety of land uses. The primary source of pollutants in these water bodies is via surface runoff, both from point (i.e., an outlet) and non-point sources.

In addition, airborne pollution can fall to the ground in precipitation, in dust, or simply due to gravity. This type of pollution is called "atmospheric deposition" or "air deposition." Pollution deposited from the air can reach water bodies in two ways: (1) it can be deposited directly onto the surface of the water (direct deposition) or (2) it may be deposited onto land and be carried to water bodies through runoff (indirect deposition) (USEPA 2013). Airborne pollutants can travel anywhere from a few yards to few thousand miles before being deposited on land or water (USEPA 2001). For example, it is now known that dust from China often reaches the west coast of the United States (UCLA 2006).

Human, or anthropogenic, sources of airborne pollutants include the combustion of fossil fuels for power generation and transportation, the release of chemical by-products from industrial and agricultural processes, and the incineration of waste. Natural processes that can release substantial amounts of pollutants into the air include volcanoes and forest fires (USEPA 2013). Some pollutants in the atmosphere occur naturally, including nitrogen, sulfur, mercury, lead, cadmium, copper, and zinc. These pollutants also have anthropogenic sources, which can exceed emissions from natural sources. The pollutants that are often identified as having significant atmospheric contributions in water bodies are sulfur compounds, nitrogen compounds, mercury compounds, other heavy metals, and a handful of anthropogenic pesticides and industrial by-products, including pesticides and herbicides (USEPA 2001).

---

<sup>4</sup> The portion of the airport facility where aircraft movements take place; airline operations areas; and areas that directly serve the aircraft (taxiway, runway, maintenance, and fueling areas).

The University of California, Los Angeles (UCLA) Institute of the Environment and Sustainability, as part of its 2006 Southern California Environmental Report Card, addressed atmospheric deposition of pollutants in Southern California. Specifically, “This article, using the findings of studies conducted over the last ten years at UCLA, in collaboration with the Southern California Coastal Water Research Project (SCCWRP), summarizes the current state of understanding of atmospheric deposition as a contributor to water quality problems.” As reported in this article, scientists from UCLA and elsewhere have used air quality computer models to determine the transport and fate of metals in the Los Angeles region. The models indicate about a fourth to a third of the material emitted into the atmosphere is deposited within the [Los Angeles] region and the rest is carried away by the wind (UCLA 2006).

The pattern of dust and metal concentrations in the atmosphere and the associated deposition on land is relatively uniform spatially in the Los Angeles urban region, although deposition near major sources, such as freeways, is higher than the regional background rate within about 100 meters of the road. In the urban areas, daytime concentration and deposition of metals is greater than nighttime because of the influence of traffic on deposition and resuspension of dust from roads by moving vehicles and from other paved and unpaved surfaces by wind, which is the most significant source of metals to water bodies (UCLA 2006). Although the UCLA report describes local conditions within the Los Angeles region, given the similarity in urban development, the conclusions can be extrapolated to the Orange County region. In summary, some portion of the pollutants identified in the receiving waters of JWA – Santa Ana Delhi Channel and Upper and Lower Newport Bay – are likely derived from atmospheric deposition. In addition to these and other inland water bodies in the region, it is noted that the Pacific Ocean is also a receptor for atmospheric pollutants.

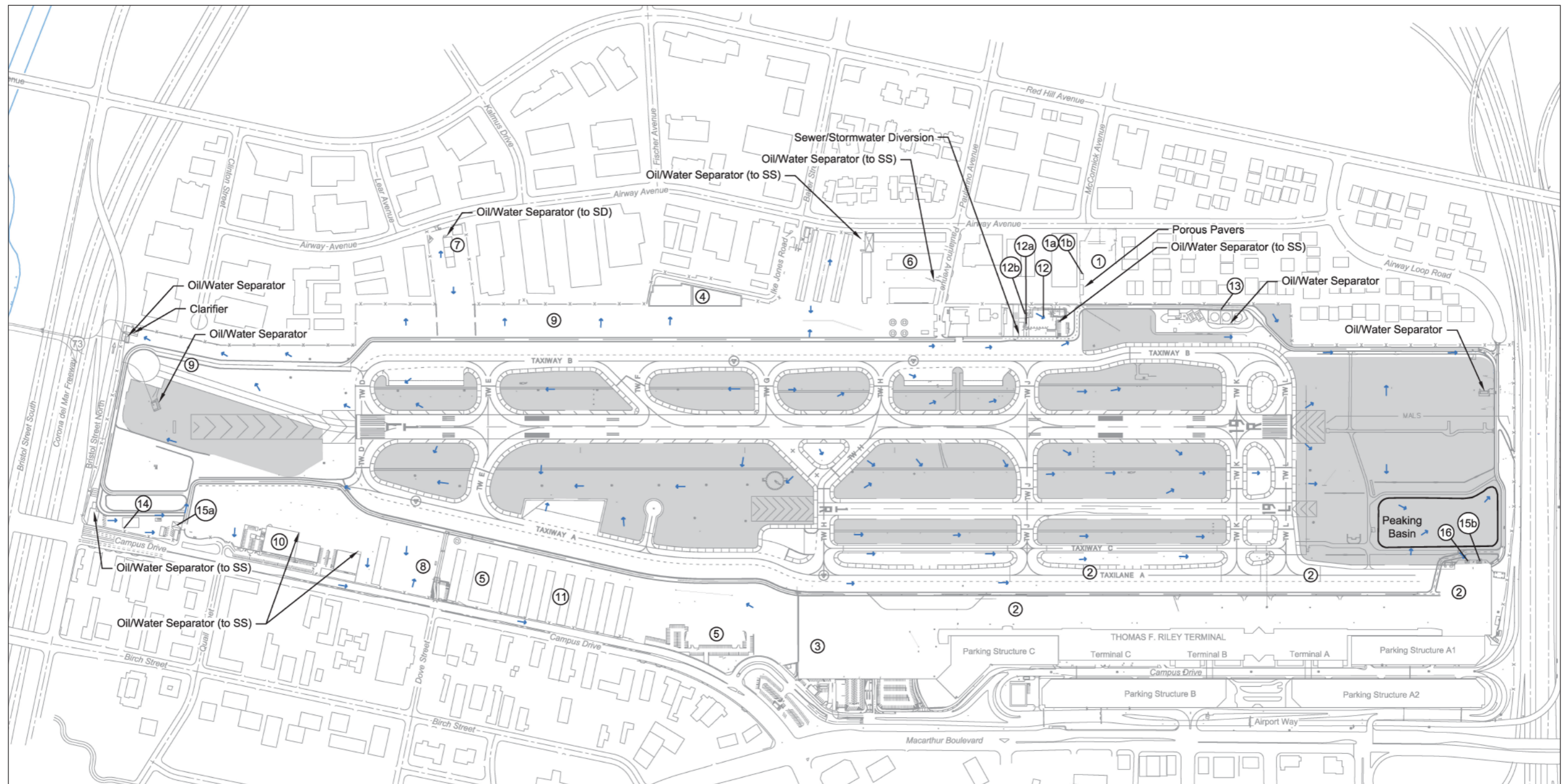
The Transportation Research Board relatedly sponsored a study that summarized a series of government-sponsored aircraft emission tests to better understand the gaseous and particulate emissions from aircraft engines. The study cites analysis prepared at several airports that are near and adjacent to communities, including studies in the vicinity of Los Angeles International Airport, Rhode Island’s T.F. Green Airport, Boston Logan International Airport, Charlotte/Douglas International Airport, John Wayne Airport, Seattle-Tacoma International Airport, Fort Lauderdale Hollywood International Airport, and Chicago O’Hare International Airport. None of these studies have shown a definitive link between the airports and the deposited material. Rather, these studies commonly find the deposits are typical of the material found throughout urban areas that come from diesel trucks; construction activity; and wind-blown dust, pollen, and mold. The Aircraft Particle Emissions eXperiment (“APEX”) tests, which were reviewed as part of the study, were the first studies that clearly indicated that particulate matter from aircraft is composed of fine or ultrafine particles which are too small to settle gravitationally or to be deposited on stationary surfaces and, thus, remain suspended in the atmosphere. The studies prior to APEX<sup>5</sup> are not conclusive since they used different

---

<sup>5</sup> The first APEX study was conducted in April 2004 to collect a set of gaseous and particulate emissions data from a DC-8 aircraft with CFM-56-2C1 engines owned by the National Aeronautics and Space Administration (“NASA”). This test was followed by the Delta Atlanta Hartsfield Study in September 2004 where two MD-88 aircraft with JT8D engines, two B757 aircraft with PW2037 engines, and two B767 aircraft with CF6-80 engines were examined. A third test in August 2005 examined emissions from two B737-700 aircraft with CFM56-7B22 engines and two 737-300 aircraft with CFM56-3B1 engines; and a fourth test, conducted in October-November 2005, evaluated emissions from a Learjet25 aircraft with CJ610 engines, an A300-600 aircraft with PW4158 engines, two B757 aircraft with RB211-535E4B Phase 5 engines, an ERJ aircraft with AE3007-A1E engines, an ERJ aircraft with AE3007-A1P engines, and a B737-300 aircraft with CFM56-3B engines (TRB 2008).



D:\Projects\LAN102\GRAPHICS\IIR\ex\_Oil\_Water\_Separator\_Locations\_20180307.ai



**Explanation**

- Surface drainage and storm drain flow direction
- ▭ Pervious areas
- ⑩ Area/Map designation (see Legend)

**Legend**

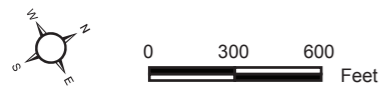
- |   |                                 |
|---|---------------------------------|
| 1 Maintenance Building (MB)                           | 11 Executive Aircraft Hangars   |
| 1a MB Hazardous Materials and Waste Accumulation Area | 12 Fire Station #33             |
| 1b MB Wash Rack                                       | 12a Fire Station #33 Foam Tank  |
| 2 Commercial Apron                                    | 12b Fire Station #33 Wash Rack  |
| 3 Cargo Apron   | 13 SNA Fuel Facility            |
| 4 Martin Aviation Westside Facilities                 | 14 General Aviation Fuel Farm   |
| 5 ACI Jet (East) Hangar                               | 15a General Aviation Biffy Dump |
| 6 ACI Jet (West)                                      | 15b Commerical Biffy Dump       |
| 7 Jay's Aircraft Maintenance                          | 16 GSE Wash Rack                |
| 8 County Tie-Down area (Eastside)                     |                                 |
| 9 County Tie-Down Area (Westside)                     |                                 |
| 10 Atlantic Aviation                                  |                                 |

**Notes:**

1. Areas of industrial activities include shipping, receiving, fueling, maintenance, material handling and processing, waste disposal, dust particulate, cleaning and material reuse are listed above.
2. No significant spills or leaks have occurred within the last five years.

**Oil/Water Separator Locations on the Airport**

John Wayne Airport General Aviation Improvement Program



Source: JWA 2017

**Exhibit 4.11-1**



methodologies and many only sampled dry deposition and did not collect material deposited through rainfall, which is a primary mechanism for scrubbing suspended particles from the atmosphere (TRB 2008).

The City of Newport Beach performed a study entitled “Air Quality in Newport Beach, California: Field Measurements of Ambient Particles and Associated Trace Elements and Hydrocarbons” (Boyle 2010). The study measured airborne concentrations of particulate pollutants and characterized the chemical composition of these particles, at different locations in the City of Newport Beach. Data was collected at six locations (including one at the JWA runway and two near the Airport) over approximately five sampling dates. The study concludes that the data “indicate that ambient PM<sub>2.5</sub> [concentration] at the locations sampled is well within federal air quality standards.” While runway-associated emissions may be measurable at significant distances from JWA, more data is needed to determine if these emissions are aircraft-related. The study also indicates that it was “designed as a preliminary assessment of the feasibility of using field air sampling to detect differences in the amounts and chemical composition of PM<sub>2.5</sub> in relation to various sources. These objectives were met” (Boyle 2010, pages 4-5). While the study suggests larger-scale sampling may be useful, no further conclusions were presented.

Operation of JWA involves activities known to generate atmospheric pollutants – mainly combustion of fossil fuels and resuspension of dust on both runways and roadways from airplane and vehicle traffic (see Section 4.2, Air Quality, for a detailed discussion of air emissions associated with the GAIP). Accordingly, with rainfall and wind, the operations on the Airport would reasonably contribute an incremental amount of several of the pollutant types through atmospheric deposition that may add to pollutant loads identified in the 303(d)-listed waterways.<sup>6</sup>

As noted above in Tables 4.11-1 and 4.11-3, pollutants of concern for the waterways on the 303(d) list include pollutants generally associated with emissions from aviation activities. Sediments, nutrients, metals, organics and toxicants, floatable materials, oxygen-demanding substances, oil and grease, bacteria, and pesticides are generally associated with activities at JWA; and the Upper and Lower Newport Bay are impacted by those pollutants.

Building materials such as fencing and roofing and commercial activities such as vehicle and aircraft traffic at the Airport may also be sources of particulates such as metals. JWA has an extensive list of BMPs as described in the SWPPP to remove particulates from the paved surfaces at the Airport (Amec 2018). Also, these same pollutants are generated along every major freeway in Southern California and at other airports of various sizes throughout the South Coast Air Basin, including, but not limited to, the Long Beach Airport, Fullerton Municipal Airport, Ontario International Airport, Chino Airport, Los Angeles International Airport, Bob Hope Airport (Hollywood-Burbank), and Van Nuys Airport.

---

<sup>6</sup> To provide context, however, aviation emissions represent 0.5 to 2.5 percent of the total air basin emissions, depending on the pollutant evaluated. This includes all airports within the South Coast Air Basin. Only a small portion of the atmospheric depositions would add to pollutant loads in water. BMPs such as runway cleaning reduce the resuspension of metals and dust during airplane landings and takeoffs.

#### **4.11.4 THRESHOLDS OF SIGNIFICANCE**

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the GAIP would result in a significant water quality impact if it would:

**Threshold 4.11-1** Violate any water quality standards or waste discharge requirements

**Threshold 4.11-2** Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff

**Threshold 4.11-3** Otherwise substantially degrade water quality

#### **4.11.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL**

Implementation of the GAIP assumes compliance with existing regulations and the County's Standard Conditions of Approval related to the protection of surface water quality, as discussed under Section 4.11.1, Regulatory Setting, above. The Standard Conditions of Approval have been taken verbatim from the County's listing. However, not all components of each Standard Condition of Approval would be applicable to the GAIP. In addition, a number of the regulatory requirements and Standard Conditions of Approval included in Section 4.5.5 (see Hazards and Hazardous Materials) would serve to avoid or minimize potential water quality impacts. These include the regulatory requirements ("RR") and Standard Conditions of Approval ("SC") listed below:

**RR WQ-1** If groundwater is encountered during ground disturbance activities at JWA, the contractor shall provide evidence to the County that it has applied for coverage under Order No. R8-2015-0004 for the disposal of acceptable construction dewatering discharges to the local storm drainage system, through the submission of a copy of the completed Notice of Intent for the project and Santa Ana Regional Water Quality Control Board's ("RWQCB's") Discharge Authorization Letter. The contractor shall comply with the discharge prohibitions; conduct groundwater testing to show the discharge would not exceed the set effluent limitations and applicable surface water limitations, including the provision of needed facilities and systems of treatment and control to meet the limitations; and implement a monitoring and reporting program.

If the proposed discharge is not eligible for coverage under this Order, an individual National Pollutant Discharge Elimination System ("NPDES") permit shall be obtained. The contractor shall provide a copy of the NPDES permit to the Orange County Building and Safety Division and implement the conditions of approval during construction dewatering activities.

**SC WQ-1** Prior to the issuance of any grading or building permits, the applicant shall submit for review and approval by the Manager, Building and Safety, a Water Quality Management Plan ("WQMP") specifically identifying Best Management Practices ("BMPs") that will be used on site to control predictable pollutant runoff. The

applicant shall utilize the Orange County Drainage Area Management Plan (“DAMP”), Model WQMP, and Technical Guidance Manual for reference, and the County’s WQMP template for submittal. This WQMP shall include the following:

- Detailed site and project description
- Potential storm water pollutants
- Post-development drainage characteristics
- Low Impact Development (“LID”) BMP selection and analysis
- Hydromodification Control BMP selection and analysis
- Structural and Non-Structural source control BMPs
- Site design and drainage plan (BMP Exhibit)
- Geographic Information Systems (“GIS”) coordinates for all LID and Treatment Control BMPs
- Operation and Maintenance (“O&M”) Plan that (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs

The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check, and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit. (County Standard Condition WQ01)

**SC WQ-2**

Prior to the issuance of a certificate of use and occupancy, the applicant shall demonstrate compliance with the County’s NPDES Implementation Program in a manner meeting the satisfaction of the Manager, Orange County (“OC”) Inspection, including:

- Demonstrate that all structural Best Management Practices (“BMPs”) described in the BMP Exhibit from the project’s approved WQMP have been implemented, constructed, and installed in conformance with approved plans and specifications
- Demonstrate that the applicant has complied with all non-structural BMPs described in the project’s WQMP
- Submit for review and approval an Operations and Maintenance (“O&M”) Plan for all structural BMPs (the O&M Plan shall become an attachment to the WQMP)
- Demonstrate that copies of the project’s approved WQMP (with attached O&M Plan) are available for each of the initial occupants

- Agree to pay for a Special Investigation from the County of Orange for a date twelve (12) months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and O&M Plan
- Demonstrate that the applicant has RECORDED one of the following:
  1. The covenants, conditions, and restrictions (“CC&Rs”) (that must include the approved WQMP and O&M Plan) for the project’s Home Owner’s Association
  2. A water quality implementation agreement that has the approved WQMP and O&M Plan attached
  3. The final approved Water Quality Management Plan (“WQMP”) and Operations and Maintenance (“O&M”) Plan

(County Standard of Approval WQ02)

**SC WQ-3** Prior to the issuance of any grading or building permits, the applicant shall demonstrate compliance with California’s General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Intake. Projects subject to this requirement shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and be available for County review on request. (County Standard of Approval WQ04)

**SC WQ-4** Prior to the issuance of any grading or building permit, the applicant shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Permit Intake, to demonstrate compliance with the County’s NPDES Implementation Program and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris and stockpiles of soil, aggregates, soil amendments, and other on-site materials shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion, or dispersion. The ESCP shall also describe how the applicant will ensure that all BMPs will be maintained during construction of any future public rights-of-way. The ESCP shall be updated as needed to address the changing circumstances of the project site. A copy of the current ESCP shall be kept at the project site and be available for County review on request. (County Standard of Approval WQ05)

**SC WQ-5** Prior to the issuance of building permits for any tank or pipeline, the uses of said tank or pipeline shall be identified, and the applicant shall submit a Chemical Management Plan in addition to a WQMP with all appropriate measures for chemical management (including, but not limited to, storage, emergency response, employee training, spill contingencies, and disposal) in a manner

meeting the satisfaction of the Manager, Permit Intake, in consultation with the Orange County Fire Authority, the Orange County Health Care Agency and wastewater agencies, as appropriate, to ensure implementation of each agency's respective requirements. A copy of the approved "Chemical Management Plans" shall be furnished to the Manager, OC Inspection, prior to the issuance of any Certificates of Use and Occupancy. (County Standard of Approval WQ06)

**SC WQ-6** For industrial facilities subject to California's General Permit for Stormwater Discharges Associated with Industrial Activity as defined by Standard Industrial Classification ("SIC") Code.

Prior to grading or building permit close-out and/or the issuance of a certificate of use and occupancy, the applicant shall demonstrate that compliance with the permit has been obtained by providing a copy of the Notice of Intent ("NOI") submitted to the State Water Resources Control Board and a copy of the notification of the issuance of a Waste Discharge Identification ("WDID") Number or other proof of filing to the satisfaction of the Manager, OC Inspection.<sup>7</sup> (County Standard of Approval WQ07)

## 4.11.6 IMPACT ANALYSIS

### **Thresholds 4.11-1 through 4.11-3**

- *Would the Project violate any water quality standards or waste discharge requirements?*
- *Would the Project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*
- *Would the Project otherwise substantially degrade water quality?*

### ***Proposed Project***

#### **Short-Term Construction Impacts**

Demolition and construction activities associated with implementation of the Proposed Project would generate pollutants that may enter storm water runoff. These activities may lead to sediments, building materials and wastes, and other on-site materials entering the storm water drainage system and downstream water bodies. Storm water runoff from the site could contain pollutants (e.g., loose soils and sediments from grading and excavation activities) and petroleum-related pollutants due to spills or leaks from heavy equipment and machinery. Common pollutants that may be generated by demolition and construction activities include loose soils and organic materials; solid or liquid chemical spills; concrete and related cutting or curing residues; wastes from building materials, paints, stains, sealants, solvents, detergents, glues,

<sup>7</sup> Alternatively, the facility may provide documentation to be added to the Airport's existing SWPPP and demonstrate the BMPs implemented by the facility meet the requirements of the Industrial General Permit.



acids, lime, plaster, and cleaning agents; and heavy metals from equipment. Construction site runoff would flow into adjacent catch basins and storm drainage lines and would contribute to pollutants in the storm water, if not treated.

As stated in SC WQ-3, construction contractors would be required to obtain coverage under the NPDES Construction General Permit for sites of one acre or more. This permit requires the discharger to prepare and implement a SWPPP, which must include erosion-control and sediment-control BMPs, wind and water tracking controls, hazardous material management practices, and other site-management BMPs that would meet or exceed measures required by the determined risk level of the Construction General Permit. Contractors on sites less than one acre would still need to prepare a SWPPP that would also prevent and/or minimize pollutants on storm water runoff. The primary objective of the SWPPP is to ensure that the responsible party properly constructs, implements, and maintains BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site. In compliance with the County's NPDES Implementation Program, an Erosion and Sediment Control Plan ("ESCP") would also have to be prepared to reduce soil erosion and sedimentation during demolition and construction activities (SC WQ-4).

Encountering groundwater during construction is highly unlikely because depth to groundwater is approximately 30 to 32 feet below land surface ("bls") (Amec 2016). Construction activities are generally expected to be less than 10 feet bls; however, footings could be as deep as 25 feet bls. Should excavation and trenching activities encounter groundwater, such that dewatering activities are required, compliance with the dewatering regulations (Order No. R8-2015-0004) of the Santa Ana RWQCB (RR WQ-1) would be required. This would prevent the discharge of pollutants into the on-site and off-site storm drainage system, including the Santa Ana Delhi Channel and the Upper and Lower Newport Bay.

A construction SWPPP would be prepared as part of the Proposed Project's Construction General Permit coverage (SC WQ-3). Implementation of these regulatory requirements and Standard Conditions of Approval would avoid potential significant water quality impacts.

Compliance with RR WQ-1, SC WQ-1 through SC WQ-4, and SC WQ-6 would ensure that demolition and construction activities for the GAIP do not violate water quality standards or substantially degrade water quality. Short-term construction impacts on water quality would be less than significant, and no mitigation is required.

### Long-Term Operational Impacts

The GAIP site is largely paved and would remain paved with the Proposed Project. Although no substantial increase in the extent of impervious surfaces would occur and no substantial change in the volume of runoff would be generated at the Airport, additional structural treatment controls would be required. As a Priority Redevelopment Project (due to redevelopment or replacement of 5,000 square feet or more of impervious surface), a Conceptual or Preliminary WQMP and a final Project WQMP that includes LID and BMPs to address post-construction urban runoff and storm water pollution would be required to address potential long-term operational impacts. These requirements include meeting the Design Capture Volume ("DCV") using infiltration, harvest and reuse, evapotranspiration, bio-retention, or would require an in-lieu program. The significant redevelopment project requirements to be implemented are specified further in the Model WQMP and Technical Guidance Document ("TGD").

The GAIP area, which is covered under the Industrial General Permit, requires BMPs and/or structural treatment controls to meet Best Available Technology Economically Achievable (“BAT”) and Best Conventional Pollutant Control Technology (“BCT”). New structural treatment controls used shall have data to demonstrate reductions of copper and zinc to meet future TMDL NAL requirements. Examples of acceptable structural treatment controls or alternative BMPs include:

- Installation of Underground Vault BMPs such as BioClean Water Polisher; Contech Jellyfish Filter®; Contech StormFilter®; Jensen Stormwater System Hydrosystem Filter; Oldcastle Precast PerkFilter™; or StormwaterRx Aquip™;
- Installation of Drain Inlet Inserts within the project area such as CleanWay MetalZorb®; Gullywasher Metal Compliant Catch Basin Inserts; or UltraTech HydroKleen with Heavy Metal Filter; and/or
- BMPs to prevent exposure to storm water and meet the No Exposure Certification (“NEC”) requirements listed in Industrial General Permit’s Appendix 2.

Each individual project under the GAIP would have an approved WQMP (SC WQ-1 and SC WQ-2) obtained prior to issuance of building permits. The approved WQMP would describe the new structural treatment control BMPs and/or source control BMPs that would comply with both the Model WQMP and Industrial General Permit (SC WQ-6).

As discussed above, various storm water pollutants are generated by general aviation activities at the Airport. Fuel-related pollutants are constituents of concern from the existing runoff at the Airport<sup>8</sup>, and BMPs for these petrochemical pollutants are in place. These BMPs include large oil-water separators located throughout the airfield that treat runoff from the aircraft parking aprons and maintenance areas. Sediment/sludge from the oil-water separators are taken off site for recycling and disposal, as appropriate during cleaning activities. The FBOs also have clarifiers at the wash racks that convey wastewater to the sanitary sewer system.

Normal Airport maintenance requires frequent sweeping of airfield pavement to prevent possible aircraft engine damage due to foreign objects; this has the added benefit of removing contaminants attached to surficial debris (i.e., dust and sediment that accumulates on paving between storm events). In the parking lots, a self-contained scrubbing machine is used to clean oil and grease from the parking lots, and accumulated wash water is disposed of into the industrial sewer system. As indicated above, JWA also cleans the commercial apron, removes rubber from the runways three to four times per year, and uses a sweeper four days each week to remove particulates from paved surfaces (Amec 2016). The FBO leasehold areas are maintained by the FBOs, but the FBOs maintain at least the minimum BMPs in the Airport’s SWPPP and are included in the monthly SWPPP inspections within the airside operational areas and periodic inspections for the landside operations. These inspections are conducted by the Airport.

With the Proposed Project, existing facilities would be replaced with new facilities serving comparable functions. Therefore, the new facilities and associated activities would result in generally the same storm water pollutants at the site. Because of the priority redevelopment program, the new facilities would have to implement additional structural BMPs and storm

---

<sup>8</sup> This would be associated with both general aviation and commercial carrier activities.



water management practices to comply with the applicable permits under which the Airport operates and in accordance with the WQMPs that would be prepared and implemented for individual projects under the GAIP (SC WQ-1 and SC WQ-2). Therefore, the extensive list of BMPs already implemented with the additional BMPs required for the Proposed Project will result in improved water quality. Therefore, the potential for the Proposed Project to violate water quality standards, exceed waste discharge requirements, or substantially degrade water quality is less than significant.

The Proposed Project does identify a new self-service fueling station as one of the improvements that would also be provided; however, the amount of fuel being dispensed at the Airport would not be substantially different than existing conditions because the number of based aircraft and general aviation activities would be less than the current conditions. As noted in Section 3, the self-serve fueling facility would include secondary containment systems (i.e., a containment wall or dual-wall storage tanks), which would protect against introduction of petroleum products into the storm drain system in the unlikely event of a failure of the fuel tank. Specifically, the self-serve station would be designed to meet the NEC requirements listed in IGP Appendix 2, where feasible. The requirements include:

- tanks shall be physically separated from the maintenance operations;
- piping, pumps, and other equipment shall remain inside the containment and avoid the potential for coming in contact with storm water; and
- the tanks shall have a secondary containment system to prevent runoff in the event of a structural failure or leaking transfer pipe.

The self-serve station would be required to have the appropriate controls to treat storm water by meeting the County's significant re-development post-construction BMP requirements. Implementation of these regulatory requirements and Standard Conditions of Approval would avoid potential significant water quality impacts. Thus, the introduction of the self-service fueling station would reduce the potential for spills throughout the general aviation tie-down areas. In compliance with SC WQ-5, the Proposed Project would need to prepare or update the Business Emergency Plan and SPCC plan for the Airport for chemical storage, emergency response, employee training, spill contingencies, and disposal associated with the tanks and pipelines at JWA. Additionally, pursuant to regulatory requirements (including Section 25288 of the *California Health & Safety Code* and Title 23, Chapter 16, of the *California Code of Regulations*, as enforced by the Orange County Health Care Agency ["OCHCA"] Environmental Health Services, and South Coast Air Quality Management District ["SCAQMD"] Rule 461), the fuel tank would require daily and monthly inspections, yearly compliance inspections, and tri-annual certified inspections.

With the projected decrease in the number of general aviation aircraft that can be accommodated at the Airport under the Proposed Project (242 fewer aircraft parking spaces than existing capacity and 128 fewer spaces than currently used) and the related decrease in general aviation aircraft operations (24,900 fewer annual operations than existing), the pollutant load entering storm water associated with general aviation activities would be expected to incrementally decrease from existing conditions.

As discussed under Existing Conditions, the fine or ultrafine particles associated with aircraft emissions remain suspended in the atmosphere because they are too small to settle

gravitationally or to be deposited on stationary surfaces. However, with rainfall these particles would be scrubbed from the air and deposited on land and in water. The decrease in general aviation operations associated with the Proposed Project would result in an incremental decrease in the amount of suspended particles associated with general aviation activities. Therefore, a decrease in the atmospheric pollutant deposition in the receiving waters downstream of JWA could reasonably occur.<sup>9</sup>

The decrease in general aviation operations under the Proposed Project would also result in a decrease in the contribution from general aviation activities at JWA to storm water pollutant loads at downstream water bodies. As described above, the FBOs would have structural treatment control BMPs installed as well. Thus, the Proposed Project would not result in the violation of water quality standards, would not contribute substantial additional sources of polluted runoff, and would not otherwise substantially degrade water quality. The Proposed Project would result in a less than significant impact, and no mitigation is required.

**Impact Conclusion:** *General aviation activities at JWA generate pollutants that may enter the storm water. JWA has an extensive list of BMPs to address runoff leaving the Airport to comply with all water quality standards. The Proposed Project would require additional BMPs under the priority redevelopment program improving storm water quality before discharging from the Airport. The Proposed Project would also reduce the number of based aircraft and the number of general aviation operations. Therefore, an incremental decrease in the amount of pollutants is anticipated. The Proposed Project would not violate water quality standards or waste discharge requirements, create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. Impacts would be less than significant under Thresholds 4.11-1 through 4.11-3.*

## **Alternative 1**

### **Short-Term Construction Impacts**

As with the Proposed Project, Alternative 1 would result in demolition and construction activities that would generate pollutants that may enter storm water runoff. Alternative 1 proposes a different mix and configuration of facilities than the Proposed Project; however, the overall nature of the improvements and subsequent operations utilizing those facilities would be similar. The same short-term construction impacts related to water quality for Alternative 1 would be less than significant. Compliance with RR WQ-1, SC WQ-3, and SC WQ-4 would be required for all construction activities, which include preparation and implementation of a SWPPP and compliance with the dewatering regulations of the Santa Ana RWQCB, if applicable, to prevent and/or minimize pollutants in the storm water. Short-term construction impacts on water quality would be less than significant, and no mitigation is required.

---

<sup>9</sup> Not all emissions from general aviation operations would be deposited locally because the airstream disperses pollutants and the settling into waterways would predominately occur only when it rains (TRB 2008). Therefore, quantification of the Proposed Project's incremental decrease to downstream receiving waters is not possible.

## Long-Term Operational Impacts

As with the Proposed Project, general aviation activities at JWA would continue under Alternative 1. The replacement of the existing facilities with new facilities would generally result in the same storm water pollutants at the site. Additionally, Alternative 1 would not substantially increase the extent of impervious surfaces, and no change in the volume of runoff would be generated at the Airport. As with the Proposed Project, Alternative 1 would be considered a Priority Project and a WQMP would be required resulting in additional structural treatment controls addressing post-construction long term impacts. As discussed for the Proposed Project, water quality BMPs are in place and new BMPs would be required to treat runoff prior to its entering the storm drain system and entering receiving waters downstream of the Airport. This minimizes the pollutants from leaving the Airport. Therefore, it is anticipated that continued implementation of NPDES-related BMPs and new BMPs required by the priority redevelopment program would accommodate the petrochemical pollutants within the existing runoff flows. SWPPP implementation and operation and maintenance of the BMPs would address the effectiveness of water quality BMPs regardless of the intensity of general aviation operations. The proposed facilities under Alternative 1 would have to implement better structural BMPs and storm water management practices as are currently in place at the Airport. Compliance with SC WQ-1 and SC WQ-2, related to preparation and implementation of a WQMP; SC WQ-5 for preparation of a Chemical Management Plan; and the requirements of the Industrial General Permit (SC WQ-6) would prevent or minimize pollutants in the storm water.

With the projected decrease in the number of general aviation aircraft that can be accommodated at the Airport with Alternative 1 (240 fewer aircraft parking spaces than existing capacity and 126 fewer spaces than currently used) and the related decrease in general aviation aircraft operations (24,200 fewer operations than existing), the pollutant load entering storm water associated with general aviation activities would be expected to incrementally decrease from existing conditions.

The decrease in general aviation operations associated with Alternative 1 would result in a decrease in the amount of suspended particles associated with general aviation activities. Therefore, a decrease in the atmospheric pollutant deposition in the receiving waters downstream of JWA could reasonably occur.

Alternative 1 would not violate water quality standards, would not contribute substantial additional sources of polluted runoff, and would not otherwise substantially degrade water quality. Alternative 1 would result in a less than significant impact, and no mitigation is required.

***Impact Conclusion:*** *General aviation activities at JWA generate pollutants that may enter the storm water. JWA has an extensive list of BMPs to address runoff leaving the Airport to comply with all water quality standards. Alternative 1 would require additional BMPs under the priority redevelopment program improving storm water quality before discharging from the Airport. Alternative 1 would reduce the number of based aircraft and the number of general aviation operations. Therefore, an incremental decrease in the amount of pollutants is anticipated. Alternative 1 would not violate water quality standards or waste discharge requirements, create or contribute runoff water which would exceed the capacity of existing or planned storm*

---

*water drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. Impacts would be less than significant under Thresholds 4.11-1 through 4.11-3.*

## 4.11.7 CUMULATIVE IMPACTS

Cumulative water quality impacts are considered within the Newport Bay watershed, where the Airport is located.

The Paularino Gate Relocation project is currently under construction and is expected to be completed shortly. The Wickland Pipeline project is also currently under construction on the west side of the Airport and would be completed prior to the construction of the first GAIP project. Rehabilitation of the southern portion of Taxiway “B” (west side of the airfield) is underway and expected to be completed in 2018. These JWA projects would have the potential to generate potential storm water pollutants during construction; however, they are expected to be completed prior to the construction of the first project under the GAIP. These projects would also implement construction BMPs to reduce pollutants in the runoff and meet the requirements of the JWA-approved SWPPP.<sup>10</sup> Since these JWA projects would likely be constructed prior to the construction of the first GAIP project, no cumulative construction water quality impacts would occur. These projects would also not have long-term impacts on water quality due to the types of improvements. The Wickland project will likely result in improved water quality due to less vehicle traffic within the airfield. No change in the runoff quality is anticipated from the relocated gate, improved roadway, and rehabilitated taxiway. Thus, the Paularino Gate Relocation project and the Taxiway “B” rehabilitation project would not contribute to cumulative water quality impacts related to construction-related storm water pollutants. The JWA Settlement Agreement Amendment would increase the number of commercial carrier operations but does not involve demolition or construction activities at the Airport. Thus, the JWA Settlement Agreement Amendment would not contribute construction-related storm water pollutants of the Proposed Project.

Construction of other projects outside the Airport but within the Newport Bay watershed, together with the proposed GAIP projects, would have the potential to result in cumulative impacts on water quality. However, implementation of BMPs listed in individual SWPPPs, which are required for coverage under the NPDES Construction General Permit would reduce storm water pollutants during demolition and construction activities to less than significant levels. This condition would apply to all significant construction projects in the watershed.

For cumulative long-term operational impacts, the existing BMPs and other practices that are implemented at the Airport, as discussed above, would continue to be implemented as part of the MS4 Permit regulations and the Industrial General Permit for the Airport and in compliance with pertinent County Code regulations. As discussed above, the BMPs are designed to reduce pollutants and treat runoff from the industrial areas identified within the Airport. The Wickland Pipeline project is incorporating additional design measures, such as installation of an oil/water separator and a containment system to protect against releases of petrochemicals into the runoff. The GAIP would have similar requirements, as outlined in the regulatory requirements and the Standard Conditions of Approval that are applicable to implementation of the proposed

---

<sup>10</sup> The contract for the Taxiway B rehabilitation includes preparation and implementation of a SWPPP.

improvements. The existing facilities and the required design requirements would reduce pollutants in the storm water that may be generated by general and commercial aviation activities at JWA. Thus, cumulative impacts related to the violation of water quality standards would be less than significant.

In accordance with the MS4 Permit for the County, other new development and major redevelopment projects in the Newport Bay watershed that are provided for in the regional growth projections would have to prepare and implement WQMPs to provide permanent BMPs to reduce pollutants that may be generated during long-term occupancy or operation of these projects. The regional growth projections identify employment uses but do not specify actual users. Should, as part of the regional growth, other industrial uses be proposed, industrial dischargers would also have to obtain coverage under the Industrial General Permit and comply with the applicable requirements to protect water quality. Cumulative adverse impacts related to water quality would be less than significant, and no mitigation is required.

#### **4.11.8 MITIGATION PROGRAM**

With compliance with existing regulations and standard conditions of approval (which include implementation of additional BMPs required for significant redevelopment projects and additional BMPs listed for self-fueling activities), no significant GAIP-related (Proposed Project and Alternative 1) water quality impacts would result from the implementation of the Proposed Project or Alternative 1. Therefore, no additional water quality mitigation measures have been identified.

#### **4.11.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION**

With compliance with existing regulations and standard conditions of approval (RR WQ-1 and SC WQ-1 through SC WQ-6), no mitigation measures were necessary. These regulations and conditions, as well continued implementation of the adopted water quality programs, such as the SPCC and compliance with the MS4 Permit requirements, would reduce potential GAIP-specific (Proposed Project and Alternative 1) and cumulative impacts to less than significant.

#### **4.11.10 REFERENCES**

Amec Foster Wheeler Environmental & Infrastructure (Amec). 2016 (December). Phase II Environmental Site Assessment Report, General Aviation Improvement Program Areas John Wayne Airport. Irvine, CA: Amec.

———. 2016 (December 29). Exceedance Response Action Level 1 Evaluation and Report for John Wayne Airport. Irvine, CA: Amec.

Boyle, K.A. 2010 (September). *Air Quality in Newport Beach, California: Field Measurements of Ambient Particulates and Associated Trace Elements and Hydrocarbons* (prepared in association with Environmental & Regulatory Specialists, Inc.). Newport Beach, CA: EARS. <http://newportbeachca.gov/Home/ShowDocument?id=15122>.

Orange, County of, John Wayne Airport (JWA). 2009 (August). John Wayne Airport, Orange County Storm Water Pollution Prevention Plan (SWPPP). Costa Mesa, CA: JWA.

- . 2014 (September). *Final Environmental Impact Report 617, John Wayne Airport Settlement Agreement Amendment* (SCH 2001111135). Costa Mesa, CA: JWA.
- Orange County Flood Control District (OCFCD). 2012 (January 26). *Base Map of Drainage Facilities in Orange County*, Sheet Nos. 47 and 55, MAPS 113-3. Santa Ana, CA: OCFCD.
- Orange County Public Works (OC Public Works). 2017 (November 14, access date). *Newport Bay Watershed*. Santa Ana, CA: OC Public Works. <http://www.ocwatersheds.com/programs/ourws/npb>.
- . 2010. *The County of Orange and the Orange County Flood Control District 2007 DAMP Appendix A – Stormwater Program Local Implementation Plan*. Santa Ana, CA: OC Public Works.
- . 2007. *Drainage Area Management Plan (DAMP) 2007*. Santa Ana, CA: OC Public Works.
- . 2003 (July). *2003 Drainage Area Management Plan (DAMP)*. Santa Ana, CA: OC Public Works. <https://media.ocgov.com/gov/pw/watersheds/documents/damp/mapplan.asp>.
- State Water Resources Control Board (SWRCB). 2017a (October 31). *Final 2014/2016 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2014\\_2016.shtml?wbid=CAR8011100020011107125249](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml?wbid=CAR8011100020011107125249)
- . 2017b (October 3). *Category 5, 2014 and 2016 California 303(d) List of Water Quality Limited Segments*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/2014\\_16state\\_ir\\_reports/category5\\_report.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/category5_report.shtml)
- . 2017c (April 4). *Industrial General Permit 2014-0057-DWQ (Effective July 1, 2015)*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/stormwater/igp\\_20140057dwq.shtml#amend\\_2014\\_0057](https://www.waterboards.ca.gov/water_issues/programs/stormwater/igp_20140057dwq.shtml#amend_2014_0057)
- . 2017d (July 31). *Storm Water Program, 2009-0009-DWQ Construction General Permit (Effective July 1, 2010)*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml)
- . 2012 (July 1). *Underground Storage Tank Regulations*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/ust/regulatory/docs/title23\\_d3\\_c16.pdf](https://www.waterboards.ca.gov/water_issues/programs/ust/regulatory/docs/title23_d3_c16.pdf)
- . 2011 (January 1). *Statutes of Chapter 6.7 Health and Safety Code, Underground Storage Of Hazardous Substances*. Sacramento, CA: SWRCB. [https://www.waterboards.ca.gov/water\\_issues/programs/ust/regulatory/docs/hs6\\_7.pdf](https://www.waterboards.ca.gov/water_issues/programs/ust/regulatory/docs/hs6_7.pdf)

- . 2009 (September 2). National Pollutant Discharge Elimination System (NPDES) General Permit For Storm Water Discharges Associated With Construction And Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002. Sacramento, CA: SWRCB.
  
- Santa Ana Regional Water Quality Control Board (Santa Ana RWQCB). 2017 (September 6). Orange County Municipal NPDES Storm Water Permit. Riverside, CA: Santa Ana RWQCB. [https://www.waterboards.ca.gov/santaana/water\\_issues/programs/stormwater/oc\\_permit.html](https://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/oc_permit.html)
  
- . 2016 (February). Water Quality Control Plan, Santa Ana River Basin (8). Riverside, CA: Santa Ana RWQCB.
  
- . 2015. Order No. R8-2015-0004 (NPDES No. CAG998001, General Waste Discharge Requirements For Discharges To Surface Waters That Pose An Insignificant (De Minimis) Threat To Water Quality. Riverside, CA: Santa Ana RWQCB.
  
- . 2011a (May 19). Exhibit 7.II, Model Water Quality Management Plan (Model WQMP). Riverside, CA: Santa Ana RWQCB.
  
- . 2011b (May 19). Exhibit 7.III, Technical Guidance Document For The Preparation Of Conceptual/Preliminary And/Or Project Water Quality Management Plans (WQMPs). Riverside, CA: Santa Ana RWQCB.
  
- . 2010 (June 19). Order No. R8-2009-0030 (NPDES No. CAS618030, as amended by Order No. R8-2010-0062, Waste Discharge Requirements For The County of Orange, Orange County Flood Control District and The Incorporated Cities of Orange County within the Santa Ana Region, Areawide Urban Storm Water Runoff, Orange County. Riverside, CA: Santa Ana RWQCB.
  
- South Coast Air Quality Management District (SCAQMD). 2012 (April 6). Rule 461- Gasoline Transfer and Dispensing. Diamond Bar. CA: SCAQMD.
  
- Transportation Research Board (TRB). 2008. Airport Cooperative Research Board: Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data (ACRP Report 9). Washington, D.C.: TRB.
  
- University of California, Los Angeles, Institute of the Environment (UCLA). 2006. Southern California Environmental Report Card 2006. Los Angeles, CA: UCLA. <http://www.environment.ucla.edu/media/files/RC06.pdf>.

United States Environmental Protection Agency (USEPA). 2001 (September). Frequently Asked Questions About Atmospheric Deposition, A Handbook for Watershed Managers. EPA-453/R-01-009. Washington, D.C.: USEPA. <https://nepis.epa.gov/Exe/ZyNET.exe/2000NQU1.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000010%5C2000NQU1.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>.