

3.6 HYDROLOGY AND WATER QUALITY

This section describes the hydrologic and water quality setting of the Globemaster Corridor Specific Plan (GCSP; Proposed Project) site and general vicinity, identifies associated regulatory requirements, and analyzes the Proposed Project's impacts to hydrology and water quality. The following discussion focuses on the existing hydrologic and water quality resources in the City of Long Beach (City) and more specifically, the Plan Area.

The Initial Study (IS) and Notice of Preparation (NOP) are contained in Appendix A-1, Initial Study; and Appendix A-2, Notice of Preparation, respectively. Comments regarding hydrology and water quality were not received in response to the NOP (see Appendix A-3, Notice of Preparation Comment Letters).

The IS found that the Proposed Project would have no impact as it relates to 100-year flood hazards and less than significant impacts as it relates to flooding as a result of the failure of a levee, failure of a dam, seiche, tsunami, or mudflow (Appendix A-1). As such, these impacts will not be addressed further in this Draft Program Environmental Impact Report (PEIR)/Draft Program Environmental Impact Statement (PEIS).

3.6.1 Existing Conditions

Regional Watershed

The Plan Area overlaps the boundary between the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed, with the majority of the Plan Area being located in the former. The Los Cerritos Watershed is a small watershed located between the Los Angeles and San Gabriel rivers, which drains to the same general area as the San Gabriel River. The Los Cerritos Channel is concrete-lined above the tidal prism and drains a relatively small area of east Long Beach. The southwest portion of the Plan Area is located in the Los Angeles River Watershed, which is one of the largest in the region at 824 square miles. The 55-mile long river is also one of the most diverse in terms of land use patterns. Approximately 324 square miles of the watershed are covered by forest or open space land, including the area near the headwaters, which originate in the Santa Monica, Santa Susana, and San Gabriel mountains. The remainder of the watershed is highly developed (LARWQCB 2018a).

Topography and Drainage

The topography of the northern and eastern portions of the Plan Area, generally north of the 405 Freeway, is relatively flat to gently sloping toward the east-southeast. Drainage flows toward regional flood control channels/drains located along Spring Street and east of Charlemagne Avenue. And as described above, this area drains toward the Cerritos Channel and the same general

area as the San Gabriel River. The southern portion of the Plan Area, generally south of the freeway, mostly slopes gently to the northeast. The topographic gradient increases slightly in this area adjacent to Signal Hill, located to the southwest. The extreme southwest portion of the Plan Area, generally west of Orange Avenue, slopes gently to moderately to the west, toward the Los Angeles River, with localized steep slopes along the northwestern perimeter of Signal Hill.

Surface Water Quality

The Plan Area overlaps the boundary between the Los Cerritos Channel/Alamitos Bay Watershed Management Area (i.e., the Los Cerritos WMA) and the Los Angeles River Watershed Management Area (i.e., Los Angeles River WMA), with the majority of the Plan Area being located in the former. A majority of land use in the Los Cerritos WMA is high-density residential; therefore, nonpoint source runoff from storm drains is a likely water quality issue in the watershed. Pathogens, metals, and various organic pollutants contribute to the impairments found in the WMA. In addition, of the 43 dischargers enrolled under the General Industrial Storm Water Permit in the Los Cerritos WMA, the majority occur in the City of Long Beach. Many of these businesses are involved with trucking/warehousing, transportation equipment, and fabricated metal products (LARWQCB 2018a).

Similarly, pollutants from dense clusters of residential, industrial, and other urban activities in the Los Angeles River WMA have impaired water quality in the middle and lower watershed. Added to this complex mixture of pollutant sources (in particular, pollutants associated with urban and stormwater runoff), is the high number of point source permits. Excessive nutrients (and their effects) and coliform are widespread problems in the watershed, as well as excessive metals. Water column toxicity was found at a number of sites sampled by the Surface Water Ambient Monitoring Program (SWAMP), in 2005. Of the 1,319 dischargers enrolled under the General Industrial Storm Water Permit in the watershed, the largest numbers occur in the cities of Los Angeles, Vernon, South Gate, Long Beach, Compton, and Commerce. Wholesale trade-durable goods, fabricated metal products, trucking/warehousing, and chemicals/allied products are a large component of these businesses (LARWQCB 2018a).

A number of Regional Board programs and actions are in place to address the water quality impairments discussed above. Total Maximum Daily Loads (TMDLs) have been developed, as required by the Clean Water Act, for many of the impairments in the watersheds. The TMDL is a number that represents the assimilative capacity of a receiving water to absorb a pollutant and is the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources, plus an allotment for natural background loading. TMDLs can be expressed in terms of mass per time (the traditional approach), or in other ways such as toxicity, or a percentage reduction, or other appropriate measures relating to a water quality objective. A TMDL is implemented by reallocating the total allowable pollution among the different pollutant sources (through the permitting process or

other regulatory means) to ensure that the water quality objectives are achieved. TMDLs in effect for the Los Cerritos WMA include those for metals in Los Cerritos Channel and for pesticides, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals in Colorado Lagoon. Similarly, TMDLs in effect in all or parts of the Los Angeles River WMA include those for nutrients, bacteria, metals, and trash (LARWQCB 2018a).

Groundwater

Groundwater is the primary source of drinking water in Long Beach. The Long Beach Water Department (LBWD) pumps groundwater through 29 active wells, located throughout the service area. LBWD pumps groundwater from an adjudicated groundwater basin, the Central Basin Aquifer. Under the adjudication, LBWD currently has the right to extract 32,692 acre-feet per year (AFY) of groundwater. The Central Basin aquifer underlies 277 square miles of mostly urbanized southern Los Angeles County. The Central Basin is bounded on the north by a surface divide known as the La Brea High, and on the northeast and east by the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary between the Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, and the southwest boundary is formed by the Newport-Inglewood Fault Zone. The LBWD also has an adjudicated right to pump 0.7 AFY from the adjacent West Coast Basin, but is currently not exercising the West Coast Basin right (i.e., has no wells in the basin) (City of Long Beach 2016).

3.6.2 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Key sections of the act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives and establish TMDLs for each pollutant/stressor.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in a discharge to waters of the United States, to obtain certification from the state that the discharge will comply with other provisions of the CWA.

- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs), who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers and the Environmental Protection Agency (EPA).

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the EPA and the U.S. Army Corps of Engineers. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

State

Porter-Cologne Act

The Porter–Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater, in addition to federal waters. The Porter–Cologne Act is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state¹ could cause pollution or nuisance, including impacts to public health and the environment.

The Porter–Cologne Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. California Water Code Section 13260 subdivision (a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, which could affect the quality of the waters of the state, to file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both state and federal law. For other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements (WDRs) are required and are

¹ “Waters of the state” are defined in the Porter–Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code, Section 13050(e)).

issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

Basin Planning

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The Los Angeles RWQCB is responsible for the protection of the beneficial uses of waters within the coastal watersheds of Los Angeles and Ventura counties, including the Plan Area.

The *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247) (Los Angeles RWQCB 2014). The Los Angeles RWQCB Basin Plan must conform to the policies set forth in the Porter-Cologne Act as established by the SWRCB in its state water policy. The Porter-Cologne Act also provides the RWQCBs with authority to include within their Basin Plan water discharge prohibitions applicable to particular conditions, areas, or types of waste. The Basin Plan is continually being updated to include amendments related to implementation of TMDLs, revisions of programs and policies within the Los Angeles RWQCB region, and changes to beneficial use designations and associated water quality objectives.

Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs one acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs

is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

The Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality (SWRCB Order No. 2003-0003-DWQ)

This general order applies to projects that discharge to land where the discharge has a low threat to water quality. These are typically low-volume discharges with minimal pollutant concentrations such as well water discharges, small temporary dewatering projects, and hydrostatic testing discharges of clear water. The primary difference between this permit and the permits under the NPDES program is the destination of the water. This permit regulates discharges to land and the previous sections discuss discharges to storm drains or receiving waters. For instance, if a dewatering discharge will be piped to an infiltration basin during construction, this permit could apply.

Local

Municipal NPDES Permit

The City of Long Beach is subject to the *Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach* (Permit No. R4-2014-0024, NPDES No. CAS004003) (MS4 Permit), which was approved February 6, 2014, and became effective on March 28, 2014. This MS4 Permit supersedes Order No. 99-060, issued in 1999. To implement the requirements of the 1999 MS4 Permit, the City developed the Long Beach Storm Water Management Program, a comprehensive program of practices and activities aimed at reducing or eliminating storm water pollutants from new development, to the maximum extent practicable. This program includes customized strategies, control measures, BMPs, consistent with the Los Angeles RWQCB Watershed Management Areas.

The City has the option of collaborating with other MS4 permittees on the development of an Enhanced Watershed Management Program, which evaluates the multi-benefits of regional projects and implements regional control measures and BMPs. The Watershed Management Program includes an evaluation of existing water quality conditions, identifying water quality priorities within each WMA, selecting watershed control measures, and incorporating compliance schedules. Since 2015, the following watershed management plans have been approved and are currently being implemented: Long Beach Nearshore, Los Cerritos Channel Watershed, Lower Los Angeles River Watershed, and Lower San Gabriel River (LARWQCB 2018b).

Currently, the MS4 permit requires that the project designer and/or contractor of all new development and redevelopment projects that fall under specific “priority” project categories must develop a Standard Urban Stormwater Mitigation Plan (SUSMP). Certain categories of development are considered “priority” because the Los Angeles RWQCB determined that these

categories have the greatest potential to degrade water quality. The three categories of “priority” projects include: 1) 10 or more home subdivisions; 2) 100,000 square feet or larger commercial developments; and 3) projects located adjacent to or directly discharging to environmentally sensitive areas. Future development projects occurring under the Proposed Project would be designed in accordance with a SUSMP.

City of Long Beach General Plan Conservation Element (1973)

Water resource management goals are included in the Conservation Element (adopted in 1973) of the City’s General Plan. The following goals are applicable to the Proposed Project:

Water Resource Management Goal 1: To assure adequate quantity and quality of water to meet the present and future domestic, agricultural, and industrial needs of the City.

Water Resource Management Goal 2: To enforce existing ordinances and develop new ordinances and promote continuing research directed toward achieving the required stringent water quality standards which regulate waste water effluent discharge to ocean waters, bays and estuaries, fresh waters, and groundwater.

Water Resource Management Goal 3: To assure that the waters of San Pedro and Alamitos bays and Colorado Lagoon are maintained at the highest quality feasible, in order to enhance their recreational and commercial utilization.

2019 General Plan Land Use Element

Strategy No. 20: Preserve, restore and protect water bodies, natural areas and wildlife habitats.

LU Policy 20-5: Prevent stormwater runoff and pollutants from entering natural water bodies, wildlife habitats, wetlands, rivers and the Pacific Ocean.

LU Policy 20-11: Coordinate with other agencies to reduce stormwater runoff by capturing runoff for groundwater recharge, irrigation and recycling purposes.

Sustainable City Action Plan (2010)

The City adopted the Sustainable City Action Plan on February 2, 2010, with the purpose of moving the City towards becoming a more sustainable City. Sustainability is defined in this plan as maximizing individual benefits and minimizing negative environmental impacts, to ensure the long-term health of the environment, for the enjoyment and use of current and future generations. The Sustainable City Action Plan includes initiatives, goals, and actions that are meant to guide City decision-makers in striving towards achieving a sustainable City. The following initiatives and actions are applicable to the Proposed Project:

Water Initiative 2: Implement low impact development strategies to reduce runoff and pollution at the source and increase the beneficial use of rainwater.

Water Action 1: Aggressively pursue strategies to keep trash off our beaches and pollution out of our ocean.

Water Action 2: Continue to manage urban and stormwater runoff by installing emerging treatment technologies into the storm drain system.

Water Action 3: Continue to work with upstream cities in the Los Angeles River Watershed to implement BMPs in the watershed to reduce pollutant loadings.

Water Action 4: Pursue legislation and secure funding to mitigate surface water and groundwater pollution.

Water Action 5: Participate in and promote beach, neighborhood, community, and business corridor cleanups in order to keep our watersheds and beaches clean.

Water Action 6: Encourage the use of development techniques to direct rooftop runoff to pervious areas, such as yards, garden beds, vegetated/soft bottom open channels, or on-site structural BMPs for capture, treatment, and reuse.

Water Action 7: Design streets to direct rainwater runoff to landscaped areas.

Water Action 8: Utilize and/or replace non-pervious surfaces with permeable materials (e.g., sidewalks, driveways, outdoor patios, and parking lots).

Water Action 10: Update development standards to require low impact development strategies, such as detention basins, infiltration basins, infiltration trenches, conservation of natural areas, permeable pavements, treatment wetlands, bioswales, curb cuts, green roofs, rain gardens, and other pre-/post-construction BMPs.

Water Action 11: Expand Stormwater Management Education and Outreach programs to a watershed-based program and develop public-private educational partnerships to promote behavioral change.

Long Beach Municipal Code

Chapter 8.96. Stormwater and Runoff Pollution Control: This chapter reinforces the requirements of the Federal Clean Water Act and the State Porter Cologne Act, including the Construction General Permit requirements, within the City.

3.6.3 Thresholds of Significance

The following significance criteria are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential hydrology and water quality impacts. Since the release of the IS (September 2018), updates to the CEQA Guidelines have gone into effect. One of the revisions involves slight changes to the threshold questions related to hydrology and water quality. As such, the threshold questions listed here do not match the IS. Impacts related to hydrology and water quality would be significant if the Proposed Project would:

- A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces in a manner which would:
 - i. Result in substantial erosion or siltation on- or off-site;
 - ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
 - iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - iv. Impede or redirect flood flows.
- D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The IS found that the Proposed Project would have less than significant impacts as it relates to flood hazard areas, because the Plan Area: 1) is not located within a designated 100-year flood hazard area; 2) is not located within an area subject to inundation as a result of failure of a levee or dam; and 3) is not located within an area subject to inundation by seiche, tsunami, or mudflow (Appendix A-1, Initial Study). Therefore, impacts related to flood hazard areas are not further discussed in this Draft PEIR/PEIS.

3.6.4 Impacts Analysis

- a) *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Buildout of the GCSP would result in demolition and grading, followed by vertical building construction, paving/concrete installation, and landscape installation. Each of these Proposed Project-related activities would result in potential soil erosion, which in turn could result in siltation of receiving water bodies, including the Cerritos Channel, Los Angeles River, and downstream Los Angeles/Long Beach Harbor. In addition, during the construction phase(s) of the Proposed Project, petroleum hydrocarbons in site runoff could result from incidental spills during construction equipment/vehicle fueling or maintenance. During Proposed Project operations, nonpoint source runoff of pollutants such as oil, grease, and metals in parking and vehicle maintenance areas; incidental spills of hazardous materials from industrial facilities; pesticides, herbicides, nitrogen, and phosphorous in landscape areas; and miscellaneous pathogens (bacteria), trash, and debris could occur at the Plan Area.

As previously discussed, the Plan Area overlaps the boundary between the Los Cerritos WMA and the Los Angeles River WMA, with the majority of the Plan Area being located in the former. A majority of land uses in the Los Cerritos WMA is high-density residential; therefore, nonpoint source runoff from storm drains is a likely water quality issue in the watershed. Pathogens, metals, and various organic pollutants contribute to the impairments found in the WMA. In addition, of the 43 dischargers enrolled under the General Industrial Storm Water Permit in the Los Cerritos WMA, the majority occur in the City of Long Beach. TMDLs in effect for the Los Cerritos WMA include those for metals in Los Cerritos Channel and for pesticides, PAHs, PCBs, and metals in Colorado Lagoon.

Similarly, pollutants from dense clusters of residential, industrial, and other urban activities in the Los Angeles River WMA have resulted in water quality impairment in the middle and lower watershed. Added to this complex mixture of pollutant sources (in particular, pollutants associated with urban and stormwater runoff), is the high number of point source permits. Excessive nutrients (and their effects) and coliform are widespread problems in the watershed, as well as excessive metals. TMDLs in effect in all or parts of the Los Angeles River WMA include those for nutrients, bacteria, metals, and trash.

Currently, the MS4 permit requires that the project designer and/or contractor of all new development and redevelopment projects that fall under specific “priority” project categories must develop a SUSMP. Certain categories of development are considered “priority” because the Los Angeles RWQCB determined that these categories have the greatest potential to

degrade water quality. The three categories of “priority” projects include: 1) 10 or more home subdivisions; 2) 100,000 square feet or larger commercial developments; and 3) projects located adjacent to or directly discharging to environmentally sensitive areas. Future development projects occurring under the Proposed Project would be designed in accordance with a SUSMP.

All development in the watersheds would be subject to the existing regulatory requirements to protect water quality and minimize increases in stormwater runoff. Mitigation measures **MM-HYD-1a** and **MM-HYD-1b** outlines the requirements for preparation of a SWPPP and compliance with the established Best Management Practices (BMPs). Furthermore, mitigation measure **MM-HYD-1c** requires all construction activities to comply with the City of Long Beach, Stormwater Management Plan in order to reduce potential erosion induced siltation of off-site water bodies. The Proposed Project would also require implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b**, which mandates development of a SUSMP during project design in order to reduce impervious surfaces and increase on-site filtration of contaminants in stormwater runoff. With incorporation of mitigation, the project would be in compliance with applicable water quality standards and/or waste discharge requirements that would avoid the degradation of surface or groundwater quality. The existing built environment within the Plan Area was constructed prior to current water quality and stormwater regulations. Redevelopment of the area is anticipated to improve on-site retention, treatment, and conveyance of stormwater during operational aspects of the project.

CEQA Impact Determination

Proposed Project-related nonpoint source runoff associated with future construction and operation of projects under the GCSP could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. As such, mitigation measure **MM-HYD-1a** would require the completion of a Storm Water Pollution Prevention Plan (SWPPP), mitigation measure **MM-HYD-1b** would require the City of Long Beach to review and approve the SWPPP, and mitigation measure **MM-HYD-1c** would require all construction activities to comply with the City of Long Beach Stormwater Management Plan. These mitigation measures would assure effective control of not only sediment discharge, but also of pollutants associated with sediments, such as nutrients, heavy metals, and certain pesticides, including legacy pesticides. Additionally, mitigation measure **MM-HYD-2a** requires development of a Standard Urban Stormwater Mitigation Plan (SUSMP) and mitigation measure **MM-HYD-2b** requires the SUSMP to comply with the City of Long Beach Stormwater Management Plan. The SUSMP would result in an increase in pervious surfaces and associated groundwater recharge, such that impacts would be less than significant after mitigation. Impacts are considered less than

significant with the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-1c** and **MM-HYD-2a** and **MM-HYD-2b**, and as such, impacts are considered **less than significant with mitigation incorporated** under CEQA.

NEPA Impact Determination

Proposed Project-related nonpoint source runoff associated with GCSP construction and operation could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. As such, effects are potentially significant and adverse under NEPA. However, the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-1c** and **MM-HYD-2a** and **MM-HYD-2b** would reduce these **effects to below a level of significance**, and impacts would **not be adverse**.

- b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

The Proposed Project would allow for the intensification and redistribution of land uses with higher-density development, which would result in the extraction of additional groundwater supplies. Based on the City of Long Beach 2015 Urban Water Management Plan (UWMP) (City of Long Beach 2016b), the two primary sources of potable water to the City are groundwater and imported water. In addition, LBWD provides recycled water to an increasing number of customers to replace the use of potable water. Groundwater in the City is extracted from the Central Basin aquifer, which originates from the San Gabriel Mountains via the San Gabriel River.

The Central Basin aquifer was seriously overdrafted by the mid-1900s, which led to adjudication of the basin in Los Angeles County Superior Court in 1965. The adjudication now provides the framework for managing the Central Basin, by apportioning pumping rights to certain parties and strictly limiting extractions to those apportioned rights. However, because the annual pumping rights allocated to the Central Basin Judgement exceeded the natural yield of the basin, the Judgement also charges the Water Replenishment District of Southern California with the responsibility of replenishing the basin. Parties extracting water from the basin pay an assessment to the Water Replenishment District on a per-acre-foot extracted basis; revenue which is used by the district to replenish and protect the basin. The combination of strict extraction limitations and a variety of replenishment activities that have a dependable source of funding have made the Central Basin a reliable water supply, even during multi-year droughts, through the year 2040. For example, recycled water is mixed with imported water and/or natural

runoff and is allowed to percolate in the groundwater basin, and San Gabriel River stream flows are used to replenish the groundwater basins (City of Long Beach 2016).

As noted above, the City maintains reliable water sources from an adjudicated basin. As described in Section 3.13, Utilities and Service Systems, of this Draft PEIR/PEIS, the Proposed Project has been determined to be consistent with water demands in the City’s 2015 Urban Water Management Plan (UWMP) and LBWD has identified a surplus water supply to serve the projected demands through 2040. Because the project is consistent with the assumptions of the 2015 UWMP, the buildout of the Proposed Project would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin more than already considered in the planning documents for water procurement sources.

The redevelopment of existing urban areas could result in increased impervious areas, which affect groundwater recharge. Implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b** require a SUSMP, which requires demonstration of how specific projects would minimize impervious surfaces, retain or treat stormwater runoff from the site, and implement designs consistent with the City of Long Beach Low Impact Development (LID) Best Management Practices (BMP) Design Manual. With implementation of LID BMPs and minimization of impervious surfaces, future projects under the GCSP would follow applicable regulations and impacts related to denied groundwater recharge would be reduced to less than significant.

CEQA Impact Determination

Because the City of Long Beach maintains reliable water sources from an adjudicated basin, as described above, the Proposed Project would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin. However, because the Proposed Project could result in new impervious surfaces, impacts under CEQA related to denied recharge are considered potentially significant. However, with the implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b**, impacts would be **less than significant with mitigation incorporated**.

NEPA Impact Determination

Because the City of Long Beach maintains reliable water sources from an adjudicated basin, as described above, the Proposed Project would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin. However, because the Proposed Project could result in new impervious surfaces, effects related to denied recharge are potentially significant and adverse under NEPA. However, the implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b** would reduce these **effects to below a level of significance**, and impacts would **not be adverse**.

c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would:*

(i) *result in substantial erosion or siltation on- or off-site?*

No creeks or major drainages traverse the Plan Area. With the exception of the extreme southwest portion of the Plan Area, where moderate to steep slopes are locally present along the northwester perimeter of Signal Hill, the majority of the Plan Area is relatively flat to gently sloping. Proposed grading and construction of individual projects under the GCSP would result in minor alteration of existing drainage patterns to accommodate each proposed development. However, continued on-site urban development would not substantially alter drainage patterns such that siltation would occur on- or off-site. Potential erosion and off-site siltation of downstream waterways would be temporary and related primarily to grading and construction activities.

While the existing drainage pattern of the site would largely remain flat similar to existing conditions, all on- and off-site impacts related to hydrology would be mitigated through compliance with regulatory requirements. Mitigation measures **MM-HYD-1a** and **MM-HYD-1b** outlines the requirements for preparation of a SWPPP and compliance with the established Best Management Practices (BMPs). Furthermore, mitigation measure **MM-HYD-1c** requires all construction activities to comply with the City of Long Beach, Stormwater Management Plan which include management practices and control techniques. Mitigation measures **MM-HYD-3a** and **MM-HYD-3b** require the completion of a Hydrology/Drainage Report shall be developed during the design of individual projects proposed as part of the GCSP. The Hydrology/Drainage Report shall demonstrate that stormwater runoff flow volume and flow rate, associated with specific projects, would be less than or equal to existing conditions to prevent on- and off-site flooding. Compliance with these mitigation measures on a project-level basis would ensure that potential impacts related to on-site and off-site erosion or siltation remain less than significant.

CEQA Impact Determination

Proposed Project-related erosion-induced siltation of downstream waterways, in association with the construction of future projects under the GCSP, could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. With the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-1c**, **MM-HYD-3a**, and **MM-HYD-3b**, impacts would be **less than significant with mitigation incorporated** under CEQA. Redevelopment of the area, with mitigation, would facilitate greater on-site retention, treatment, infiltration and appropriate conveyance when compared to the existing conditions baseline.

NEPA Impact Determination

Proposed Project-related erosion-induced siltation of downstream waterways, in association with the construction of future projects under the GCSP, could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. As such, effects are potentially significant and adverse under NEPA. However, the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-1c**, **MM-HYD-3a**, and **MM-HYD-3b** would reduce these **effects to below a level of significance**, and impacts would **not be adverse**.

- (ii) *Result in flooding on- or off-site or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage system;*

As discussed above, proposed grading and construction of individual projects under the GCSP would result in minor alteration of existing drainage patterns to accommodate each proposed development. Continued on-site urban development would not substantially alter drainage patterns of the Plan Area. However, Proposed Project development could potentially result in an increase in surface runoff as a result of increased impervious surfaces, in a manner which could result in flooding on- or off-site, or exceed the capacity of existing or planned storm drain systems.

As mentioned in discussions above, all on- and off-site impacts related to flooding would be mitigated through compliance with regulatory requirements. Mitigation measures **MM-HYD-1a** through **MM-HYD-3b** outline the requirements for compliance with all regulations related to hydrology and water quality during construction and operation, including the completion of a hydrology/drainage report. The implementation of LID BMPs and drainage controls would ensure that the amount of on-site impervious surfaces would not result in flooding on- or off-site or exceedance of storm drain systems. Compliance with these mitigation measures on a project-level basis would ensure that potential impacts related to on-site and off-site flooding or exceedance of storm drain capacity remain less than significant.

CEQA Impact Determination

Much of the land within the Plan Area is paved, either as right-of-way, parking lot, or covered by buildings. Regardless, depending on the specific project design, Proposed Project development could potentially result in an increase in surface water runoff in a manner which would result in flooding on- or off-site, or exceed the capacity of existing or planned storm drain systems. With the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-3b**, impacts would be **less than significant with mitigation incorporated** under CEQA.

NEPA Impact Determination

Much of the land within the Plan Area is paved, either as right-of-way, parking lot, or covered by buildings. Regardless, depending on the specific project design, Proposed Project development could potentially result in an increase in surface runoff in a manner which would result in flooding on- or off-site, or exceed the capacity of existing or planned storm drain systems. As such, effects are potentially significant and adverse under NEPA. However, the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-3b** would reduce these **effects to below a level of significance**, and impacts would **not be adverse**.

- (iii) *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*

As discussed under A (above), Proposed Project grading and construction could result in erosion induced siltation of receiving water bodies, including the Cerritos Channel, Los Angeles River, and downstream Los Angeles/Long Beach Harbor. In addition, during construction, petroleum hydrocarbons in site runoff could result from incidental spills during construction equipment/vehicle fueling or maintenance. During Proposed Project operations, nonpoint source runoff of pollutants such as oil, grease, and metals in parking and vehicle maintenance areas; incidental spills of hazardous materials from industrial facilities; pesticides, herbicides, nitrogen, and phosphorous in landscape areas; and miscellaneous pathogens (bacteria), trash, and debris could occur at the Plan Area.

All on- and off-site impacts related to runoff during construction and operation of future individual projects under the GCSP would be mitigated through compliance with regulatory requirements. Mitigation measures **MM-HYD-1a** through **MM-HYD-3b** outline the requirements for compliance with all regulations related to hydrology and water quality during construction and operation, including the completion of a hydrology/drainage report. The implementation of LID BMPs and drainage controls would ensure that the amount of on-site impervious surfaces would not result in additional sources of polluted runoff. Examples of BMPs to address polluted runoff include, but are not limited to, on-site biofiltration (unlined bioswales and bioretention basins) and vegetation-based stormwater quality control measures. Compliance with these mitigation measures on a project-level basis would ensure that potential impacts related to polluted runoff remain less than significant.

CEQA Impact Determination

Proposed Project-related nonpoint source runoff associated with future construction and operation under the GCSP could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. With the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-3b**, impacts would be **less than significant with mitigation incorporated** under CEQA.

NEPA Impact Determination

Proposed Project-related nonpoint source runoff associated with future construction and operation under the GCSP could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. As such, effects are potentially significant and adverse under NEPA. However, the implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-3b** would reduce these **effects to below a level of significance**, and impacts would **not be adverse**.

- d) *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Water Quality Control Plan

As previously discussed, to implement the requirements of the 1999 MS4 Permit, the City developed the Long Beach Storm Water Management Program, a comprehensive program of practices and activities aimed at reducing or eliminating storm water pollutants from new development, to the maximum extent practicable. This program includes customized strategies, control measures, BMPs, consistent with the Los Angeles RWQCB Watershed Management Areas. Since 2015, the following watershed management plans have been approved and are currently being implemented: Long Beach Nearshore, Los Cerritos Channel Watershed, Lower Los Angeles River Watershed, and Lower San Gabriel River. Proposed Project-related nonpoint source runoff associated with GCSP construction and operation could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. However, the Proposed Project would not conflict with or obstruct implementation of these watershed management plans.

Sustainable Groundwater Management Plan

With respect to groundwater management, because the City of Long Beach maintains reliable water sources from an adjudicated basin, as described above, the Proposed Project would not conflict with or obstruct a sustainable groundwater management plan.

CEQA Impact Determination

Proposed Project-related nonpoint source runoff associated with future construction and operation under the GCSP could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. However, the Proposed Project would not conflict with or obstruct implementation of the Long Beach Storm Water Management Program and other regional watershed management plans. Impacts are considered **less than significant** under CEQA.

Because the City of Long Beach maintains reliable water sources from an adjudicated basin, the Proposed Project would not conflict with or obstruct a sustainable groundwater management plan. Impacts are considered **less than significant** under CEQA.

NEPA Impact Determination

Proposed Project-related nonpoint source runoff associated with future construction and operation under the GCSP could potentially exacerbate existing surface water pollution in the already impaired Los Cerritos WMA and Los Angeles River WMA. However, the Proposed Project would not conflict with or obstruct implementation of the Long Beach Storm Water Management Program and other regional watershed management plans. As such, effects are not potentially significant and adverse under NEPA.

Because the City of Long Beach maintains reliable water sources from an adjudicated basin, the Proposed Project would not conflict with or obstruct a sustainable groundwater management plan. Impacts under NEPA would **not be adverse**.

3.6.5 Cumulative Impacts

Water Quality

The geographic context for the analysis of cumulative impacts associated with water quality is the encompassing Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed. Cumulative development in the watershed could add new sources of stormwater runoff. Construction activities associated with development could temporarily increase the amount of exposed surfaces that could contribute to sediments in stormwater runoff. Additionally, materials associated with construction activities could be deposited on surfaces and carried to receiving waters in stormwater runoff.

Continued development and redevelopment within the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed could also increase the amount of impervious surfaces that could increase stormwater runoff rates and amounts, as well as changes in land use

that may increase the amount of pollutants in stormwater runoff. However, all cumulative development in the watersheds would be subject to the existing regulatory requirements to protect water quality and minimize increases in stormwater runoff. For example, the Construction General Permit requires development and implementation of a SWPPP for all construction sites larger than one acre to mitigate potential impacts to water quality from polluted stormwater runoff.

Construction sites smaller than one acre would be subject to municipal regulations, such as the MS4 Permit, which requires that the project designer and/or contractor of all new development and redevelopment projects that fall under specific “priority” project categories develop a SUSMP. Development in these municipalities would also be subject to local goals and policies related to water quality, such as the Water Resource Management Goals in the City of Long Beach General Plan, Conservation Element, and the City of Long Beach Sustainable City Action Plan.

Every two years, the Los Angeles RWQCB must re-evaluate water quality within its geographic region and identify those water bodies not meeting water quality standards. For those impaired water bodies, a TMDL must be prepared and implemented to reduce pollutant loads to levels that would not contribute to a violation of water quality standards. All development within the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed are subject to the water quality standards outlined in the Basin Plan and must comply with any established TMDLs. The continuing review process would ensure that cumulative development within the watershed would not substantially degrade water quality.

The City is subject to requirements of the MS4 Permit. Currently, the City MS4 permit requires that the project designer and/or contractor of all new development and redevelopment projects that fall under specific “priority” project categories must develop a SUSMP, which include LID design requirements related to water quality. In addition, the City would coordinate with other MS4 permittees on the development of an Enhanced Watershed Management Program, which evaluates the multi-benefits of regional projects and implements regional control measures and BMPs. The Watershed Management Program includes an evaluation of existing water quality conditions, identifying water quality priorities within each WMA, selecting watershed control measures, and incorporating compliance schedules. Since 2015, the following watershed management plans have been approved and are currently being implemented: Long Beach Nearshore, Los Cerritos Channel Watershed, Lower Los Angeles River Watershed, and Lower San Gabriel River.

The Proposed Project would require implementation of mitigation measures **MM-HYD-1a** through **MM-HYD1c**, which mandates completion of a SWPPP and associated BMPs during construction, in order to reduce potential erosion induced siltation of off-site water bodies. The Proposed Project would also require implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b**, which mandates development of a SUSMP during project design in order to reduce impervious surfaces and increase on-site filtration of contaminants in stormwater runoff. The

SUSMP would address long-term effects on water quality within the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed and ensure BMPs and LID designs minimize potential water quality concerns to the maximum extent practicable.

Therefore, impacts associated with water quality standards and polluted runoff in the watersheds would be minimized, and with implementation of mitigation measures **MM-HYD-1a** through **MM-HYD-1c**, **MM-HYD-2a**, and **MM-HYD-2b**, the Proposed Project's contribution to cumulative impacts would **not be cumulatively considerable**.

Stormwater Drainage

The geographic context for the analysis of cumulative impacts related to storm drainage is the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed. Cumulative development within the watersheds could potentially increase the amount of impervious surfaces that could cause or contribute to storm drain and creek bed capacity exceedance, alter existing creek bed profiles (i.e., create erosive downcutting and bank failure), and/or require construction of new or expanded flood control infrastructure. New development within the watersheds would be subject to the environmental review process and compliance with local stormwater regulations, such as the Construction General Permit, the Section 404 permit process of the CWA, local municipal code requirements, and local Water Quality Management Plan requirements.

The Proposed Project would require implementation of mitigation measures **MM-HYD-2a** and **MM-HYD-2b**, which mandates development of a SUSMP during project design in order to reduce impervious surfaces and reduce stormwater runoff. In addition, the Proposed Project would require implementation of mitigation measures **MM-HYD-3a** and **MM-HYD-3b**, which mandates that a Hydrology/Drainage Report be developed during the design of individual future projects proposed under the GCSP. The Hydrology/Drainage Report would demonstrate that stormwater runoff flow volumes and flow rates, associated with specific projects, would be less than or equal to existing conditions to prevent on- and off-site flooding.

Similar to the Proposed Project, other projects in the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed would incorporate hydromodification features such that drainage rates and volumes would be less than or equal to existing conditions. Therefore, with the implementation of mitigation measures **MM-HYD-2a**, **MM-HYD-2b**, **MM-HYD-3a**, and **MM-HYD-3b**, impacts associated with changes in runoff in the watershed would be minimized, and the Proposed Project's contribution to cumulative impacts would **not be cumulatively considerable**.

3.6.6 Mitigation Measures

MM-HYD-1a A Storm Water Pollution Prevention Plan (SWPPP) shall be completed for Proposed Project grading in excess of one acre, in accordance with the Statewide Construction General Permit (State Water Resources Control Board Order 2009-0009-DWQ, as amended). In accordance with the SWPPP, the construction contractor shall implement water quality Best Management Practices (BMPs) to ensure that water quality standards are met, and that stormwater runoff from construction work areas do not cause degradation of water quality in receiving water bodies, including the Cerritos Channel, Los Angeles River, and downstream Los Angeles/Long Beach Harbor.

The SWPPP shall include erosion control measures and proper handling of petroleum products, such as proper petroleum product storage and spill response practices, appropriate handling and disposal of small quantities of hazardous materials/wastes, litter control and pick up, and vehicle and equipment repair and maintenance in designated areas.

Typical BMPs that shall be incorporated into the SWPPP (as applicable) include the following:

1. Diverting off-site runoff away from the construction site
2. Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities
3. Placing perimeter straw wattles to prevent off-site transport of sediment
4. Construction of sedimentation basins
5. Limitations on work periods during storm events
6. Protection of stockpiled materials
7. Using drop inlet protection (filters and sand bags or straw wattles), with sandbag check dams within paved areas
8. Regular watering of exposed soils to control dust during demolition and construction
9. Implementing specifications for demolition/construction waste handling and disposal
10. Maintaining erosion and sedimentation control measures throughout the construction period

11. Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto City roadways
12. Training, including for subcontractors, on general site housekeeping
13. Using contained equipment wash-out and vehicle maintenance areas
14. Providing educational materials on oil disposal and recycling programs
15. Implementing spill control at fueling facilities

MM-HYD-1b The SWPPP shall be reviewed and approved by the City of Long Beach for compliance with the Los Angeles County Public Works Construction Site Best Management Practices Manual (LACDPW 2010).

MM-HYD-1c All Proposed Project construction activities are required to comply with the City of Long Beach, Stormwater Management Plan, which requires controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and engineering/system methods for the control of such pollutants.

MM-HYD-2a A Standard Urban Stormwater Mitigation Plan (SUSMP) shall be developed during the design of the Proposed Project. The SUSMP shall demonstrate how specific projects would minimize impervious surfaces, retain or treat stormwater runoff from the site, and implement designs consistent with the City of Long Beach *Low Impact Development (LID) Best Management Practices (BMP) Design Manual* (City of Long Beach 2013). The design shall include Source Control and Treatment BMPs and an Operations & Maintenance Plan for the proposed BMPs. The SUSMP shall address long-term effects on water quality within the Los Cerritos Channel/Alamitos Bay Watershed and the Los Angeles River Watershed and ensure BMPs and LID designs minimize potential water quality concerns to the maximum extent practicable.

MM-HYD-2b The SUSMP shall comply with the City of Long Beach, Stormwater Management Plan, which requires controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and engineering/system methods for the control of such pollutants.

MM-HYD-3a A Hydrology/Drainage Report shall be developed during the design of individual projects proposed as part of the Globemaster Corridor Specific Plan. The Hydrology/Drainage Report shall demonstrate that stormwater runoff flow volume and flow rate, associated with specific projects, would be less than or equal to existing

conditions to prevent on- and off-site flooding. Project design features that would contribute in reducing stormwater runoff could include:

1. On-site biofiltration (unlined bioswales and bioretention basins)
2. Lined (i.e., impervious) bioswales and detention basins
3. Vegetation-based stormwater quality control measures, including self-treating landscape areas and lined planters
4. Proprietary stormwater quality control measures, which are also known as manufactured treatment devices

MM-HYD-3b The Hydrology/Drainage Report shall comply with the Los Angeles County Department of Public Works Hydrology and Hydraulic Design Manual (LACDPW 2006) for storm drain planning and design calculations.

3.6.7 Significance After Mitigation

The construction-phase BMPs outlined in mitigation measure **MM-HYD-1a** would assure effective control of not only sediment discharge, but also of pollutants associated with sediments, such as nutrients, heavy metals, and certain pesticides, including legacy pesticides, such that impacts are less than significant after mitigation. New construction in accordance with a SUSMP, including LID features such as permeable landscaping, biofiltration basins, and permeable detention basins, as discussed in mitigation measure **MM-HYD-2a**, would result in an increase in pervious surfaces and associated groundwater recharge, such that impacts would be less than significant after mitigation. And new construction in accordance with a project-specific Hydrology/Drainage Report, as discussed in mitigation measures **MM-HYD-3a** and **MM-HYD-3b**, would result in post-construction runoff being less than or equal to existing conditions, such that impacts would be less than significant after mitigation. As such, overall impacts to hydrology and water quality as a result of implementing future projects under the GCSP are considered **less than significant with mitigation incorporated**.

3.6.8 References

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