4.7 Hydrology and Water Quality

4.7.1 Introduction

This section supplements the hydrology and water quality analysis contained in the Draft EIS/EIR, as more fully described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.1), of the Draft EIS/EIR. Updated pollutant load factors are incorporated into this Supplement to the Draft EIS/EIR. In addition, the list of constituents evaluated has been expanded. Supporting information is provided in Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report,* of this Supplement to the Draft EIS/EIR.

4.7.2 General Approach and Methodology

The analysis of hydrology and water quality presented below is based on the general approach and methodology described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.2), of the Draft EIS/EIR. In addition, the analysis completed for this Supplement to the Draft EIS/EIR includes consideration of changes to baseline conditions (Section 4.7.3 below). Changes in the methodology incorporated into this Supplement to the Draft EIS/EIR include the following:

- Updated information pertaining to baseline hydrologic conditions within the Imperial, Argo, and Dominguez Channel sub-basins is provided, based on recent studies conducted by LAWA. These studies also evaluated conveyance capacity within the Argo sub-basin under Alternative C, and conveyance capacity within the Imperial and Dominguez Channel sub-basins under Alternative D.
- Also updated for this Supplement to the Draft EIS/EIR is the average annual precipitation value used in the calculation of annual average stormwater pollutant loads. A value of 12.23 inches per year annual precipitation averaged over the period from 1948 through 2000 is used. This compares to 12.47 inches per year used in the Draft EIS/EIR that was averaged over the years 1949 through 1996.
- The method for estimation of annual pollutant loading remains the same as described in the Draft EIS/EIR. However, updated event mean concentration (EMC) data from the Los Angeles County Department of Public Works (LACDPW) were used. The source of EMCs used in the Draft EIS/EIR for all land uses except airport operations and airport open space is the LACDPW storm water EMC data. For the Draft EIS/EIR, the EMCs used were based on data collected between 1994 and 1999. For this Supplement to the Draft EIS/EIR, updated LACDPW EMCs were generated from storm water data collected over the period from 1994 to 2000.[134] The updated EMCs are shown in Table S1, Revised Event Mean Concentrations for Storm Water Runoff by Land Use, of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR. Some of the EMC values for the various land uses being considered have increased over those used in the Draft EIS/EIR analysis. Increases range from 1.4 percent for total zinc (airport operations land use) to 300 percent for total copper (open space land use). Decreases in EMCs were also seen for some constituents. Decreases range from 2 percent for chemical oxygen demand (industrial land use) to 62 percent for total zinc (residential land use). As a result of the updated EMCs, new estimated storm water pollutant loads for baseline conditions, the No Action/No Project Alternative and Alternatives A, B, and C are presented in this Supplement to the Draft EIS/EIR.
- In addition to the use of LACDPW EMC data, the Draft EIS/EIR also relied upon data from the American Association of Airport Executives (AAAE) for airport operations and airport open space EMCs. For preparation of this Supplement to the Draft EIS/EIR, efforts were made to isolate AAAE data from airports located in the southwestern United States. Results of these efforts are provided in Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR. As indicated in Technical Report S-5, no new EMCs for airport land uses were identified.
- As indicated in the Draft EIS/EIR, the pollutants of concern evaluated in this analysis were based upon studies and other information pertaining to the Santa Monica Bay and the Dominguez Channel Watersheds, the primary receiving water bodies for runoff from LAX. The Draft EIS/EIR analysis

[134] Los Angeles County, Department of Public Works, Stormwater Quality Summary Data 1994 - 2000, July 2002, http://www.dpw.co.la.ca.us/wmd/NPDES/wq_data.cfm.

evaluated nine pollutants of concern to Santa Monica Bay and the Dominguez Channel that are associated with storm water runoff from LAX. In addition to these nine constituents, four additional pollutants--fecal coliform, fecal enterococcus, total coliform bacteria, and ammonia--have been added to the analysis contained in this Supplement to the Draft EIS/EIR. These four constituents were added to the analysis based on meeting the following criteria: 1) the constituent appears on the State of California's 303(d) list for non-attainment of water quality standards in the receiving water bodies to which the project discharges;[135] 2) a statistically valid EMC for the constituent is available; and 3) there is reasonable basis upon which to expect that constituents are present in stormwater at LAX. The source of EMC data for these constituents is the LACDPW storm water data (1994-2000).

- Implementation of the No Action/No Project Alternative and the four build alternatives would involve both changes in land use as well as an increase in frequency of activities currently performed on existing land uses. The methodology used in this analysis is not able to quantify differences in annual stormwater pollutant loading due to changes in the level of intensity/intensification of the same land use. Depending upon site history and upon the length of time over which sampling occurred at a particular monitoring station, it is possible that changes in pollutant loading due to increased land use activity might already be incorporated in EMC data collected by LACDPW and AAAE, so that the effects of land use intensification may have already been indirectly addressed. This particular aspect of stormwater samples, however, is typically never quantified. If it is assumed that the EMC data do not account for intensification of land use activities, one might assume that, where there is an intensification of an existing land use, an associated pollutant loading increase may also occur, although it is unknown if the resultant pollutant loading is directly proportional, indirectly proportional, proportional by some fractional relationship, or not materially different from the "average" loading measured by the EMC.

  For this Supplement to the Draft EIS/EIR, inquiries were made to the Los Angeles Regional Water Quality Control Board (LARWQCB),[136] LACDPW,[137] AAAE,[138] and to several water quality experts in the country[139] for methods to address this issue. No such methods were identified. Therefore, the method used in the Draft EIS/EIR to quantify annual stormwater pollutant loading resulting from changes in land use, but not from changes in land use intensity, is also used in this Supplement to the Draft EIS/EIR.

4.7.3 Affected Environment/Environmental Baseline

The affected environment/environmental baseline related to hydrology and water quality used in this Supplement to the Draft EIS/EIR is the same as described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.3), of the Draft EIS/EIR, with the exceptions identified below. Evaluation of Year 2000 conditions indicated that no material physical changes to the affected environment/environmental baseline have occurred that alter the conclusions of the Draft EIS/EIR. However, changes in regulatory programs and new information pertaining to the understanding and analysis of the affected environment/environmental baseline include the following:

- Changes to the various federal, state, and local regulatory programs pertaining to the maintenance and enhancement of water quality that have occurred since publication of the Draft EIS/EIR and that are pertinent to this analysis include the following:
  - Water Quality Control Plan, Los Angeles Region - The Water Quality Control Plan for the Los Angeles Region was amended in December 2002 to incorporate implementation provisions for the regions' bacteria objectives and to incorporate a wet weather bacteria Total Maximum Daily Load for Santa Monica beaches.

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135 State of California, State Water Resources Control Board, Resolution No. 2003-0009, February 4, 2003.

136 Urrunaga, Carlos, LARWQCB, Personal Communication, September 26, 2002; Amah, Ginachi, Personal Communication, November 4, 2002.

137 Jordan, Stacy, LACDPW (Watershed Management Group), Personal Communication, April 24, 2003.

138 Morris, Carter, AAAE, Personal Communication, July 19, 2002.

139 Doerfer, John, Denver Urban Drainage and Flood Control District, Personal Communication, July 3, 2002; Roesner, Larry, Colorado State University, Personal Communication, July 9, 2002.

- National Pollutant Discharge Elimination System (NPDES) Program - With adoption of the Phase 2 NPDES storm water regulations, the minimum disturbance area for which a stormwater construction permit is required was reduced from 5 acres to 1 acre.
- Total Maximum Daily Load (TMDL) Program - A revised 303(d) list was approved by the State Water Resources Control Board (SWRCB) in February 2003. On this list, pollutants and TMDL priority schedules have been assigned that differ from the previous 303(d) list developed by the SWRCB in 1999, which was presented in the Draft EIS/EIR. The pollutants and TMDL priority schedule for the Santa Monica Bay Offshore and Nearshore and the Dominguez Channel (Estuary to Vermont) are shown in **Table S4.7-1**, TMDL Priority Schedule for Santa Monica Bay Offshore and Nearshore, and **Table S4.7-2**, TMDL Priority Schedule Dominguez Channel (Estuary to Vermont). Priorities (i.e., high, medium, low) were established by the SWRCB based on a combination of factors that included the degree of nonattainment/complexity of the problem, the relative importance of the watershed, and the resources available at the LARWQCB to complete the TMDL.
- Groundwater Municipal Beneficial Use - The LARWQCB passed a resolution in 1998 (Resolution 9818) which was approved by the State for dedesignation of the municipal beneficial use for groundwater in portions of the West Coast Basin, including the area beneath LAX. The beneficial uses for the West Coast Basin beneath LAX are industrial, process and agricultural. As stated in the Draft EIS/EIR, with the exception of remediation of contaminated groundwater, groundwater beneath LAX is not presently used to support these beneficial uses (see Section 4.23, *Hazardous Materials*, of the Draft EIS/EIR).
- California Ocean Plan - In December 2001, the SWRCB adopted proposed amendments that included revisions of chemical water quality objectives, and replacement of acute toxicity effluent limitations with acute toxicity water quality objectives.

Table S4.7-1

TMDL Priority Schedule for Santa Monica Bay Offshore and Nearshore

Pollutant/Stressor	Priority
Chlordane (sediment)	Medium
Dichlorodiphenyltrichloroethane (DDT) (tissue and sediment)	Low
Debris	Low
Fish Consumption Advisory	Low
Polyaromatic Hydrocarbons (PAHs) (sediment)	Low
Polychlorinated Biphenyls (PCBs) (tissue and sediment)	Low
Sediment Toxicity	Low

Source: State of California, State Water Resources Control Board, Resolution No. 2003-0009, February 4, 2003.

Table S4.7-2

TMDL Priority Schedule Dominguez Channel (Estuary to Vermont)

Pollutant/Stressor	Priority
Aldrin (tissue)	Medium
Ammonia	Medium
Benthic Community Effects	Medium
Chem A (tissue)[1]	Medium
Chlordane (tissue)	Medium
Chromium (sediment)	Medium
DDT (tissue and sediment)	Medium
Dieldrin (tissue)	Medium
High Coliform Count	High
Lead (tissue)	Medium
PAHs (sediment)	Medium
Zinc (sediment)	Medium

[1] Chem A refers to the sum of aldrin, dieldrin, chlordane, endrin, heptachlor epoxide, HCH (including lindane), endosulfan, and toxaphene.

Source: State of California, State Water Resources Control Board, Resolution No. 2003-0009, February 4, 2003.

- A recent hydrologic analysis of the conveyance system within the Argo Ditch sub-basin of the Santa Monica Watershed indicates that flooding does not occur as a result of the City of Los Angeles Department of Public Works (LADPW) 50-year design storm under existing conditions.[140] In a separate study, the current capacity of the storm drainage infrastructure in the Dominguez Channel Watershed and the Imperial sub-basin of the Santa Monica Bay Watershed were investigated.[141] The study indicated that, while the current drainage system within the Imperial sub-basin was sufficient to convey peak runoff rates associated with the LADPW 50-year design storm, flooding would occur in parts of the Dominguez Channel Watershed under the same conditions.
- Because EMCs of the pollutants of concern have been modified to reflect currently available data, estimated baseline storm water pollutant loads have changed from the model results presented in the Draft EIS/EIR. Revised estimated baseline storm water pollutant loads are presented in **Table S4.7-3,** Revised Annual Average Pollutant Loads (lb/yr), 1996 Baseline Conditions. Also included in **Table S4.7-3** is the estimated average annual baseline pollutant load from the Hydrology and Water Quality Study Area (HWQSA) of total ammonia as well as estimated annual loadings of total coliform bacteria, fecal coliform bacteria, and fecal enterococcus bacteria. Detailed pollutant load calculations for baseline conditions are presented in Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR.

[140] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain, Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

[141] City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport. Prepared by Parsons, Brinkerhoff, Quade and Douglas. October 2002.

Table S4.7-3

Revised Annual Average Pollutant Loads (lb/yr), 1996 Baseline Conditions

Pollutant	Estimated Average Annual Pollutant Loads (lb/yr)			
	Santa Monica Bay	Dominguez Channel	Total Pollutant Load	Difference Between Supplement to the Draft EIS/EIR and Draft EIS/EIR Total Pollutant Load
Total Suspended Solids	222,617	247,271	469,887	127,422
Total Phosphorus	1,148	1,001	2,149	14
Total Kjeldahl Nitrogen	5,249	5,825	11,074	154
Total Copper	241	153	394	60
Total Lead	42	39	81	-33
Total Zinc	1,253	1,108	2,361	-120
Oil and Grease	9,649	7,098	16,747	-185
5-Day Biochemical Oxygen Demand	38,830	38,553	77,384	-10,389
Chemical Oxygen Demand	204,416	194,855	399,271	12,085
Ammonia[2]	1,325	1,326	2,651	NA
Total Coliform Bacteria[1,2]	1.6E+11	1.4E+11	3.0E+11	NA
Fecal Coliform Bacteria[1,2]	7.8E+10	7.4E+10	1.5E+11	NA
Fecal Enterococcus Bacteria[1,2]	7.8E+09	1.9E+10	2.7E+10	NA

NA = Not Applicable
Totals may not add due to rounding.

[1] Expressed in organisms/yr.
[2] This pollutant was not included in the Draft EIS/EIR analysis.

Source: Camp Dresser & McKee Inc., 2003.

4.7.4 Thresholds of Significance

4.7.4.1 CEQA Thresholds of Significance

Hydrology

As stated in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.4.1), of the Draft EIS/EIR, a significant hydrology impact would occur if the direct and indirect changes in the environment that may be caused by a particular build alternative would potentially result in one or more of the following future conditions:

- An increase in runoff that would cause or exacerbate flooding with the potential to harm people or damage property.
- Substantial interference with groundwater recharge such that there would be a net decrease in the aquifer volume or a change in groundwater storage that would adversely affect the quantity, water level, or flow of the underlying groundwater relative to beneficial uses of the basin.
- Substantial alteration of the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on- or off-site.

These thresholds of significance are utilized because they address potential concerns relative to flooding and recharge associated with the Master Plan alternatives. These thresholds reflect those contained in the *Draft L.A. CEQA Thresholds Guide*[142] that are relevant to this project, as well as relevant issues identified in the suggested Initial Study Checklist contained in the State CEQA Guidelines.

[142] City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

Water Quality

As stated in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.4.1), of the Draft EIS/EIR, a significant water quality impact would occur if the direct and indirect changes in the environment that may be caused by a particular build alternative would potentially result in the following future condition:

- An increased load of a pollutant of concern delivered to a receiving water body by surface water runoff.

This threshold of significance was developed because it addresses the potential water quality impacts resulting from project-related runoff being discharged to receiving water bodies that are already considered impaired. The threshold is based on guidance provided by the *Draft L.A. CEQA Thresholds Guide*[143] as well as relevant issues identified in the suggested Initial Study Checklist contained in the State CEQA Guidelines.

4.7.4.2 Federal Standards

As stated in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.4.2), of the Draft EIS/EIR, there are no federal standards that define significance thresholds for hydrology and water quality impacts. However, as described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.3), of the Draft EIS/EIR, there are a number of federal regulatory programs pertaining to the maintenance and enhancement of water quality pursuant to the Clean Water Act. The most notable programs include the NPDES program and the TMDL program. These programs are implemented by state and local agencies, and are addressed in this analysis.

4.7.5 Master Plan Commitments

The following Master Plan Commitment has been revised since publication of the Draft EIS/EIR to expand the water quality component of the commitment and to provide clarification of drainage methodologies to be used.

- **HWQ-1. Develop Detailed Drainage Plan (Alternatives A, B, C, and D).**

  Once a Master Plan alternative is selected, and in conjunction with its design, LAWA will develop a detailed drainage plan of the area within the boundaries of the Master Plan alternative (to the satisfaction of the City of Los Angeles Department of Public Works, Bureau of Engineering). The purpose of the drainage plan will be to assess site-specific drainage flows at a design level of detail that provide adequate drainage capacity to prevent flooding. Best Management Practices (BMPs) will be incorporated to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads to surface water resulting from the selected Master Plan alternative.

  To evaluate drainage capacity, LAWA will use either the Peak Rate Method specified in Part G - Storm Drain Design of the City of Los Angeles' Bureau of Engineering Manual or the Los Angeles County Modified Rational Method, both of which are acceptable to the LADPW. In areas within the boundary of the selected alternative where the surface water runoff rates are found to exceed the capacity of the storm water conveyance infrastructure with the potential to cause flooding, LAWA will take measures to either reduce peak flow rates or increase the structure's capacity. These drainage facilities will be designed to ensure that they adequately convey storm water runoff and prevent flooding by adhering to the procedures set forth by the Peak Rate Method/Los Angeles County Modified Rational Method. Methods to reduce the peak flow of surface water runoff could include:

  - Decreasing impervious area by removing unnecessary pavement or utilizing porous concrete or modular pavement
  - Building storm water detention structures
  - Diverting runoff to pervious areas (reducing directly-connected impervious areas)
  - Diverting runoff to outfalls with additional capacity (reducing the total drainage area for an individual outfall)
  - Redirecting storm water flows to increase the time of concentration

[143] City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

Measures to increase drainage capacity could include:

- Increasing the size and slope (capacity) of storm water conveyance structures (pipes, culverts, channels, etc.).
- Increasing the number of storm water conveyance structural and/or outfalls.

To evaluate the effect of the selected Master Plan alternative on surface water quality, LAWA will prepare a specific Standard Urban Stormwater Mitigation Plan (SUSMP) for the selected alternative, as required by the LARWQCB. The SUSMP addresses water quality and drainage issues by specifying source control, structural, and treatment control BMPs with the objective of reducing the discharge of pollutants from the stormwater conveyance system to the maximum extent practicable. Once BMPs are identified, an updated estimated pollutant load estimate will be calculated that takes into account reductions from treatment control BMPs. These BMPs will be applied to both existing and future sources with the goal of achieving no net increase in loadings of pollutants of concern to receiving water bodies. LAWA will therefore address water quality issues, including erosion and sedimentation, and comply with the SUSMP requirements by designing the storm water system through incorporation of the structural and treatment control BMPs specified in the SUSMP.

The following list includes some of the BMPs that could be employed to infiltrate or treat storm water runoff and dry weather flows, and control peak flow rates.

- Vegetated swales and strips
- Oil/Water separators
- Clarifiers
- Media filtration
- Catch basin inserts and screens
- Continuous flow deflective systems
- Bioretention and infiltration
- Detention basins
- Manufactured treatment units
- Hydrodynamic devices

Other structural BMPs may also be selected from the literature and the many federal, state and local guidance documents available. It should be noted that, if an alternative is selected that involves the elimination of the Imperial water quality retention basin (Alternatives A, B, and C), SUSMP requirements will require that an alternative retention and/or water quality treatment BMP be provided.

Performance of structural BMPs varies considerably based on their design.[144] USEPA has published estimated ranges of pollutant removal efficiencies for structural BMPs based on substantial document review. These ranges of removal efficiencies are presented in **Table S4.7-4**, Structural BMP Expected Pollutant Removal Efficiency.

[144] U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Stormwater Best Management Practices Methodology, August 1999.

Table S4.7-4

Structural BMP Expected Pollutant Removal Efficiency

BMP Type	Typical Pollutant Removal (percent)			
	Suspended Solids	Nitrogen	Phosphorus	Metals
Dry Detention Basins	30-35	15-45	15-45	15-45
Retention Basins	50-80	30-65	30-65	50-80
Infiltration Basins	50-80	50-80	50-80	50-80
Infiltration Trenches/Dry Wells	50-80	50-80	15-45	50-80
Porous Pavement	65-100	65-100	30-65	65-100
Grassed Swales	30-65	15-45	15-45	15-45
Vegetated Filter Strips	50-80	50-80	50-80	30-65
Surface Sand Filters	50-80	<30	50-80	50-80
Other Media Filters	65-100	15-45	0	50-80

Source: U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Storm Water Best Management Practices Methodology, August 1999.

In addition to the structural BMP types that will be used, non-structural/source control BMPs will continue to be a part of the LAX program to reduce pollutant loadings. Existing practices and potentially new ones will be extended to acquisition areas and to the areas where airport operations will increase in frequency or duration. These source control BMPs will be incorporated into the LAX Stormwater Pollution Prevention Plan (SWPPP) and will consequently be required of LAWA and all airport tenants at all locations where industrial activities occur that have the potential to impact water quality.

The overall result of Master Plan Commitment HWQ-1 will be a drainage infrastructure that provides adequate drainage capacity to prevent flooding and control peak flow discharges, that incorporates BMPs to minimize the effect of airport operations on surface water quality, and that prevents a net increase of pollutant loads to either receiving water body as a result of the selected Master Plan alternative.

4.7.6 Environmental Consequences

The environmental impacts to hydrology and water quality under the No Action/No Project Alternative, and Alternatives A, B, and C have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6), of the Draft EIS/EIR, with the exception of information pertaining to drainage and storm water pollutant loads as described below. A summary of the revisions to 2015 stormwater pollutant loading related to the No Action/No Project Alternative, and Alternatives A, B, and C, as well as stormwater pollutant loads in 2015 under Alternative D, is presented in **Table S4.7-5**, Estimated Average Annual Pollutant Loads Within HWQSA (lb/yr) - 1996 Baseline Conditions, No Action/No Project, Alternatives A, B, C, and D (2015).

Table S4.7-5

**Estimated Average Annual Pollutant Loads Within HWQSA (lb/yr) -
1996 Baseline Conditions, No Action/No Project Alternative, Alternatives A, B, C, and D (2015)**

Pollutant	Total Pollutant Load (lb/yr)[1]					
	1996 Baseline	NA/NP	A	B	C	D
Total Suspended Solids	469,887	499,473	353,644	341,236	364,832	434,041
Total Phosphorus	2,149	2,222	2,148	2,092	2,123	2,223
Total Kjeldahl Nitrogen	11,074	11,739	10,358	9,827	10,220	11,263
Total Copper	394	407	436	431	430	430
Total Lead	81	106	83	80	82	87
Total Zinc	2,361	2,545	2,428	2,361	2,418	2,568
Oil and Grease	16,747	17,661	18,392	17,960	18,040	18,331
5-Day Biochemical Oxygen Demand	77,384	83,466	73,081	69,655	72,081	78,641
Chemical Oxygen Demand	399,271	416,189	393,204	378,138	387,335	413,608
Ammonia[3]	2,651	2,987	2,658	2,484	2,590	2,857
Total Coliform Bacteria[2,3]	3.0E+11	3.0E+11	3.1E+11	3.0E+11	3.0E+11	3.1E+11
Fecal Coliform Bacteria[2,3]	1.5E+11	1.5E+11	1.5E+11	1.4E+11	1.5E+11	1.5E+11
Fecal Enterococcus Bacteria[2,3]	2.7E+10	2.0E+10	1.6E+10	1.5E+10	1.6E+10	1.9E+10

NA = Not Applicable

1 Values presented for the NA/NP and Alternatives A, B, and C are revised from those presented in the Draft EIS/EIR.
2 Expressed in organisms/year.
3 This pollutant was not included in the Draft EIS/EIR analysis.

Source: Camp Dresser & McKee Inc., 2003.

4.7.6.1 No Action/No Project Alternative

The environmental impacts to hydrology and water quality under the No Action/No Project Alternative have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.1), of the Draft EIS/EIR, with the exception of information pertaining to drainage and storm water pollutant loads described below.

Drainage

As described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.1), of the Draft EIS/EIR, the total amount of impervious area within the HWQSA under the No Action/No Project Alternative would be 3,582 acres, representing an increase of 72 acres over baseline conditions. This change in impervious area would occur primarily within the Santa Monica Bay Watershed. Recent analyses referred to in Section 4.7.3, *Affected Environment/Environmental Baseline*, evaluated conveyance systems within selected HWQSA subbasins and found that, under existing conditions, flooding from runoff associated with the LADPW 50-year design storm did not occur within the Argo and Imperial subbasins, while flooding did occur in the Dominguez Channel sub-basin for the same design storm under existing conditions.[145,146] Neither analysis considered conveyance capacity assuming the development that would occur under the No Action/No Project Alternative. The new information pertaining to drainage facilities does not change the impact analysis contained in the Draft EIS/EIR.

Storm Water Pollutant Loads

When compared to baseline conditions, the estimated annual pollutant loads generated under the No Action/No Project Alternative, using the updated EMCs described above, would increase for all constituents except for fecal coliform bacteria and fecal enterococcus bacteria. Relative increases compared to baseline conditions for the other constituents would range from less than 1 percent for total

145 City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain. Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.
146 City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport. Prepared by Parsons, Brinkerhoff, Quade and Douglas. October 2002.

coliform bacteria to 31 percent for total lead. The estimated fecal coliform bacteria and fecal enterococcus bacteria load would decrease compared to baseline conditions by 2 percent and 28 percent, respectively. Revised estimated loads in the Dominguez Channel would decrease for most pollutants relative to baseline as various land uses are converted to airport operations and airport open space for which percent imperviousness is, on the average, lower. The complete model results are presented in Table S5, Revised Estimated Average Annual Pollutant Load No Action/No Project Alternative (2005 and 2015), of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR.

Application of the updated EMCs and calculation of new pollutant loads does not change the analysis of No Action/No Project Alternative impacts on receiving water bodies described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.1), of the Draft EIS/EIR.

4.7.6.2 Alternative A - Added Runway North

The environmental impacts to hydrology and water quality under Alternative A have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.2), of the Draft EIS/EIR, with the exception of information pertaining to drainage and storm water pollutant loads described below.

Drainage

As described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.2), of the Draft EIS/EIR, the total impervious area under Alternative A in 2015 would decrease by 6 percent in the Dominguez Channel Watershed and increase by 10 percent in the Santa Monica Bay Watershed compared to baseline conditions. These changes would be marginal on a regional scale. The increase in impervious area within the Santa Monica Bay Watershed would occur in the Argo and Imperial sub-basins. As stated in Section 4.7.3, *Affected Environment/Environmental Baseline*, recent studies indicate that, under existing conditions, the conveyance capacity of drainage infrastructure within the Argo and Imperial sub-basins is adequate for the LADPW 50-year storm, while the Dominguez Channel sub-basin infrastructure would flood under these same conditions.[147,148] When the capacity of the Argo sub-basin was assessed assuming development of Westchester Southside, no flooding problems were identified. Neither of the studies evaluated the impacts of other development associated with Alternative A. The new information pertaining to drainage facilities does not change the impact analysis contained in the Draft EIS/EIR.

Storm Water Pollutant Loads

Under Alternative A, in 2015, the estimated annual total pollutant load generated within the HWQSA, using the updated EMCs described above, would increase for some constituents and decrease for others compared to baseline conditions. Specifically, greater estimated loading is predicted for total copper, total lead, total zinc, oil and grease, ammonia, and total coliform bacteria when compared to baseline conditions. The increases in these constituents would range from 0.3 percent for ammonia to 11 percent for copper. Estimated loading for total suspended solids, total phosphorus, total Kjeldahl Nitrogen, 5-day Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD), fecal coliform bacteria, and fecal enterococcus bacteria would all decrease relative to baseline. When compared to the No Action/No Project Alternative, estimated loading for Alternative A in 2015 would be from 5 percent lower for total zinc to 29 percent lower for total suspended solids. Total copper, oil and grease, and total and fecal coliform bacteria estimated loads would increase from between less than 1 percent to 7 percent, when compared to the No Action/No Project Alternative. The complete model results are presented in Table S7, Revised Estimated Average Annual Pollutant Load Alternative A - Added Runway North (2015), of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR. Pollutant loads within the Santa Monica Bay Watershed would increase for all constituents in 2015 when compared to baseline conditions. Within the Dominguez Channel Watershed, pollutant loads would increase for some constituents and decrease for others when compared to baseline conditions.

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147 City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain. Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

148 City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport. Prepared by Parsons, Brinkerhoff, Quade and Douglas. October 2002.

Application of the updated EMCs and calculation of new pollutant loads does not change the analysis of impacts of Alternative A on receiving water bodies described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.2), of the Draft EIS/EIR. Calculations demonstrating the ability of feasible BMPs to effectively achieve no net gain in pollutant loads are provided in Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, of this Supplement to the Draft EIS/EIR.

4.7.6.3 Alternative B - Added Runway South

The environmental impacts to hydrology and water quality under Alternative B have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.3), of the Draft EIS/EIR, with the exception of information pertaining to drainage and storm water pollutant loads described below.

Drainage

As described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.3), of the Draft EIS/EIR, by 2015, the total impervious area under Alternative B in 2015 would decrease by 5 percent in the Dominguez Channel Watershed and increase by 7 percent in Santa Monica Bay when compared to baseline conditions. These changes in impervious area would be marginal on a regional scale. As indicated previously, conveyance capacity within the Dominguez Channel sub-basin would be exceeded under existing conditions for a LADPW 50-year design storm while capacity would not be exceeded within the Argo and Imperial sub-basins under the same conditions.[149,150] Capacity of the Argo sub-basin would not be exceeded assuming development of Westchester Southside. Neither of the studies evaluated the impacts of other development associated with Alternative B. The new information pertaining to drainage facilities does not change the impact analysis contained in the Draft EIS/EIR.

Storm Water Pollutant Loads

Under Alternative B in 2015, the estimated annual total pollutant load generated within the HWQSA, using the updated EMCs described above, would increase for total copper, oil and grease and total coliform bacteria as compared to baseline conditions. The increases in these constituents would range from 1 percent for total coliform bacteria to 9 percent for total copper. All other pollutant loads would decrease relative to baseline conditions by between 1 percent and 44 percent. When compared to the No Action/No Project Alternative, estimated average annual pollutant loading from the project in 2015 would decrease for all constituents except total copper, oil and grease, and total coliform bacteria, which would increase by 6 percent, 2 percent, and less than 1 percent, respectively. As with Alternative A, pollutant loads within the Santa Monica Bay Watershed would increase for all constituents when compared to baseline loads. Within the Dominguez Channel Watershed, some constituents would increase and others would decrease when compared to baseline loads. The complete model results are presented in Table S9, Revised Estimated Average Annual Pollutant Load Alternative B - Added Runway South (2015), of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report,* of this Supplement to the Draft EIS/EIR.

Application of the updated EMCs and calculation of new pollutant loads does not change the analysis of impacts of Alternative B on receiving water bodies described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.3), of the Draft EIS/EIR.

4.7.6.4 Alternative C - No Additional Runway

The environmental impacts to hydrology and water quality under Alternative C have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.4), of the Draft EIS/EIR, with the exception of information pertaining to drainage and storm water pollutant loads described below.

Drainage

As described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.4), of the Draft EIS/EIR, the total impervious area under Alternative C in 2015 would decrease by 7 percent in the Dominguez Channel Watershed and increase by 8 percent in the Santa Monica Bay Watershed when compared to

[149] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain. Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

[150] City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport. Prepared by Parsons, Brinkerhoff, Quade and Douglas. October 2002.

baseline conditions. The increase in impervious area within the Santa Monica Bay Watershed would occur in the Argo and Imperial sub-basins. As indicated previously, a recent study evaluated the flooding potential of the Argo sub-basin. This study considered full development of the Westchester Southside development under Alternative C.[151] No flooding problems were identified. Similar studies are not available for the Imperial or Dominguez Channel sub-basins that assume Alternative C conditions. The new information pertaining to drainage facilities does not change the impact analysis contained in the Draft EIS/EIR.

Storm Water Pollutant Loads

Under Alternative C, in 2015, the estimated average annual total pollutant load generated within the HWQSA, using the updated EMCs described above, would decrease by between 1 percent and 41 percent for all modeled constituents except total copper, total lead, total zinc, oil and grease, and total coliform bacteria, which would increase from 1 percent to 9 percent. These same constituents would increase when compared to the No Action/No Project Alternative, with the exception of total lead and total zinc, which would decrease by 23 and 5 percent, respectively. Estimated annual pollutant load decreases relative to the No Action/No Project Alternative for the other modeled constituents range from 2 percent to 27 percent. Estimated annual pollutant loading to the Santa Monica Bay Watershed would exceed that discharged to the Dominguez Channel Watershed. The complete model results are presented in the Table S11, Revised Estimated Average Annual Pollutant Load Alternative C - No Additional Runway (2015), of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report,* of this Supplement to the Draft EIS/EIR.

Application of the updated EMCs and calculation of new pollutant loads does not change the analysis of impacts of Alternative C on receiving water bodies described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.6.4), of the Draft EIS/EIR.

4.7.6.5 Alternative D - Enhanced Safety and Security Plan

A complete description of the facilities associated with Alternative D is provided in Chapter 3, *Alternatives* (subsection 3.3.2), of this Supplement to the Draft EIS/EIR. The features of Alternative D that are relevant to the analysis of hydrology and water quality are summarized herein. Alternative D would provide a new landside GTC and ITC to the east of the existing CTA. Overall, the building area dedicated to terminal, cargo, and ancillary airport uses would increase, and the building area for maintenance uses would decrease compared to baseline conditions. Alternative D would also include build-out of LAX Northside. As with the other build alternatives, uses within the Aircraft Noise Mitigation Program (ANMP) properties - Belford and Manchester Square - will be demolished as a separate action by LAWA. The Manchester Square area would be incorporated into the Master Plan.

Hydrology

Drainage

Impervious area calculations and results for Alternative D are presented in **Table 4.7-6,** Total Impervious Area within the HWQSA (2015). (This table also includes results for baseline conditions, the No Action/No Project Alternative, and Alternatives A, B, and C.) As indicated in the table, under Alternative D, in 2015, the total impervious area within the HWQSA would be 3,673 acres. This represents an increase in total impervious area of 163 acres as compared to baseline conditions and an increase of 91 acres when compared to the No Action/No Project Alternative in 2015. Since much of the area surrounding the airport in both the Santa Monica Bay and Dominguez Channel Watersheds is developed, these changes would represent a marginal increase in regional impervious area.

[151] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain. Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

Table S4.7-6

Total Impervious Area within the HWQSA (2015)

	Impervious Area (acres)					
	1996	Alternative				
Area	Baseline	NA/NP	A	B	C	D
Santa Monica Bay	2,050	2,184	2,259	2,194	2,224	2,174
Dominguez Channel	1,460	1,398	1,371	1,387	1,363	1,499
HWQSA	3,510	3,582	3,630	3,581	3,587	3,673

Source: Camp Dresser & McKee Inc., 2000, 2003.

Impervious area would increase by 6 percent in the Santa Monica Bay Watershed and by 3 percent in the Dominguez Channel Watershed in 2015 compared to baseline conditions. The increase within the Santa Monica Bay Watershed would be largely due to the development of LAX Northside. The increase within the Dominguez Channel Watershed would be attributable to the implementation of significant land side facilities east of Sepulveda Boulevard. When compared to the No Action/No Project Alternative, the impervious area would be 1 percent lower within the Santa Monica Watershed and 7 percent greater within the Dominguez Channel Watershed in 2015.

The increase in impervious area within the Santa Monica Bay Watershed would occur in the Argo and Imperial sub-basins. In addition to evaluating existing conveyance capacity, the hydrologic analyses discussed previously evaluated the performance of the Imperial and Dominguez Channel sub-basins under the LADPW 50-year design storm for Alternative D and found that, while no flooding would occur in the Imperial sub-basin, flooding would occur in the Dominguez Channel sub-basin.[152,153] Detailed analysis of the Argo sub-basin capacity under this design storm for Alternative D was not conducted. Increases in impervious area and the associated increase in storm water peak flow rates could potentially exceed the capacity of the storm water facilities in these sub-basins, resulting in flooding. This would be a potentially significant impact.

In order to prevent the increase in impervious area under Alternative D from causing flooding, LAWA would implement Master Plan Commitment HWQ-1. As part of this commitment, LAWA would perform a comprehensive, airport-wide drainage analysis addressing current and projected future drainage and flooding problems. In areas where a potential for flooding is identified, LAWA would either reduce peak flow rates to over-capacity drainage facilities or increase the drainage capacities of the facilities. These measures are further described in Section 4.7.5, *Master Plan Commitments,* of this Supplement to the Draft EIS/EIR. With implementation of Master Plan Commitment HWQ-1, potential impacts from flooding would be less than significant.

As with the other build alternatives, all facilities receiving and conveying storm water from the airport would be concrete lined under Alternative D and, therefore, any increase in storm water peak flow rates or changes in the drainage infrastructure would not result in substantial erosion or siltation either on-site or off-site. Therefore, the impact of erosion or siltation due to runoff from the airport would be less than significant.

Surface Recharge

Surface recharge calculations and results for Alternative D are presented in **Table 4.7-7**, Annual Surface Water Recharge Volumes within the HWQSA (2015). (This table also includes results for baseline conditions, the No Action/No Project Alternative, and Alternatives A, B, and C.) As indicated in the table, under Alternative D, in 2015, the volume of surface recharge within the HWQSA would decrease by approximately 40 acre-feet/year to 131 acre-feet compared to baseline conditions. When compared to the No Action/No Project Alternative, the volume of recharge within the HWQSA would decrease by 23

[152] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain. Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

[153] City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport. Prepared by Parsons, Brinkerhoff, Quade and Douglas. October 2002.

acre-feet/year. The effect of this decrease would be the same as for the other build alternatives in that the reduction of surface recharge would not substantially change groundwater storage or groundwater elevations beneath the Master Plan boundaries. Moreover, groundwater production would not be affected. Therefore, the impact of the projected reduction in the volume of surface water recharge would be less than significant.

Table S4.7-7

Annual Surface Water Recharge Volumes within the HWQSA (2015)

	1996	Alternative				
	Baseline	NA/NP	A	B	C	D
Pervious Area (acres)	714	643	593	641	635	553
Recharge Volume (acre-feet/year)	171	154	142	154	152	131

Source: Camp Dresser & McKee Inc., 2000, 2003.

Water Quality

Water Quality Assurance Letter

As with the other three build alternatives, Alternative D would include changes in the configuration of the existing runways. As such, under United States Code (USC) Title 49, Section 47106(c), a letter from the State of California would be required for project approval stating that there is reasonable assurance that this component of the project would be designed, constructed, and operated in compliance with applicable water quality standards.

Storm Water Pollutant Loads

Estimated average annual pollutant loads in 2015 under Alternative D would increase over baseline conditions for all parameters except total suspended solids (TSS) and fecal enterococcus, which would decrease by 8 percent and 30 percent, respectively. The increase in estimated pollutant loading for all other constituents would be less than 10 percent. When compared to the No Action/No Project Alternative, estimated pollutant loads of some constituents would increase while others would decrease as a result of Alternative D. Decreases ranging from 1 percent to 18 percent would occur for total suspended solids, total Kjeldahl nitrogen, total lead, BOD_5, COD, ammonia, and fecal enterococcus bacteria. Increased loads ranging from less than 1 percent to 5 percent would result for the other modeled constituents in 2015 when compared to the No Action/No Project Alternative.

The changes in pollutant loads would not be evenly distributed between the two watersheds. Estimated average annual pollutant loading to the Santa Monica Bay Watershed would exceed that discharged to the Dominguez Channel Watershed under this alternative in 2015. The complete model results are presented in Table S12, Estimated Average Annual Pollutant Load Alternative D - Enhanced Safety and Security Plan (2015), of Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*. The increases in pollutant loads would be a potentially significant impact.

Similar to the other build alternatives, in order to prevent an increase in pollutant loads generated under Alternative D, LAWA would implement Master Plan Commitment HWQ-1, which would require the development of a detailed drainage plan and design of a storm water system to meet the requirements in the SUSMP through incorporation of source control, structural, and treatment control BMPs. By implementing HWQ-1, the impact associated with the increased pollutant loads would be reduced to a level that is less than significant.

Existing source control BMPs currently employed by LAWA as identified in the LAX SWPPP would also serve to decrease the potential for additional pollutant loading as a result of intensification of airport activities. Routine maintenance such as sweeping and inspections would be performed more frequently and in direct proportion to the increase in frequency of airport activities. As with the other build alternatives, with implementation of Master Plan Commitment HWQ-1, LAX SWPPP would be amended to incorporate any additional source control BMPs as well as any changes in the frequency at which

source control BMPs will be performed. This would result in the potential impact associated with increased pollutant loads due to increased industrial activity being reduced to a level that is less than significant.

Dry Weather Flows

As with Alternatives A, B, and C, sources of dry weather flows within the HWQSA are associated with activities that include outdoor maintenance of vehicles; building and grounds maintenance; aircraft and ground vehicle fueling, painting, stripping, and washing; limited deicing; and chemical and fuel transport and storage. The intensification of these airport-related activities under Alternative D could result in release of spills and leaks of hazardous materials to the Dominguez Channel and Santa Monica Bay Watersheds. Unlike the other build alternatives, under Alternative D, the Imperial retention basin would not be removed. Nevertheless, the increased potential for spills and leaks could result in an increase in pollutant loads to receiving water bodies. This would be a potentially significant impact.

Compliance with existing NPDES storm water regulations and airport procedures, particularly the LAX SWPPP, would reduce the likelihood of dry weather discharges and the potential impacts associated with hazardous materials spills. In addition, with implementation of Master Plan Commitment HWQ-1, consideration would be given to the type and placement of other additional facilities such that releases to the receiving watersheds would be minimized. As a result, potential impacts from dry weather flows would be less than significant.

Construction Impacts

Construction of the proposed improvements under Alternative D would affect an area greater than one acre, thus requiring LAWA to develop a construction SWPPP in compliance with the state's construction permit. To minimize the effect that the construction activities would have on water quality, the SWPPP would specify temporary construction BMPs that would be similar to those identified under the No Action/No Project Alternative. By following the procedures contained in the SWPPP and employing temporary construction BMPs, impacts to water quality associated with construction activities would be less than significant.

4.7.7 Cumulative Impacts

The cumulative impacts to hydrology and water quality associated with the No Action/No Project Alternative and Alternatives A, B, or C, in combination with other past, present, and probable future projects, have not changed from those described in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.7), of the Draft EIS/EIR.

4.7.7.1 Alternative D - Enhanced Safety and Security Plan

Hydrology

Drainage

The combined effects of the indirect impacts of Alternatives D, in conjunction with the effects of both past, present, and probable future projects, could result in cumulative drainage impacts. As described above, Alternative D would be designed to address flooding within the boundary of this alternative. However, increased surface water runoff and peak flows resulting from Alternative D, in conjunction with runoff and peak flows from past, present, and probable future projects, may not be able to be accommodated by the regional drainage infrastructure, particularly that serving the Dominguez Channel Watershed. This would be a significant cumulative impact.

As indicated below in Section 4.7.8, *Mitigation Measures*, the responsibility for mitigating such an impact lies with LACDPW and/or the City of Los Angeles Department of Public Works, Bureau of Engineering. If the agencies with jurisdiction do not resolve deficiencies in regional drainage infrastructure identified as having insufficient capacity to convey storm water, this cumulative impact would remain significant.

Surface Recharge

While pervious area would decrease under Alternative D due to development proposed as part of the alternative (most notably the development of LAX Northside and Continental City), the surface recharge within the project boundaries is less than 0.1 percent of total inflows.

The nearby Playa Vista project would also result in reduced pervious area, but only half of the Playa Vista property is located within the West Coast Basin. The loss of recharge area that would occur within the West Coast Basin is likely to be offset by recharge via the unlined surface water features of the development and the increased irrigation associated with this project.

The sources of inflows within the Basin include precipitation, surface water streams, irrigation water, industrial and commercial wastes, and other applied surface waters. Cumulative development would have the potential to affect only a small portion of the inflows and, as such, are not expected to substantially reduce the amount of recharge that occurs. As a result, cumulative impacts on recharge would be less than significant.

Water Quality

Development within the Santa Monica Bay and Dominguez Channel Watersheds under Alternative D, in conjunction with the nearby Playa Vista project and future small infill projects, could potentially result in increased pollutant loads to these waterbodies. Alternative D would be required to comply with the provisions in the SUSMP. These requirements would be met by implementing Master Plan Commitment HWQ-1, which would require preparation of a detailed drainage plan, and incorporation of source control, structural and treatment control BMPs for all new development and significant redevelopment projects. All new development and significant redevelopment projects outside of the HWQSA would be designed to meet the SUSMP requirements through incorporation of source control, structural, and treatment control BMPs. These BMPs would be designed with the goal of reducing impacts to water quality of the Santa Monica Bay and the Dominguez Channel, to the maximum extent practicable. By incorporating BMPs, additional pollutant loads would be reduced and cumulative water quality impacts would be less than significant.

4.7.8 Mitigation Measures

Hydrology

Drainage

With the implementation of Master Plan Commitment HWQ-1, Alternatives A, B, C, and D would not have any significant impacts relative to drainage and the potential for flooding. No project-level mitigation would be required.

The following mitigation measure is materially the same as that identified in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.8), of the Draft EIS/EIR and is recommended to reduce cumulative drainage impacts within the Argo, Imperial, and Dominguez Channel sub-basins.

- **MM-HWQ-1. Upgrade Regional Drainage Facilities (Alternatives A, B, C, and D).**

  Regional drainage facilities should be upgraded, as necessary, in order to accommodate current and projected future flows within the watershed of each outfall resulting from cumulative development. This could include upgrading the existing outfalls, or building new ones. The responsibility for implementing this mitigation measure lies with the Los Angeles County Department of Public Works and/or the City of Los Angeles Department of Public Works, Bureau of Engineering. A portion of the increased costs for the upgraded flood control and drainage facilities would be paid by LAX tenants and users in accordance with the possessory interest tax laws and other legal assessments, consistent with federal airport revenue diversion laws and regulations and in compliance with state, county and city laws. The new or upgraded facilities should be designed in accordance with the drainage design standards of each agency.

Surface Recharge

Alternatives A, B, C, and D would not have any significant impacts relative to surface recharge and no mitigation would be required.

Water Quality

With the implementation of Master Plan Commitment HWQ-1, which identifies BMPs to reduce pollutant discharges as part of the detailed drainage plan and resulting project-specific SUSMP, Alternatives A, B,

C, and D would not have any significant impacts relative to water quality and no mitigation would be required.

4.7.9 Level of Significance After Mitigation

4.7.9.1 Alternatives A, B, and C

As stated in Section 4.7, *Hydrology and Water Quality* (subsection 4.7.9), of the Draft EIS/EIR, cumulative drainage impacts resulting from development of Alternatives A, B, or C, including potential cumulative hydrology impacts resulting from the LAX Expressway and State Route 1 improvements (described in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements,* of the Draft EIS/EIR), in conjunction with past, present, and probable future projects, could be mitigated through implementation of Mitigation Measure HWQ-1. If the agencies with jurisdiction do not resolve deficiencies in regional drainage infrastructure identified as having insufficient capacity to convey storm water, this cumulative impact would remain significant.

4.7.9.2 Alternative D - Enhanced Safety and Security Plan

Cumulative drainage impacts resulting from development of Alternative D, in conjunction with past, present, and probable future projects, could be mitigated through implementation of Mitigation Measure HWQ-1. If the agencies with jurisdiction do not resolve deficiencies in regional drainage infrastructure identified as having insufficient capacity to convey storm water, this cumulative impact would remain significant.

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