Exposition Metro Line Construction Authority

Exposition Corridor Transit Project Phase 2

Final Environmental Impact Report

Technical Background Report

FINAL

Hydrology / Water Quality

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Prepared for:

Exposition Metro Line Construction Authority

By:

PBS&J

ERRATA

The Exposition Metro Line Construction Authority (Expo Authority) has determined that the bike path and Second Street Santa Monica Terminus are no longer under consideration as part of the Expo Phase 2 Light-Rail Transit project. This Technical Background Report was drafted prior to the final definition of the LRT Alternatives that was presented in the Draft Environmental Impact Report (DEIR). Accordingly, discussion of the bike path and Second Street Santa Monica Terminus still remain in this report but no longer apply and should be disregarded.

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1. INTRODUCTION

1.1 Overview

The purpose of this section is to describe the water resource impacts of the Exposition Corridor Transit Project Phase 2 (Expo Phase 2). These impacts address drainage, flood hazards, and water quality. Information regarding the proposed project site drainage and grading conditions are taken from *Los Angeles County Drainage Area Master Plan: Master Drainage Plan for the City of Los Angeles Area* (Los Angeles County Flood Control and Water Conservation District 1991); *Ballona Creek watershed Management Master Plan* (County of Los Angeles Department of Public Works 2004); *City of Los Angeles Integrated Resources Plan*, (City of Los Angeles 2006) *Water Quality Control Plan Los Angeles Region (Basin Plan)* (Los Angeles Regional Water Quality Control Board [LARWQCB] 1995), and *California's Groundwater Bulletin 118* (California Department of Water Resources 2004).

Potential effects of hazardous materials to human health during construction and operation of The Expo Phase 2 project are discussed in the *Hazards and Hazardous Materials Technical Background Report*.

1.2 Project Summary

The proposed Exposition Corridor Transit Project Phase 2 (referred to as either the Expo Phase 2 project or proposed project) would involve the implementation of new or upgraded corridor transit solutions within a western portion of Los Angeles County in the cities of Los Angeles, Culver City, and Santa Monica. Six alternatives are analyzed. The alternatives include the No-Build Alternative, Transportation System Management (TSM) Alternative, and four Light-Rail Transit (LRT) Alternatives. A brief description of these alternatives is provided below.

1.2.1 No-Build Alternative

The No-Build Alternative includes only Metro service features that currently exist or have been explicitly committed for project buildout in the year 2030. As such, the No-Build Alternative includes existing fixed guideway Metro Rail and Metro Liner bus rapid transit (BRT) systems currently under operation, the full implementation of the Metro Rapid Bus program, represented as twenty-eight routes across Los Angeles County, and planned peak-only rapid bus lanes along Wilshire Boulevard between Western Avenue and Bundy Drive. The rest of the bus network is based on June 2007 service patterns for Metro, Los Angeles Department of Transportation (LADOT), Culver City, and Santa Monica Big Blue Bus, as well as committed enhancements to those services anticipated by 2030. Based on direction from Metro, their bus fleet will be assumed to include a mix of articulated and higher-capacity 45-foot buses in 2030.

1.2.2 Transportation Systems Management (TSM) Alternative

The TSM Alternative seeks to address the corridor transit needs without major capital investments and includes the improvements outlined in the No-Build Alternative plus three additional components. These three components include (1) addition of a rapid bus route

connecting downtown Culver City with downtown Santa Monica; (2) associated service improvements on selected north/south routes to feed stations along the new rapid bus route; and (3) service improvements on selected routes, connecting Westside communities to the Phase 1 Terminus.

1.2.3 Light-Rail Transit (LRT) Alternatives

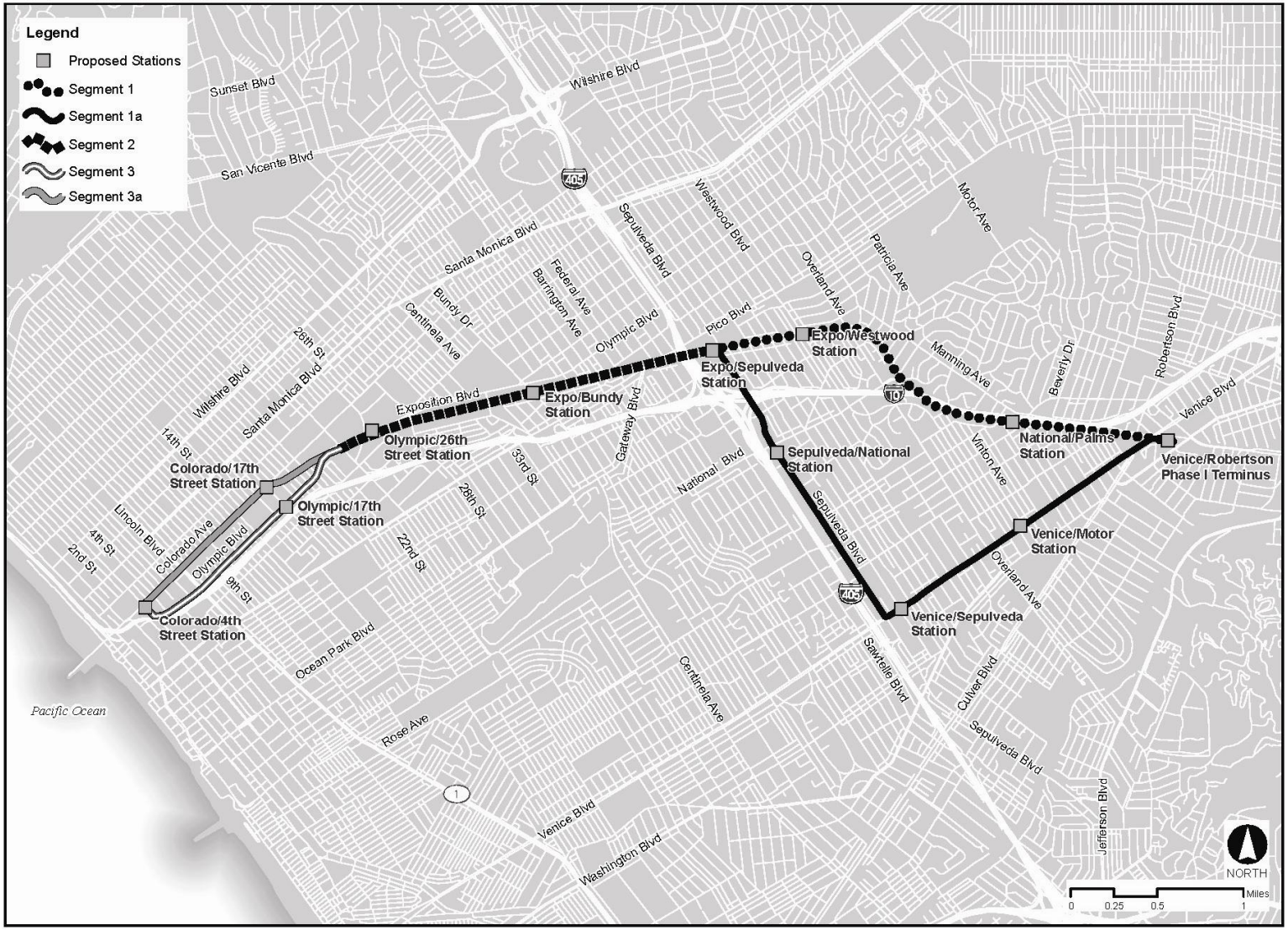
LRT is defined as a metropolitan electric railway system characterized by its ability to operate single cars or short trains along exclusive rights-of-way at ground level, on aerial structures, in subways, or, occasionally, in streets, and to board and discharge passengers at track or car-floor level. Light-rail vehicles are driven electrically with power drawn from an overhead electric line. LRT provides a cleaner, more energy-efficient form of transportation than automobiles and is quieter than conventional rail systems.

The LRT alignment would extend rail from the current Phase 1 terminus station at Venice/Robertson to a terminus station in Santa Monica at 4th Street and Colorado Avenue. The LRT Alternatives are as follows:

- LRT 1 (Expo ROW–Olympic Alternative) would utilize approximately 5 miles of the existing Expo ROW from the Expo Phase 1 terminus until reaching the intersection with Olympic Boulevard in Santa Monica. From that point, the alignment would follow Olympic Boulevard to the proposed terminus station.
- LRT 2 (Expo ROW–Colorado Alternative) would also utilize the existing Expo ROW from the Expo Phase 1 terminus until reaching the intersection with Olympic Boulevard in Santa Monica. From that point, the alignment would continue within the Expo ROW to west of 19th Street, then diverge from the Expo ROW and enter onto Colorado Avenue east of 17th Street and follow the center of Colorado Avenue to the proposed terminus.
- LRT 3 (Venice/Sepulveda–Olympic Alternative) would divert from the Expo ROW at the Expo Phase 1 terminus and follow Venice Boulevard and Sepulveda Boulevard until reaching the intersection with the Expo ROW. The alignment would then continue westward along the Expo ROW and Olympic Boulevard identical to the LRT 1 Expo ROW–Olympic Alternative.
- LRT 4 (Venice/Sepulveda–Colorado Alternative) would divert from the Expo ROW at the Expo Phase 1 terminus and follow Venice Boulevard and Sepulveda Boulevard until reaching the intersection with the Expo ROW. The alignment would then continue westward along the Expo ROW and Colorado Avenue identical to the LRT 2 Expo ROW–Colorado Alternative.

Geographic Segments

The proposed project traverses several jurisdictions, including the cities of Los Angeles, Culver City, and Santa Monica, and spans distinct communities within each jurisdiction. In order to account for these differences, the proposed project is described and examined at two different scales, from broad to specific—Westside of Los Angeles County and geographic segments with special consideration of proposed station areas—to identify potential impacts.
For purposes of this discussion, the LRT Alternatives have been divided into geographic segments for ease of analysis (Figure 1-1 [Project Location]). For the area between the Phase 1 terminus and the Exposition/Sepulveda intersection, there are two alternative alignments: Segment 1 (Expo ROW) and Segment 1a (Venice/Sepulveda). Segment 2 (Sepulveda to



Source: PBS&J, ESRI 2009

Figure 1-1 Project Location

Cloverfield) is common to all LRT Alternatives. For the area between the Cloverfield/Olympic intersection and a terminus in Santa Monica, there are also two alternative alignments: Segment 3 (Olympic) and Segment 3a (Colorado). Thus, the segments are as follows:

- Segment 1: Follows the Expo ROW from the Expo Phase 1 terminus station in Culver City to the Expo ROW/Sepulveda Boulevard intersection, approximately 2.8 miles in length
- Segment 1a: Follows westerly in the median of Venice Boulevard from the Expo Phase 1 terminus station in Culver City to the Venice Boulevard/Sepulveda Boulevard intersection, then follows northerly in the center of Sepulveda Boulevard to the Expo ROW/Sepulveda Boulevard intersection, approximately 3.7 miles in length
- Segment 2: Follows the Expo ROW from the Expo ROW/Sepulveda Boulevard intersection to the Expo ROW/Olympic Boulevard intersection, approximately 2.3 miles in length
- Segment 3: Follows the median of Olympic Boulevard from the Expo ROW/Olympic Boulevard intersection to the Phase 2 terminus option at 4th Street and Colorado Avenue in Santa Monica, approximately 1.5 miles in length
- Segment 3a: Follows the Expo ROW from the Expo ROW/Olympic Boulevard intersection to west of 19th Street in Santa Monica. The alignment then diverges onto Colorado Avenue east of 17th Street and continues along the center of Colorado Avenue terminating between 4th Street and 5th Street, approximately 1.5 miles in length.

In response to comments received on the DEIR and after further analysis and coordination with various stakeholders, five design options have been added in the FEIR for the LRT Alternatives:

- Sepulveda Grade Separation Design Option
- Expo/Westwood Station No Parking Design Option
- Maintenance Facility Buffer Design Option
- Colorado Parking Retention Design Option
- Colorado/4th Parallel Platform and South Side Parking Design Option

Stations

Table 1-1 (Station Locations) provides a description of each station within the various segments, including the approximate location, the type of proposed station (i.e., at grade or aerial), and the amount of parking to be provided.

Table 1-1 Station Locations

Name	Location	LRT: EXPO ROW Alignment	LRT: Venice/ Sepulveda Alignment	Parking
Segment 1: Expo ROW				
National/Palms	Expo ROW just west of the aerial structure over National Boulevard/Palms Boulevard	On Embankment	N/A	0

Table 1-1 Station Locations

Name	Location	LRT: EXPO ROW Alignment	LRT: Venice/ Sepulveda Alignment	Parking
Expo/Westwood	Within Expo ROW ~~E~~east of Westwood Boulevard ~~on Exposition Boulevard~~	At grade	N/A	170
Segment 1a: Venice/Sepulveda				
Venice/Motor	Venice Boulevard, east of Motor Avenue	N/A	At grade	0
Venice/Sepulveda	On Venice Boulevard, east of Sepulveda Boulevard	N/A	Aerial	0
Sepulveda/National	South of National Boulevard above the center of Sepulveda Boulevard	N/A	Aerial	250
Segment 2: Sepulveda to Cloverfield				
Expo/Sepulveda	West of Sepulveda Boulevard and Exposition Boulevard	At grade (aerial design option)	At grade (aerial design option)	~~270~~260
Expo/Bundy	Bundy Drive and Exposition Boulevard	Aerial	Aerial	250
Olympic/26th Street	East of 26th Street on Olympic	At grade	At grade	0
Segment 3: Olympic				
Olympic/17th Street	East and west side of 17th Street within the median of Olympic Boulevard	At grade	At grade	0
Colorado/4th	~~4th Street, east of Colorado Avenue~~On the existing commercial block bounded by 4th Street, 5th Street, and Colorado Avenue	Aerial	Aerial	~~250~~0
Segment 3a: Colorado				
Colorado/17th Street	Center of Colorado Avenue west of 17th Street	At grade	At grade	70
Colorado/4th	~~Center of Colorado Avenue between 2nd Street and 4th Street or o~~On the existing commercial block bounded by 4th Street, 5th Street, and Colorado Avenue	At grade	At grade	~~225~~0

SOURCE: DMJM Harris, 2008, updated 2009.

Maintenance Facilities

A Maintenance Facility is proposed to be constructed as a part of the Expo Phase 2 project. The Maintenance Facility site would be located on a parcel or parcels within the City of Santa Monica immediately south of the Expo ROW, north of Exposition Boulevard, and east of Stewart

Street. The site is currently occupied by a surface parking lot and light-industrial facility. The maintenance facility is to be designed and built to meet the maintenance needs of the LRT vehicles required to operate Phase 2 through the year 2030. It could operate 24 hours a day in three shifts. The maintenance facility would consist of outdoor storage for ~~20 to 36~~approximately 43 to 45 LRT vehicles and associated storage track; trackway to connect to the main line and allow the movement of LRT vehicles from the main line track to and within the maintenance facility area; main yard shop building with office and vehicle repair areas; vehicle wash facility; traction power substation; and parking for 65 ~~to 70~~ employees. The main yard shop structure would be approximately ~~300~~ 350 feet long and ~~166~~ 189 feet wide, two stories in height, and with a total area of approximately 125,000 square feet. The structure would be built of concrete block or corrugated metal or a combination thereof.

Since the release of the DEIR and in response to comments, the Expo Authority has worked with the City of Santa Monica, Metro, and the community to identify alternative layouts for the Maintenance Facility. As a result of these collaborative efforts, a Maintenance Facility Buffer Design Option has been developed for evaluation in the FEIR. This design option would occupy only a portion of the Verizon site, with an extension of the facility into the existing Santa Monica College parking lot to the west. Utilization of the adjacent parking lot on the west side of the Verizon site would create an approximate 100- to 110-foot buffer between the Maintenance Facility and the residential area on the south side of Exposition Boulevard. The Maintenance Facility Buffer Design Option would include much of the same facilities as the original Maintenance Facility concept.

2. AFFECTED ENVIRONMENT

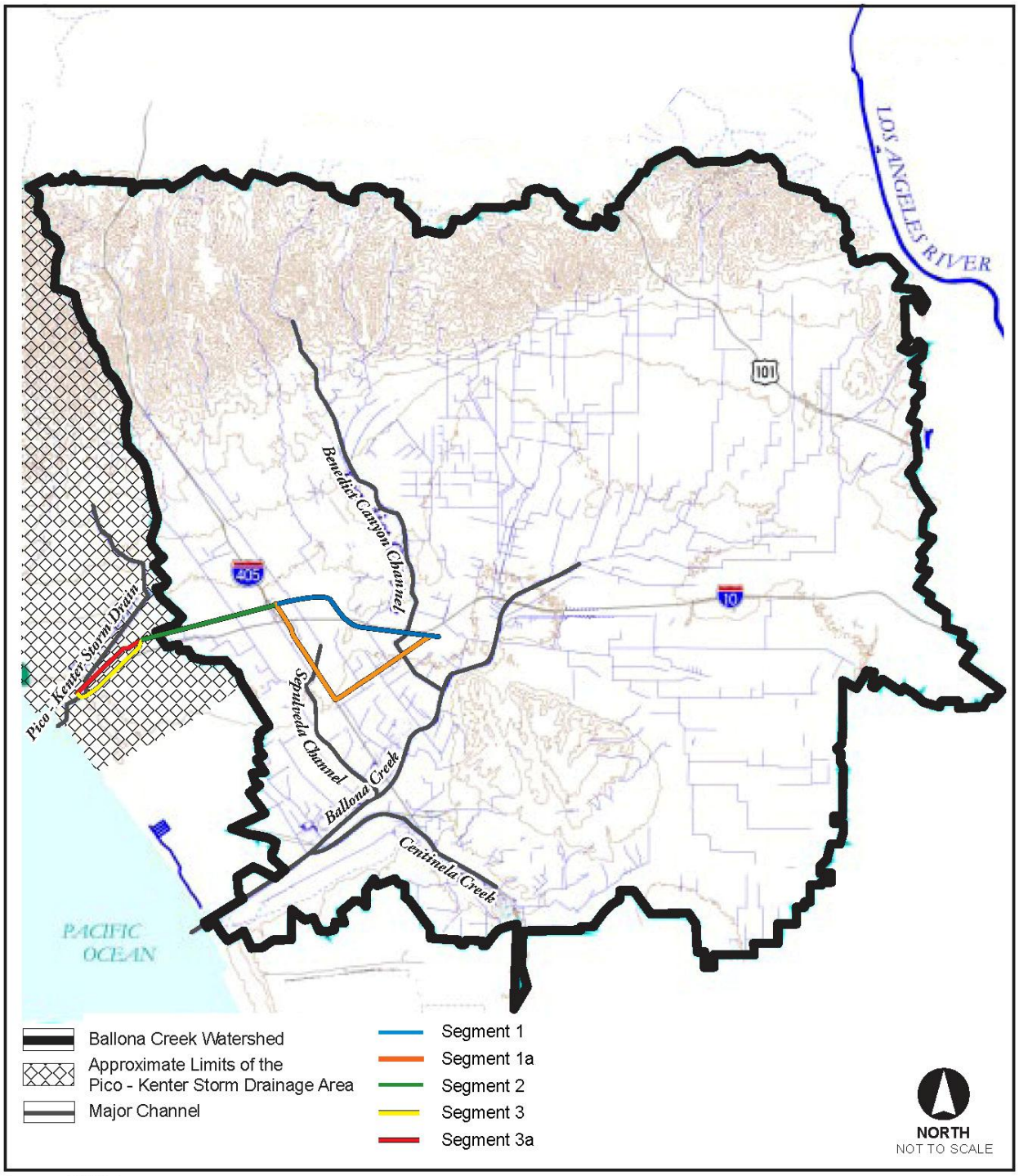
2.1 General

The study area[1] has a Mediterranean climate characterized by mild, wet winters and long, dry summers. The proximity and steep rise of the San Gabriel Mountains from the coast creates a barrier that traps moist ocean air against the mountain slopes and partially blocks summer heat coming from the desert and winter cold coming from the interior northeast. Mean monthly temperature ranges from 71.7 degrees Fahrenheit (°F) in August to 56.7°F in December, and mean annual precipitation is 13.32 inches per year with 92 percent of the rainfall occurring from October through March (WRCC 2007).

2.1.1 Drainage

The eastern two-thirds of the study area drain to Ballona Creek and the Sepulveda Channel, both of which are located within the Ballona Creek watershed. While the Sepulveda Channel is located within the Ballona Creek watershed, it is also part of the Sawtelle-Westwood Flood Control System, which includes undergrounded tributaries to Ballona Creek. The western one-third of the study area is located within the Pico-Kenter Storm Drain drainage area. Both of these drainages are part of the Santa Monica Hydrologic Unit. Within the project vicinity, Ballona Creek, the Sepulveda Channel, and the Pico-Kenter Storm Drain are the major drainage channels. Figure 2-1 (Drainage Features) illustrates the location of the Ballona Creek watershed

[1] The study area includes Segments 1, 1a, 2, 3 and 3a and the 0.5 mile buffer zones.



Source: PBS&J.

Figure 2-1 Drainage Features

and the Pico-Kenter Storm Drainage Area and the major channels, creeks, and storm drains within the study area.

Segment 1, Segment 1a, and Segment 2 all drain to Ballona Creek; portions of Segment 1a drain to the Sepulveda Channel and then to Ballona Creek; and Segment 3 and Segment 3a drain to the Pico-Kenter Storm Drainage Area, as discussed below.

Ballona Creek Watershed

The Ballona Creek watershed is located in the coastal plain in the northwestern portion of the Los Angeles Basin with the Santa Monica Mountains on the north and the Baldwin Hills on the south (BCWTF 2004, 10). Ballona Creek flows downstream from the Santa Monica Mountains through the City of Culver City and ultimately into the ocean at Playa del Rey, as shown in Figure 2-1 (Drainage Features).

The Ballona Creek watershed drains an approximately 130-square-mile area consisting primarily of urban developed land. Surface runoff in the Ballona Creek watershed originates from many sources, including point-source discharges from industrial sources and stormwater. Irrigation runoff, residential car washing, fire fighting, groundwater dewatering at construction sites, and miscellaneous debris from illegal dumping and litter may also be discharged.

Structural flood control features consisting of debris basins, storm drains, underground culverts, and open concrete channels provide most of the storm drainage capacity within the watershed. Many of these flood control features, managed by the Los Angeles County Flood Control District (LACFCD), were designed and implemented by the United States Army Corps of Engineers (USACE) in the early twentieth century. Ballona Creek runs through an underground culvert in the east of the watershed, transitioning to an open, concrete-lined channel near Venice Boulevard and Pickford Street. Ballona Creek's major tributaries, the Benedict Canyon Channel and the Sawtelle-Westwood Flood Control System, are also channelized. Only a few channels remain open for major portions of their length, including the Sepulveda Channel (also known as Walnut Creek) and Centinela Creek. A small number of natural stream channels are found in the upper reaches of the watershed; however, these are several miles from the study area and at a higher elevation. Numerous storm drains also drain to Ballona Creek via an underground drainage system.

Ballona Creek

Ballona Creek is designed to convey approximately 71,400 cubic feet per second from the 50-year frequency storm event[2] to Santa Monica Bay (Ballona Creek watershed Task Force 2004). Because of historic modifications to Ballona Creek and its tributaries, natural hydrologic conditions have been substantially modified within the watershed. Approximately 40 percent of the watershed is covered with impervious surfaces resulting from urban development; therefore, runoff enters the Ballona Creek and its tributaries at a more accelerated rate and in greater volume than it did historically (Ballona Creek Watershed Task Force 2004). Since most of the tributary channels are concrete-lined or within underground box culverts, natural erosion and sedimentation processes have been altered. Under current conditions, eroded materials in stormwater runoff from the more natural upstream areas are transported downstream to the

[2] A storm event with a 2 percent chance of occurring in any given year.

mouth of Ballona Creek where they collect and cause sedimentation and periodic closure of public boating facilities in Marina del Rey.

Sepulveda Channel

The Sepulveda Channel is tributary to Ballona Creek and drains the western portion of the watershed. Flood control facilities on the Sepulveda Channel control flow rates within the channel. The channel is underground through much of the urbanized area north of the study area; however it daylights for a short distance in a lined channel at Military Avenue and Queensland Street. The Sepulveda Channel conveys stormwater runoff from the urbanized areas of Los Angeles and undeveloped upland areas to Ballona Creek, just west of Sepulveda Boulevard.

LRT Alternatives

Segment 1: Expo ROW

Segment 1 would begin at the Expo Phase 1 Terminus Station in Culver City. Between Cardiff Avenue to just west of Motor Avenue, the proposed alignment would run along an embankment, which is elevated relative to the adjacent properties to the south (primarily commercial or industrial and high density residential). However, the corridor is at a lower elevation than I-10 to the north. Within this area, the alignment corridor contains two bridges: one at National Boulevard and the other at Motor Avenue. Drainage from this portion of the alignment flows south to the adjacent streets and storm drain system and eventually to Ballona Creek.

Segment 1 is primarily unpaved except for road crossings. However, the unpaved ROW was formerly used for railroad uses, and soils and fill material within the ROW were highly compacted to support the railroad bed and provide slope stability. Vegetation is limited. Consequently, this unpaved area would not be expected to have high stormwater storage capacities or infiltration rates.

Runoff from the area between I-10 and Sepulveda Boulevard in Segment 1 flows south and is collected in storm drains and the Sepulveda Channel, which eventually discharges to Ballona Creek. The Sawtelle-Westwood Flood Control System underlies Segment 1 from Overland Avenue to Military Avenue, and serves to drain the alignment corridor to Sepulveda Channel. Large storm drains run northwest to southeast under Military and Overland Avenues, and between Midvale and Kelton Avenues.

Except for road crossings, the portion of the alignment corridor from I-10 to just after Tilden Avenue is not paved. From just after Tilden Avenue to Sepulveda Boulevard, the corridor is paved. Adjacent off-site properties are primarily residential until Military Avenue, at which point adjacent land uses become primarily commercial/industrial. Drainage from this area primarily flows south and is collected in storm drains and the Sepulveda Channel, which eventually discharge to Ballona Creek.

Overland Avenue, from Clarkson Road to Ayres Avenue, and along Westwood Boulevard from 100 feet north of Ashby Avenue to Richland Avenue, is mostly paved but includes adjacent unmaintained landscaped medians, which are pervious and vegetated. Drainage from this area is collected by the Sawtelle-Westwood Flood Control System, which discharges to the Sepulveda Channel and ultimately to Ballona Creek.

Segment 1a: Venice/Sepulveda

In Segment 1a, the proposed alignment would begin at the Phase 1 Terminus Station in Culver City. At the Phase 1 terminus, the alignment corridor would leave the Exposition ROW and enter Venice Boulevard on an aerial structure, returning to grade at Bagley Avenue. It would then run down the center of Venice Boulevard to Greenfield Avenue. This portion of the alignment corridor is entirely paved. Adjacent land uses are primarily commercial/office and high density residential. Surface water in this area is collected by storm drains that eventually discharge to Ballona Creek.

Travelling west on Venice Boulevard, the alignment would turn north and run through the median in Sepulveda Boulevard. As with Venice Boulevard, the corridor along Sepulveda Boulevard is paved. Land uses adjacent to the corridor are primarily commercial/office and high density residential. Along Sepulveda Boulevard, just north of Rose Avenue, the alignment corridor would cross the Sepulveda Channel. Surface water in this area is collected by the Sawtelle-Westwood Flood Control System and eventually discharges to Ballona Creek.

Segment 2: Sepulveda to Cloverfield

In Segment 2, the proposed alignment would run primarily along existing paved ~~roadways~~right-of-way. From just after Sepulveda Boulevard, the alignment corridor would be aerial through to west of Pico Boulevard, where the alignment would transition to grade. From just ~~after~~ before Bundy Drive through Centinela~~Carmelina~~ Avenue, the alignment corridor would be ~~at~~ grade separated and return to grade just after Carmelina Avenue through to the Cloverfield Boulevard crossing. Adjacent land uses are residential and commercial/industrial south of 28th Street and commercial/industrial from 28th Street to Cloverfield Boulevard. Surface flow in this area likely is to the south into storm drains that discharge into Ballona Creek.

The areas of Sepulveda Boulevard from Richland Avenue to Pico Boulevard, and in the vicinity of Barrington Avenue and Pico Boulevard (south of the Exposition ROW) on the west side of the street, are mostly paved. However the adjacent landscaped medians include some pervious and landscaped areas. Drainage from this area is served by the Sawtelle-Westwood Flood Control System, which discharges to Ballona Creek.

Pico-Kenter Storm Drainage Area

The Pico-Kenter Storm Drainage Area is an underground storm drain system that drains approximately 4,200 acres (EPWM n.d.) in the western portion of Los Angeles County from the northernmost part of Kenter Canyon (into the Santa Monica Mountains) to the southern part of the City of Santa Monica. Refer to Figure 2-1 (Drainage Features).

Pico-Kenter Storm Drain

The Pico-Kenter Storm Drain is the largest storm drain line in the City of Santa Monica. It is an underground storm drain that collects surface water through catch basins in the City of Santa Monica and in a portion of Los Angeles County (LARWQCB 2006). This underground storm drain system flows from north and east towards the west and discharges to the Santa Monica Bay (LARWQCB 2006) and is in the western portion of the study area. In April 2001, Santa Monica's Urban Runoff Recycling Facility (SMURRF) was built to process and treat flow from the Pico-Kenter Storm Drain, up to 500,000 gallons per day (gpd), The treated water is then

recycled for landscape irrigation instead of discharging to the Santa Monica Bay (LARWQCB 2006).

The Pico-Kenter Storm Drain has been identified as deficient, as it is incapable of accommodating the runoff from a 50-year storm event (SMPCDD 2004, 4.7-1). In addition, the connector pipes (lines between the catch basins and storm drain mains) to the Pico-Kenter Storm Drain are made of corrugated metal that has gradually deteriorated. An additional drain is being considered by the County Department of Public Works to alleviate these deficiencies.

LRT Alternatives

Segment 3: Olympic

In Segment 3, the proposed alignment would run mostly within the median, at grade, in Olympic Boulevard (between Cloverfield Boulevard and approximately 10th Street). This area currently contains pervious lawns and trees, with the exception of road crossings. Between 11th Street and the Colorado/4th Street Station, this segment would be aerial. Surface water drainage in this segment flows to the Pico-Kenter Storm Drain or directly to the ocean rather than to Ballona Creek.

Segment 3a: Colorado

In Segment 3a, the proposed alignment would run at grade mostly along Colorado Avenue. The alignment would turn northwest from Olympic Boulevard and Cloverfield Boulevard to 20th Street and would continue from 20th Street to the Colorado/4th Street or Colorado/2nd Street Station on Colorado Avenue. Embedded track construction would be used on Colorado Avenue. One lane in each direction would be converted to LRT use, allowing one vehicular travel lane in each direction. This entire segment contains only impervious surfaces. Surface water drainage in this segment flows to the Pico-Kenter Storm Drain or directly to the ocean rather than to Ballona Creek.

2.1.2 Flooding

Regional

Los Angeles and nearby cities are located in a relatively flat alluvial plain, about 30 miles wide, lying on uplift terraces surrounded by mountain ranges. From the outwash fans at the northern edge of this alluvial plain to the tops of the higher peaks there is a difference in elevation of as much as 4,500 feet (refer to *Geologic, Seismic Conditions, and Hazardous Materials Technical Background Report* for more details).

Los Angeles County is subject to a wide range of flood hazards, including floods caused by earthquakes, intense storms, and failure of man-made structures. Two damaging regional tsunamis caused by the 1812 Santa Barbara and the 1927 Point Arguello earthquakes indicate that faults off the coast of Southern California are capable of producing large local tsunamis. The tsunami concern is heightened because the short historical record does not adequately characterize the long-term tsunami risk.

The USACE operates and maintains five major flood control reservoirs within the Los Angeles system: the Hansen, Lopez, Santa Fe, Sepulveda, and Whittier Narrows reservoirs. The Los

Angeles County Department of Public Works operates and maintains 15 dams, about 143 sediment entrapment basins, and 29 spreading grounds. Local storm drains and pump stations are maintained by the Department, cities, Caltrans, and certain homeowner associations.

The Federal Emergency Management Agency (FEMA) has prepared flood maps identifying areas in Los Angeles County that would be subject to flooding during 100-year and 500-year storms events (Figure 2-2 [FEMA Q3 Floodplain]). These maps indicate that a portion of the proposed project alignment corridor is located within a Special Food Hazard Area (SFHA) Zone A.

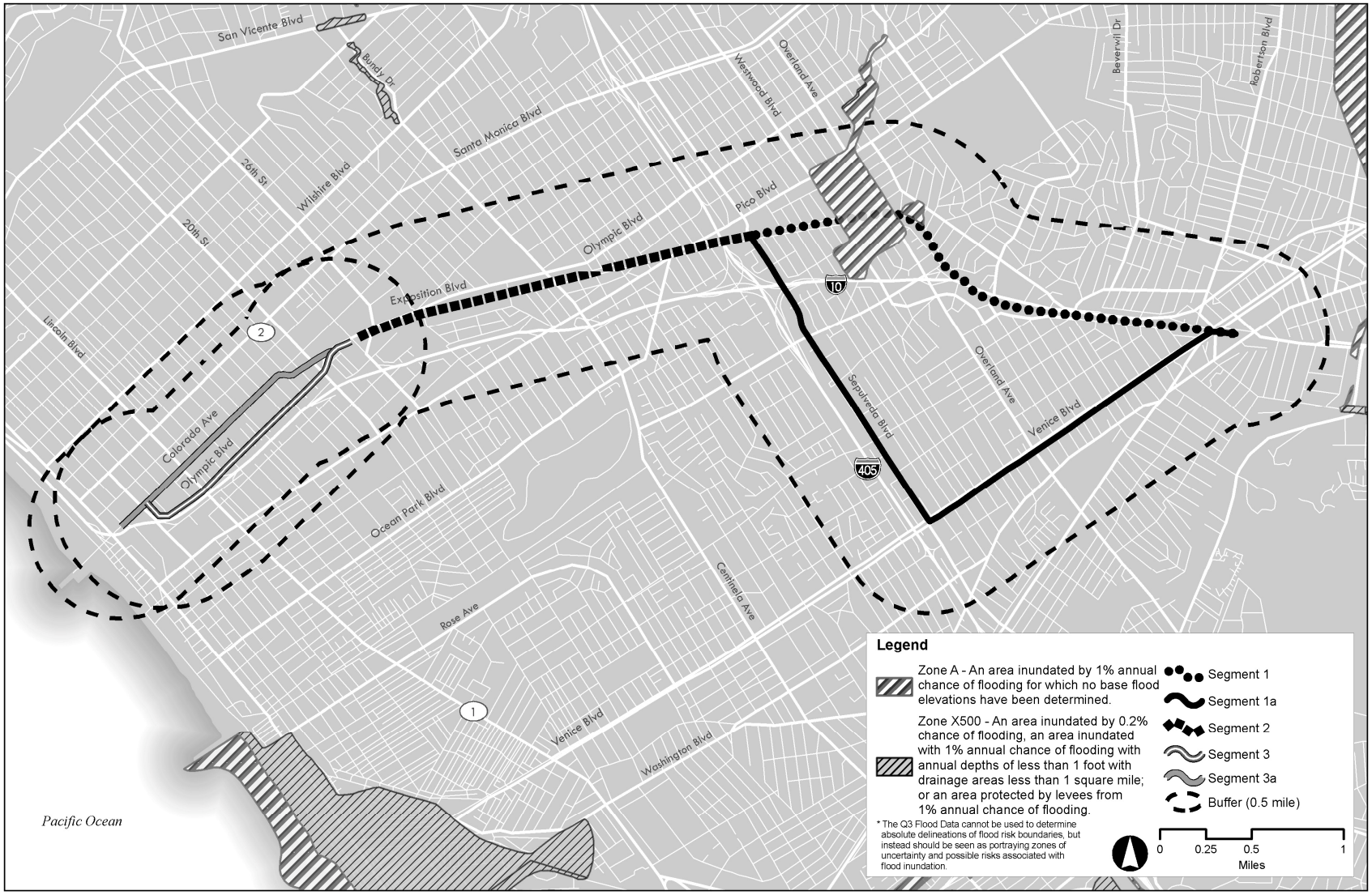
LRT Alternatives

Segment 1 of the proposed alignment is within a FEMA defined 100-year SFHA. This area includes the Exposition ROW from Overland Avenue through Westwood Boulevard. The flood area basically extends from between Pico Boulevard on the northwest, Overland Avenue on the northeast, Coventry Place and I-10 on the southeast, Veteran Avenue to Brookhaven Avenue on the southwest, and then Westwood Boulevard from Brookhaven Avenue to Pico Boulevard for the rest of the southwestern border.

2.2 Surface Water Quality

According to the Water Quality Control Plan for the Los Angeles Region (Basin Plan), prepared by the Regional Water Quality Control Board, Region 4 (RWQCB), the designated beneficial uses for upper Ballona Creek are water non-contact recreation and wildlife habitat. Potential beneficial uses are municipal and domestic water supply and water contact recreation, although access to the creek is prohibited by the Los Angeles County Department of Public Works. The lower reaches of Ballona Creek (to the estuary) have the same potential and designated beneficial uses as upper Ballona Creek, except that wildlife habitat is listed only a potential beneficial use. The Ballona Lagoon/Venice Canals and Ballona Estuary have a number of designated beneficial uses including: navigation; water contact and water non-contact recreation; commercial and sport fishing; estuarine habitat; marine habitat; wildlife habitat; rare, threatened, and endangered species; migration of aquatic organisms; spawning, reproduction, and early development of fish; and, shellfish harvesting. No designated beneficial uses have been listed for the Sepulveda Channel or the Pico-Kenter Storm Drain. However, Santa Monica Bay and Marina Del Rey, where the Pico-Kenter Storm Drain discharges, are designated for existing navigation; contact and non-contact recreation; commercial and sport fishing; estuarine habitat; marine habitat; wildlife habitat; rare, threatened or endangered species habitat; migration habitat; spawning habitat; and shellfish harvesting.

Once beneficial uses have been designated, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. These designated beneficial uses, together with water quality objectives (referred to as water quality criteria in federal regulations), form water quality standards. Such standards are mandated for all water bodies within the state under the California Water Code. In addition, the federal *Clean Water Act* (CWA) mandates standards for all surface waters, including wetlands.



Source: PBS&J, ESRI, FEMA

Figure 2-2 FEMA Q3 Floodplain

Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which the Environmental Protection Agency (EPA) has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

The Basin Plan indicates that Ballona Creek is impaired by pollutants from industrial and municipal effluent, and urban nonpoint runoff. In addition, untreated sewage overflows discharged into Ballona Creek during the rainy season historically have caused beach closures along Santa Monica Bay. Specific pollutants include high levels of dissolved solids (e.g., chlorides, sulfates, heavy metals), bacteria, nutrients from fertilizers and other sources, petroleum hydrocarbons, sediment, solid waste and debris. Rainfall results in these contaminants entering municipal storm drains, which subsequently convey the contaminants to surface waters. In addition, high concentrations of DDT in sediments at the mouth of Ballona Creek and in Marina del Rey provide evidence of past discharges that have resulted in long-term water quality issues.

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Section 304(a) requires the EPA to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which EPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCBs. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as National Pollutant Discharge Elimination System (NPDES) permits, which are further described below.
Point sources of discharges to surface waters, such as those from industrial facilities, contain a broad range of potential contaminants. Locally, these discharges are regulated by the RWQCB under NPDES permit regulations, which have been in effect since the 1970s. The quality of base flow waters in Ballona Creek is defined by these discharges along with other, non-regulated dry weather flow such as landscape irrigation, car washing, drainages from upland areas, and others.

The quality of water in Ballona Creek is monitored monthly by the Los Angeles County Department of Public Works, Flood Control Division. Water sampling stations in the Expo Phase 2 vicinity are located along Ballona Creek at Fairfax Avenue and Sawtelle Boulevard. The Fairfax Avenue station collects only dry weather flow samples, while the Sawtelle Boulevard station collects both dry weather and storm flow samples. Stormwater quality will generally be affected by both the site land use, adjacent land use, amount of impervious surfaces, any stormwater quality best management practices (BMPs) implemented, the amount

of rainfall (concentration dilution and total load), and amount of time between rainfall events (pollutant build-up).

The current 303(d) listings for Ballona Creek are shown in Table 2-1 (2006 CWA Section 303(d) List of Water Quality Limited Segments).

Table 2-1 2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs

Region	Name	Calwater Watershed	Pollutant/Stressor	Potential Sources	Estimated Size Affected	Proposed TMDL Completion
4	Ballona Creek	40513000	Cadmium (sediment)	Nonpoint/ Point Sources	6.5 miles	2005
			Cyanide	Source Unknown	6.5 miles	2019
			Silver (sediment)	Nonpoint Sources	6.5 miles	2005

SOURCE: Los Angeles Regional Water Quality Control Board, USEPA Approved June 24, 2007

The Sepulveda Channel, a tributary to Ballona Creek, is listed for an ammonia impairment (2006 303(d) List).

The Pico-Kenter Storm Drain is not listed as impaired. The City of Santa Monica diverts low-flow, dry weather flows (excessive irrigation, spills, construction sites, pool draining, car washing, the washing of paved areas, and some wet weather runoff) from the Pico-Kenter Storm Drain to the Santa Monica Urban Runoff Recycling Facility (SMURRF) year round. Dry weather flows are treated according to the stringent recycled water quality standards specified under Title 22 of the California Code of Regulations (SMDPW 2007).

An average of 500,000 gallons per day (gpd) of urban runoff generated in Santa Monica and Los Angeles are treated by conventional and advanced treatment systems at the SMURRF (SMDPW 2007). The runoff water is diverted from the City's two main storm drains into the SMURRF and treated to remove pollutants such as trash, sediment, oil and grease, and pathogens. Treatment processes include the following (SMDPW 2007):

- Coarse and fine screening to remove trash and debris
- Dissolved air floatation, DAF to remove oil and grease
- Degritting systems to remove sand and dirt
- Micro-filtration to remove turbidity
- Ultra-violet radiation to kill pathogens

2.3 Groundwater

The study area, including portions of Ballona Creek and the Pico-Kenter Storm Drain Area watersheds, overlies the Coastal Plain of Los Angeles Groundwater Basin. The entire study

area overlies the Santa Monica Subbasin (number 4-11.01) (MWDC 2007, Plate 5-1). The Santa Monica Subbasin's beneficial uses include municipal and domestic supply, industrial supply, industrial process supply, and agricultural supply.

Depth to water generally increases with elevation, with deeper depths to groundwater in the west that gradually becomes shallower toward the east. The groundwater levels along the alignment range from approximately 30 feet to greater than 50 feet bgs as measured during a concurrent geotechnical investigation conducted by Leighton Consulting. Potentially perched groundwater conditions were observed in recent and previous investigations in the vicinity of the alignment and may be present along portions of the alignment. Based on a review of a number sites on Geotracker, a regulatory database for cleanup sites, depth to groundwater from I-405 west toward the Colorado/4th Street Station is approximately 45 feet bgs, although, it has been reported to vary from approximately 25 to 55 feet bgs.

Generally, the Expo Phase 2 ROW is under-lain by contamination-affected groundwater. The contaminants typically are volatile organic compounds (VOCs), methyl tertiary-butyl ether (MTBE), tetrachloroethylene (i.e., perchloroethylene) (PCE) and trichloroethylene (TCE). In 1996, in response to MTBE-affected groundwater in the Charnock Well Field, wells that supplied municipal water to the City of Santa Monica, Culver City and Los Angeles ceased pumping and production (EPA 2007, July). The source of the contamination was attributed to leaking underground storage tanks from multiple gas stations owned or supplied by Shell, Chevron, or Exxon. As a result of the wide-spread contamination, enforcement orders were given by the Environmental Protection Agency (EPA) and Los Angeles Water Quality Control Board (LARWQCB) in 1996 to replace the groundwater lost to MTBE contamination. As a result, the City of Santa Monica, Palms, and Mar Vista areas of Los Angeles and Culver City all use imported water from the Metropolitan Water District as an interim water replacement measure (EPA, 2007). Currently, the City of Santa Monica operates a well field known as the Olympic Sub-Basin and is developing a groundwater treatment facility that can remove the MTBE from groundwater produced at the Charnock Well Field (City of Santa Monica Water Division, 2009). The groundwater treatment facility is proposed to be online by 2010 (Leighton Consulting, Inc 2009). While the presence of groundwater contamination exists, the regional groundwater contamination issue has low potential to affect the Expo Phase 2 project based on the conceptual engineering design.

2.3.1 Santa Monica Subbasin

The Santa Monica Subbasin underlies the northwestern part of the Coastal Plain of Los Angeles Groundwater Basin as illustrated in Figure 2-3 (Study Area Groundwater). It is bounded by the impermeable rocks of the Santa Monica Mountains on the north and by the Ballona escarpment on the south. The subbasin extends from the Pacific Ocean on the west to the Inglewood fault on the east. The Santa Monica Subbasin is within the service areas of the Metropolitan Water District of California (MWD) member agencies of the cities of Santa Monica, Los Angeles, Beverly Hills, and West Basin MWD and underlies the cities of Santa Monica, Culver City, and Beverly Hills and the communities of Pacific Palisades, Brentwood, Venice, Marina del Rey, West Los Angeles, Century City and Mar Vista. The Santa Monica Subbasin is divided into five additional subbasins: Arcadia, Olympic, Coastal, Charnock, and Crestal (CDWR 2004; MWDC 2007, 5-1).

Source: PBS&J, ESRI

Figure 2-3 Study Area Groundwater

Ballona Creek is the dominant hydrologic feature within the Santa Monica Subbasin. Groundwater in the Santa Monica Subbasin moves mainly southward toward the Ballona escarpment and then flows toward to the ocean on the west side. Groundwater in the Santa Monica Subbasin is generally confined with some areas of unconfined or perched groundwater (MWDC 2007, 5-1).

Groundwater recharge in the Santa Monica Subbasin occurs primarily through percolation of precipitation and surface runoff onto the subbasin from the Santa Monica Mountains. The Inglewood fault appears to inhibit replenishment by underflow from the Central Basin to the east, although some inflow may occur at its northern end. The Newport-Inglewood Fault lies east of I-405 (SCEDC n.d.) (refer to the *Geologic, Seismic Conditions, and Hazardous Materials Technical Background Report* for more details).

Groundwater in the subbasin is high in total dissolved solids (TDS) and hardness and contains some volatile and semi-volatile organic contaminants. Average TDS is about 916 mg/L and ranges from about 729 to 1,156 mg/L. Hardness concentrations require softening, and volatile and semi-volatile contaminants require aeration treatment prior to use of the groundwater for the water supply (City of Santa Monica 2007b; MWDC 2007, 5-9). In 1996, MTBE contamination from leaking underground storage tanks forced the shutdown of Santa Monica's Arcadia and Charnock well fields (U.S. EPA 2007). Clean up is not expected to be completed for 5 to 20 years (2012 to 2027) (City of Santa Monica 2007a).

Potential for seawater intrusion may limit ability to store and extract water in this basin (MWDC 2007, 5-10). Groundwater levels in the Charnock subbasin are typically at mean sea level and groundwater levels in the Arcadia subbasin are about 200 feet above mean sea level (MWDC 2007, 5-7, Figure 5-4).

LRT Alternatives

Based on local topography and measured groundwater levels in the Charnock subbasin, which is a subbasin of the Santa Monica Basin upon which the project is located, depth to groundwater is estimated to be between 110 to 180 feet below ground surface (bgs) along Segment 1, and Segment 2. Based on topography and measured groundwater levels in the Charnock subbasin, depth to groundwater along Segment 1a is expected to be about 100 feet bgs. Depth to groundwater along Segment 3 and Segment 3a is estimated to be between 60 to 140 feet below ground surface (SMPCDD 2004, 4.5-41).[3] Because of the potential for perched (water trapped near the surface of the soil) groundwater, local groundwater levels may be higher along the alignment.

The only areas within the alignment corridor that have the potential for groundwater recharge are areas with pervious groundcover. Such areas are generally limited to the unpaved portions of Segment 1, including the ROW through the trench and from Overland Avenue west to Sepulveda Boulevard. Because of the minimal vegetation and soil compaction in Segment 1 pervious areas, infiltration rates would be low and, therefore, these areas would not be expected to contribute much to groundwater recharge. The majority of the alignment corridor in Segment 1a is paved, and therefore, would not contribute to groundwater recharge. Segment 2 is not located in a significant groundwater recharge area because the alignment corridor is

[3] Depth to groundwater measured for another project near 4th Street in Santa Monica indicated groundwater levels at about 47 to 50 feet bgs.

mostly impervious surface and not located in an area receiving substantial flow from the Santa Monica Mountains. In Segment 3 pervious areas are within landscape medians that might have moderate infiltration rates, depending upon the underlying soil conditions (e.g., fill material and compaction). Segment 3a is paved and would not contribute to groundwater recharge.

As mentioned above, groundwater recharge in the Santa Monica Subbasin is primarily from percolation of precipitation and surface runoff onto the subbasin from the Santa Monica Mountains. This alignment is not located in a forebay area, artificial recharge area, or area receiving substantial flow from the Santa Monica Mountains.

2.4 Water Supplies and Groundwater Usage

2.4.1 City of Culver City

The City of Culver City does not use any groundwater resources for public water supplies (U.S. EPA 2007). Surface water supplies are obtained from Colorado River Aqueduct, LA Aqueduct from Owens Valley, and State Water Project Aqueduct from northern California rivers (U.S. EPA 2007). Culver City residents receive their water from either the Los Angeles Department of Water and Power or the Southern California Water Company (U.S. EPA 2007). Residents who receive water from the Los Angeles Department of Water and Power receive only treated surface water imported by the MWD from the State Water Project, Colorado River Aqueduct, and via the Los Angeles Aqueduct from the Owens Valley (U.S. EPA 2007).
Prior to 1996, residents who received water from the Southern California Water Company received a portion of their water from the company's Charnock well field (U.S. EPA 2007). Since 1996, the company's well field was shutdown after MTBE was detected in Santa Monica's Charnock well field (U.S. EPA 2007).

2.4.2 City of Los Angeles

The residents of West Los Angeles do not use any groundwater resources for public water supplies (U.S. EPA 2007). Surface water supplies are obtained from Colorado River Aqueduct, LA Aqueduct from Owens Valley, and State Water Project Aqueduct from northern California rivers (U.S. EPA 2007).

Los Angeles joined MWD as a founding member in 1928. MWD provides a mix of municipal and industrial water services to a population of approximately 4,002,071. The Los Angeles Department of Water and Power (LADWP) is responsible for supplying the city with water and electricity. Los Angeles's primary source of water comes from the Owens Valley and Mono Basin areas of the eastern Sierra Nevada through the gravity-flow Los Angeles Aqueduct system (LAA) extending some 338 miles. Because of environmental commitments in the Mono Basin and Owens Valley, less water is available to Los Angeles from its LAA system.

2.4.3 City of Santa Monica

The City of Santa Monica joined MWD in 1928 as a founding member. MWD provides a mix of municipal and industrial water services to a population of approximately 90,000. There are currently 19 production wells (13 drinking water, 6 irrigation) within the Santa Monica Subbasin. Only five drinking water wells and four irrigation wells are currently in production (MWDC 2007,

5-4). The City of Santa Monica has both local groundwater and imported surface water supplies. Approximately 5-18 percent of the total water supply is supplied by local groundwater (depending on the availability of surface water supplies), and the rest is supplied by MWD (City of Santa Monica 2007a). Santa Monica uses groundwater from the Olympic subbasin wells on Olympic Boulevard and the Arcadia wells on Bundy Drive at Wilshire Boulevard (U.S. EPA 2007). Prior to 1996, about 50 percent of the supply within Santa Monica came from groundwater produced from the Arcadia, Charnock, and Olympic subbasins (MWDC 2007, 5-4). The rest of Santa Monica's water, about 50 percent, came from surface water imported by the MWD via the State Water Project Aqueduct from northern California rivers and the Colorado River Aqueduct (U.S. EPA 2007). Since 1996, when Santa Monica's Arcadia and Charnock well fields were shut down because of MTBE contamination, the majority of the city's water has been from imported water supplied by the MWD (U.S. EPA 2007). The remainder of Santa Monica's water comes from the Olympic subbasin wells, which have not been impacted by MTBE contamination (U.S. EPA 2007).

Groundwater in most of the original public water supply well fields require rehabilitation from groundwater contamination by leaking underground storage tanks discovered in 1996. The city's 2006 Water Quality Report demonstrates that levels of MTBE in remaining in-service wells are below detection (City of Santa Monica 2007a).

The Arcadia Treatment Plant, located in West Los Angeles, is still in operation and provides simple treatment of groundwater for several parameters including softening for hardness, aeration for volatile and semi-volatile chemical contaminants, and chlorination for bacteria (City of Santa Monica 2007b). The resulting water quality meets or exceeds state and federal water quality requirements (City of Santa Monica 2007b).

3. REGULATORY FRAMEWORK

3.1 Federal

3.1.1 Clean Water Act

The federal CWA was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Other provisions of the CWA related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from nonpoint sources. The EPA has delegated responsibility for implementation of portions of the CWA to the State Water Resource Control Board (SWRCB) and the RWQCB, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program.

3.1.2 Executive Order 11988 (Floodplain Management)

Executive Order 11988 (Floodplain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial floodplain values. Specifically, Federal agencies are directed to avoid conducting, allowing, or supporting actions on the base

floodplain unless the agency finds that the base floodplain is the only practicable alternative location. Similarly, Department of Transportation (DOT) Order 5650.2, which implements Executive Order 11988 (Floodplain Management) and was issued pursuant to the *National Environmental Policy Act of 1969*, the *National Flood Insurance Act of 1968*, and the *Flood Disaster Protection Act of 1973*, prescribes policies and procedures for ensuring that proper consideration is give to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests. Refer to Appendix 1 for details.

3.1.3 Floodplain Development

Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies and approved agency studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of Special Flood Hazards Areas (SFHAs), including the 100-year flood zone.

FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Federal regulations governing development in a SFHA are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the National Flood Insurance Program (NFIP) to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. In addition, the *Flood Disaster Protection Act of 1973* and the *National Flood Insurance Reform Act of 1994* mandate the purchase of flood insurance as a condition of Federal or Federally related financial assistance for acquisition and/or construction of buildings in SFHAs of any community.

3.2 State

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The Los Angeles RWQCB implements a number of federal and state laws, the most important of which are the state *Porter-Cologne Water Quality Control Act* and the federal CWA. In California, the RWQCB issues Water Quality Certifications pursuant to Section 401 of the CWA. This section of the CWA protects water quality within the Sepulveda Channel.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCB. WDRs for discharges to surface waters meet requirements for National Pollution Discharge Elimination System (NPDES) permits, which are further described below. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater, and process and wash-down wastewater.

3.2.1 Porter-Cologne Water Quality Control Act

The *Porter-Cologne Water Quality Control Act* authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwaters) and directs

the RWQCB to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

3.2.2 Coastal Act

The Coastal Act mandates that the California Coastal Commission protect and enhance the resources of the coastal zone, an area specifically mapped by the legislature. The coastal zone extends from a boundary three miles seaward of the coastline to an inland boundary that varies in width. In urban areas the boundary may be only several hundred feet. In more rural areas it can extend several miles inland.

The Coastal Commission's primary mission is to plan for and regulate land and water uses in the coastal zone consistent with the policies of the Coastal Act. Commission jurisdiction in the coastal zone is broad and applies to private and public entities and covers virtually all manner of development activities, including any division of land, a change in the intensity of use of state waters and of public access to them. Chapter 3 of the Coastal Act spells out the coastal resources planning and management policies of the state.

Development within the coastal zone may not occur until a coastal development permit has been issued. Through its management program, the Coastal Commission issues coastal development permits for a jurisdiction until the local government has adopted a Local Coastal Program (LCP) and the Commission has certified the LCP and delegated permitting authority. If the proposed project Segment 3a, Colorado, is chosen, portions of this alignment corridor would extend into the coastal zone (Colorado Boulevard from 4th Street to 2nd Street) and would be subject to a coastal development permit.

3.2.3 National Pollutant Discharge Elimination System (NPDES)

The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) to surface waters of the U.S. Nonpoint source pollution often enters the receiving water in the form of overland flow, which is surface runoff that is not delivered by pipelines or other discrete conveyances. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Two exceptions that are regulated under the NPDES program are: (1) diffuse source discharges caused by general construction activities of over one acre; and (2) stormwater discharges in municipal stormwater systems as a separate system in which runoff is carried through a developed conveyance system to specific discharge locations. These are apparent nonpoint source discharges, but because the diffuse source pollution is conveyed in a confined, discrete conveyance system that discharges at a specific location or locations to surface water, for regulatory purposes, they are considered point source dischargers.

For point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. However, because municipal stormwater and construction stormwater sources are diffuse and vary with site characteristics, effluent limitations are not practical. Therefore, because the actual source is diffuse and spread out over a large area, instead of effluent limits, the reduction of pollutants in urban stormwater discharge is regulated through the use of structural and nonstructural best management practices (BMPs) to the maximum extent practicable (MEP).

For these diffuse source discharges, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits, while Section 307 of the CWA describes the factors that the EPA must consider in setting effluent limits for priority pollutants. Typical BMPs used to manage runoff water quality during operational activities include controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets, cleaning parking lots on a regular basis, incorporating peak-flow reduction and infiltration features (such as grass swales, infiltration trenches, and grass filter strips) into landscaping, and implementing educational programs.

The RWQCB also requires that coverage under the General Construction NPDES Permit be obtained for construction grading activities for all projects greater than one acre in compliance with the state Construction General Permit (see below for more details). This permit requires implementation of nonpoint source control of stormwater pollution runoff through the application of BMPs meant to reduce the amount of pollutants entering streams and other water bodies.

The 1987 amendments to the CWA directed the federal EPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II (1999) addresses smaller discharges defined by EPA that are not included in Phase I, and construction activities that affect one to five acres. Under Phase II, each permittee must implement a Stormwater Management Program that addresses six minimum control measures associated with construction and operational activities, including (1) public education and outreach, (2) public participation/ involvement, (3) illicit discharge detection and elimination, (4) construction site stormwater runoff control for sites greater than 1 acre, (5) post-construction stormwater management in new development and redevelopment, and (6) pollution prevention/good housekeeping for municipal operations. These control measures will typically be addressed by developing BMPs.

Construction General Permit

The SWRCB permits all regulated construction activities under Order No. 98-08-DWQ (1999), which requires that, prior to beginning any construction activities, the permit applicant must obtain coverage under the Construction General Permit by preparing and submitting a Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) to the SWRCB; and, by implementing the SWPPP to mitigate potential construction effects on receiving water quality. In addition, 2003 revisions to the original Construction General Permit clarify that all construction activity, including small construction sites that are part of a larger common plan, must obtain coverage under this Construction General Permit. Because construction of the Project would disturb more than one acre, it would be subject to these permit requirements.

Required elements of a SWPPP include (1) site description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction

erosion and sediment control requirements; and (6) non-stormwater management. The SWPPP must include BMPs that address source control, and, if necessary, include BMPs that address specific pollutant control.

Examples of typical construction BMPs in completed SWPPPs include scheduling or limiting activities to certain times of year; prohibiting certain construction practices; implementing equipment maintenance schedules and procedures; implementing a monitoring program; other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water.

A Draft General Construction Permit has been prepared by the SWRCB as of March 18, 2008. If adopted, prior to the beginning of construction activities, the proposed project would be subject to the new requirements in the amended General Construction Permit. This Draft Construction General Permit differs from Order 99-08-DWQ in the following significant ways:

- Technology-based Numeric Action Levels (NALs): this General Permit includes NALs for pH and turbidity.
- Technology-based Numeric Effluent Limitations (NELs): this General Permit contains NELs for pH during any construction phase where there is a high risk of pH discharge and turbidity for all discharges. The turbidity NEL of 1000 NTU is essentially the intersection of the realm of minimum-technology that sites have to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/ Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.
- Risk-based Permitting Approach: this General Permit establishes a four-level risk calculation, with only the lowest three levels covered under this General Permit. Those dischargers that are determined to be Risk Level 4 are not covered by this General Permit, and thereby are required to submit a Report of Waste Discharge (ROWD) to the appropriate Regional Water Board and seek coverage under an individual or other applicable general permit.
- Minimum Requirements Specified: this General Permit specifies more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.
- Project Site Soil Characteristics Monitoring and Reporting: this General Permit requires all dischargers to monitor and report the soil characteristics at the project location. This primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.
- Effluent Monitoring and Reporting: this General Permit requires effluent monitoring and reporting for pH and turbidity in stormwater discharges. The purpose of this monitoring is to be used to determine compliance with the NELs and evaluate whether NALs included in this General Permit are exceeded.

- Receiving Water Monitoring and Reporting: this General Permit requires some Risk Level 2 and Risk Level 3 dischargers to monitor receiving waters.
- New Development and Re-development Stormwater Performance Standards: this General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize and/or mitigate post-construction stormwater runoff impacts. .
- Rain Event Action Plan: this General Permit requires sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.
- Site Photographic Self Monitoring and Reporting: this General Permit requires all projects to provide photographs of their sites at least once quarterly if there are rain events causing a discharge during that quarter. The purpose of this requirement is to help Regional Water Board staff prioritize their compliance evaluation measures (inspections, etc.). In addition, this reporting will make compliance-related information more available to the public.
- Annual Reporting: this General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information.
- Certification/Training Requirements for Key Project Personnel: this General Permit requires that key personnel (e.g., SWPPP preparers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with Permit requirements.

Industrial General Permit

The SWRCB and RWQCBs regulate all specified industrial activities under the Waste Discharge Requirements (WDRs) for Discharges of Stormwater Associated with Industrial Activities Excluding Construction Activities (Industrial General Permit, SWRCB Order No. 97-03-DQ, NPDES General Permit No. CAS000001). The Industrial General Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The Industrial General Permit also requires the development of a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce stormwater pollution are described. Any Industrial General Permit noncompliance constitutes a violation of the CWA and the Porter-Cologne Water Quality Control Act and is grounds for *(a)* enforcement action, *(b)* Industrial General Permit termination, revocation and reissuance, or modification, or *(c)* denial of an Industrial General Permit renewal application. The proposed project is a Category 8 industrial discharger because of the associated maintenance facilities (Category 8 includes transportation facilities that conduct any type of vehicle maintenance such as fueling, cleaning, repairing, and others), and therefore, is subject to conditions of the Industrial General Permit.

3.3 Regional

3.3.1 Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The Los Angeles RWQCB has prepared the Basin Plan in accordance with state and federal law. The Basin Plan sets forth the regulatory water quality standards for surface waters and groundwater within its region. The applicable water quality standards address both the designated beneficial use for each water body and the water quality objectives to meet designated beneficial uses. Where multiple designated beneficial uses exist, water quality standards must protect the most sensitive use. Water quality objectives are typically numeric, although narrative criteria, based upon biomonitoring methods, may be employed where numerical objectives cannot be established or where they are needed to supplement numerical objectives.

3.3.2 Total Maximum Daily Loads (TMDL)

In accordance with the federal CWA and state *Porter-Cologne Water Quality Control Act*, TMDLs have been developed and incorporated into the Basin Plan for some pollutants identified on the 303(d) list as causing contamination in project sites receiving waters. For other pollutants listed on the 303(d) list (e.g., Section 303[d] of the *Clean Water Act*), TMDLs are scheduled for development, undergoing development, or in the process of review by the SWRCB.

3.3.3 NPDES Municipal Permit

The project area is located in Los Angeles County and would therefore be regulated under the Los Angeles County Municipal NPDES Stormwater Permit (Municipal Permit), NPDES Permit No. CAS004001 (Order No. 01-182) (LARWQCB2007). Under the Municipal Permit, development would have to comply with the Los Angeles County Drainage Area Master Plan and the Standard Urban Stormwater Mitigation Plan (SUSMP).

Master Drainage Plan for the Los Angeles County

The Los Angeles County Department of Public Works (LACDPW) has developed Master Drainage Plans (MDPs) that address many individual watershed areas within the District's jurisdiction. The MDPs include proposed drainage facilities to protect upstream and downstream properties from serious flooding. Conceptual designs and project cost estimates are included in most plans. Some MDPs are the bases for Area Drainage Plans (ADPs), which are funding mechanisms established to pay for major drainage facilities within some MDPs. The ADPs impose fees that must be paid by land developers.

Standard Urban Stormwater Mitigation Plan (SUSMP)

The SUSMP requires that all projects that fall into one of nine categories incorporate appropriate SUSMP requirements into the project plans. All permittees (including the City of Culver City, City of Los Angeles, and City of Santa Monica) are required to approve project plans as part of the development approval process before issuing a building or grading permit for projects in the nine mentioned categories. The proposed project would be subject to SUSMP requirements because it would include development of parking lots that would be 5,000 square feet or larger or would have 25 or more parking spaces. The SUSMP and Site-Specific

Stormwater Mitigation Plans must be incorporated into project plans. Numerical design criteria for volumetric or flow-based treatment controls are included in Section 5.50.040. Prior to receiving a Final Inspection or Occupancy Permit, whichever is applicable, verification that construction of all stormwater pollution control BMPs and structural and/or treatment control BMPs identified on the approved project plans have been completed is required through a signed certification statement.

Discharge of Nonhazardous Contaminated Soils WDRs

Waste Discharge Requirements for Discharge of Non-Hazardous Contaminated Soils and Other Wastes in Los Angeles River and Santa Clara River Basins (Order No. 91-93) allows the disposal of up to 100,000 cubic yards of nonhazardous contaminated soils and other wastes for a maximum period of 90 days. This requirement applies to the proposed project because there are known contaminated soils near the alignments and because portions of the alignments are along an old railroad right-of-way, where contaminated soils may exist (refer to Section 3.9 [Hazards and Hazardous Materials] for areas of potential contamination). This WDR also requires that waste used as soil backfill shall not contain any substance in concentrations toxic to human, animal, plant, or aquatic life. ~~This~~ The Construction General Permit allows for temporary stockpiling of nonhazardous, contaminated soils until they can be appropriately disposed of or reused, per permit conditions.

3.3.4 Construction Dewatering General Permit

WDRs for Discharges of Groundwater from Construction Project Dewatering to Surface Waters In Coastal Watersheds of Los Angeles and Ventura Counties (R4-2003-0111, General NPDES Permit No. CAG994004). Discharges covered by this permit include, but are not limited to, treated or untreated groundwater generated from permanent or temporary dewatering operations. This permit includes effluent and receiving water limitations for metals and other potential contaminants in discharges from dewatering operations to freshwater and saltwater, as well as monitoring and reporting requirements. This WDR would apply to the proposed project if there is construction dewatering activities.

3.4 Local

3.4.1 City of Culver City Municipal Code[4]

The City of Culver City incorporates requirements of the Municipal NPDES Permit into its Municipal Code and into the *City of Culver City Stormwater Management and Discharge Control Program* (Chapter 5.05 Stormwater and Urban Runoff Pollution Control and Ord. No. 2002-014 Section 1 (part)). The proposed project would be considered a Planning Priority Project and Significant Development/Redevelopment project according to local guidelines because it would create more than 100,000 square feet of impervious industrial or commercial surfaces and/or 5,000 square feet (with at least 25 spaces) of surface parking. Municipal Code requirements are discussed in more detail under the pertinent impact analysis.

[4] City of Culver City. Municipal Code of the City of Culver City, California, current through Ord. 2007-005, passed 7-2-07. American Legal Publishing Corporation. Available at http://www.amlegal.com. Accessed November 9, 2007.

3.4.2 City of Los Angeles Municipal Code[5]

Stormwater and urban runoff pollution control are regulated under Chapter 6, Division 4, Article 4.4 of the Municipal Code. Section 64.70.02 describes pollutant discharge controls including prohibition of non-stormwater to storm drains or receiving waters; spill controls; the requirement to prevent, control, and reduce stormwater pollutants, including construction BMPs; and controlling pollutants from parking lots through rainy season debris removal. Section 64.72 describes the required stormwater pollution control measures for development planning and construction activities (Ord. No. 173,494). The provisions of this section set forth requirements for construction activities and facility operations of development and redevelopment projects to comply with the requirements of the Standard Urban Stormwater Mitigation Plan as defined by the "Development Best Management Practices Handbook" adopted by the Board of Public Works (Ord. No. 178,132). Municipal Code requirements are discussed in more detail under the pertinent impact analysis.

3.4.3 City of Santa Monica Municipal Code[6]

Urban runoff pollution prevention is regulated under Chapter 7.10 and Chapter 8.08 of the Santa Monica Municipal Code. Section 8.08.050 describes the required permit(s) for erecting, constructing, enlarging, altering, repairing, moving, improving, removing, converting, or demolishing any building, structure or building service equipment regulated by these Chapters. The Municipal Code also includes Right-of-Way Management Regulations (Chapter 7.06) to manage the installation of facilities in or along the public right of way. Municipal Code requirements are discussed in more detail under the pertinent impact analysis.

4. ENVIRONMENTAL CONSEQUENCES

4.1 Analytic Method

The methodology for the evaluation of impacts to hydrology and/or water quality involves an analysis of existing data related to flooding, drainage, and water quality, and an assessment of whether the proposed action would substantially degrade surface or ground water quality; alter drainage patterns in a manner that would cause flooding, erosion, or siltation; result in exposure of people and/or property to water-related hazards; or otherwise conflict with applicable laws related to hydrology and water quality. A detailed drainage study or a hydrologic flow analysis is not yet available; therefore, addressed impacts are evaluated qualitatively.

4.2 Environmental Criteria

FTA and Expo have identified the following CEQA criteria, taken, or adapted, from Appendix G of the 2008 CEQA Guidelines, as appropriate for this project. The FTA does not have specific criteria for evaluating effects under NEPA; therefore, the FTA and Expo have determined that

[5] City of Los Angeles. Los Angeles Municipal Code. November 5, 2007. American Legal Publishing Corporation http://www.amlegal.com/los_angeles_ca/. Accessed November 9, 2007.
[6] City of Santa Monica. Santa Monica Municipal Code Current through Ordinance 2234CCS. August, 2007. Quality Code Publishing, Seattle, WA. http://www.qcode.us/codes/santamonica/. Accessed November 9, 2007.

an assessment based on CEQA criteria provides a reasonable means for determining environmental effects. The project would have significant impacts on water resources, for purposes of CEQA and NEPA, if the project does any of the following:

- Conflict with applicable legal requirements related to hydrology or water quality, including a violation of state water quality standards or waste discharge requirements;
- Substantially degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources in a manner that would cause water-related hazards, such as subsidence;
- Alter the existing drainage pattern of the site or area in a manner that would cause substantial flooding, erosion, or siltation;
- Create or contribute to runoff that would exceed the drainage and flood control capacity of existing or planned stormwater drainage systems; or
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding.

4.3 Analysis

Criterion	**Would the proposed project conflict with applicable legal requirements related to hydrology or water quality, including a violation of state water quality standards or waste discharge requirements?**

Impact WQ-1 Implementation of the proposed project could increase the potential amount of pollutants in stormwater runoff that could cause or contribute to a violation of water quality standards. Compliance with regulatory requirements associated with hydrology and water quality would ensure that there would be *no adverse effect*.

The applicable waste discharge requirements (WDRs) for the Expo Phase 2 project are the Municipal NPDES Permit, the Construction General Permit, and possibly, the Discharge of Non-Hazardous Contaminated Soils WDRs and the Construction Dewatering WDRs.

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. Widening the I-405 would physically modify the area and impact water discharge, but no conflict is anticipated. The project would comply with Caltrans NPDES permit regulations, runoff would drain into freeway storm drains instead of city storm drains, and the project would not further impair 303(d)-listed water bodies. Potential operational impacts on water quality associated with increased bus capacity would be minimal. Therefore, the No-Build Alternative would not violate any water quality standards or waste discharge requirements. The No-Build Alternative would result in a ***no adverse effect***.

TSM Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. As a result, operational effects on water quality would be minimal, and the TSM Alternative would result in a ***no adverse effect***.

LRT Alternatives

Construction

Construction of the LRT Alternatives would include installation of two parallel LRT tracks, a bike/pedestrian path, an overhead catenary wire system, traction power substations, signaling and communication systems, two maintenance facilities, and seven to eight stations, several of which would have associated parking facilities. Along some segments of the alignment, construction would also include aerial track structures, platforms, and/or street widening. In at-grade segments, LRT tracks would be installed in the existing roadway median or a designated traffic lane and separated from street traffic by curbs, and, in some locations, fencing or other barriers. Construction activities associated with the LRT Alternatives would include temporary land-disturbing activities such as demolition of existing structures, grading and excavation, filling and compaction, paving, trenching for utility infrastructure installation, and painting.

The delivery, handling, and storage of construction materials and wastes, as well as the use of construction equipment, would increase the potential of stormwater contamination. Potential pollutants include spills or leaks from heavy equipment and machinery, resulting in oil and grease contamination; release of paints, solvents, cleaning agents, and metals; exposure and erosion of contaminated soils[7] as a result of the demolition of structures and soil excavation; release of concrete compounds and paving materials; release of pesticides (herbicides, insecticides, fungicides) associated with site preparation work; and larger debris, such as trash and organic matter. These contaminants have varying effects, including toxicity to aquatic organisms, contamination of drinking supplies, bioaccumulation in larger species, and health hazards and aquatic ecosystem damage associated with introduction of bacteria, viruses, and other vector-borne contaminants.

Construction activities would also increase the potential for erosion and sedimentation in surface water bodies. Removal of existing structures, pavement, and vegetation could expose underlying soils to stormwater runoff or wind, which could result in increased sediment release and transport in the Ballona Creek and Pico-Kenter Storm Drainage Area watersheds. Erosion and sedimentation affect water quality by interfering with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported downstream, which can contribute to overall degradation of water quality.

Potential construction effects specific to individual segments of the proposed LRT alignment are discussed below.

[7] Refer to the *Hazardous Materials Technical Background Report* for details on potential contamination.

Segment 1: Expo ROW

In addition to the general construction water quality effects discussed above, construction activities along Segment 1 could result in water quality impacts at several specific locations.

Between Cardiff Avenue and Motor Avenue, the alignment would run along an elevated embankment that is higher than adjacent properties to the south and lower than I-10 to the north. Excavation, light grading, and installation of the LRT tracks in this portion of the corridor could create conditions susceptible to erosion and sediment transport processes because runoff would run downhill from I-10 through the alignment corridor. Disturbed soils could be subject to surface erosion and sediment transport due to the scouring effect of flows from adjacent, higher elevation impervious areas.

Replacement of the Motor Avenue and National Avenue bridges would include demolition of existing structures, and possibly excavation and fill to support the new bridge structures. Demolition of the existing bridge structures could release wastes and construction materials into stormwater runoff. Additionally, excavated soil and fill materials could be more susceptible to erosion and sediment transport.

Two at-grade stations (National/Palms and Expo/Westwood) would be constructed along Segment 1. There would be no parking at the National/Palms Station. A 170-space surface parking lot would be constructed at the Expo/Westwood Station. Construction of the stations would include minimal grading, structure/ pavement removal, and repaving. Additional minimal grading and paving would be required for construction of parking within the undeveloped area between Overland Avenue and Westwood Boulevard, and possibly to Military Avenue, for the Expo/Westwood Station. Additionally, construction of the National/Palms Station would require additional fill material, to widen the base and installation of a retaining wall. At the station sites, fill materials and excavated soils could be susceptible to erosion and sediment transport.

Installation of the LRT tracks and bicycle/pedestrian path along the unpaved, at-grade portions of Segment 1, construction at road crossings, and road widening at Overland Avenue and Westwood Boulevard would involve minimal grading, which would not contribute to a substantial erosion and sediment transport hazard. However, as discussed above, paving activities could release contaminants into surface water bodies.

Large box-culvert storm drains are located under Overland Avenue, Military Avenue, Westwood Boulevard, and I-10. It is not expected that construction activities would affect these culverts.

Segment 1a: Venice/Sepulveda

In addition to the general construction water quality effects discussed above, construction activities along Segment 1a could result in water quality impacts at certain specific locations. Construction of the proposed aerial structures (from Expo Phase 1 Terminus Station to Main Street, Greenfield Avenue to Charnock Road, and Charnock Road to National Boulevard) and proposed aerial stations (Venice/Sepulveda and National/Sepulveda Stations) would require fill materials and excavation for installation of pilings and supports for the overhead aerial structures. Excavated soil and fill materials used for support structures could be susceptible to erosion and sediment transport. Along Sepulveda Boulevard, just past Rose Avenue, the aerial structure would cross the Sepulveda Channel. Construction activities would be directly over water and could discharge sediment, waste, and construction materials to the Sepulveda Channel.

Installation of the LRT tracks and bicycle/pedestrian path along unpaved, at-grade portions of Segment 1a (from Westwood Boulevard to Sepulveda Boulevard), paved, at-grade portions of the alignment (from Main Street to Westwood Avenue), road widening along Venice Boulevard, construction at road crossings, construction of the at-grade Venice/Motor Station, and removal of road crossings on Venice Boulevard would involve minimal grading, which would not contribute to a substantial erosion and sediment transport hazard. However, as discussed above, removal of pavement and structures and paving activities could release contaminants into surface water bodies.

Segment 2: Sepulveda to Cloverfield

In addition to the general construction water quality effects discussed above, construction activities along Segment 2 could result in water quality impacts due to construction of aerial structures. Construction of the proposed aerial structure (from Bundy Drive to ~~Carmelina~~ Centinela Avenue) and the aerial Expo/Bundy Station would require fill materials and excavation for installation of pilings and supports for the overhead aerial structures. Excavated soil and fill materials used for support structures could be susceptible to erosion and sediment transport. Excavated soil and fill materials for construction of aerial support structures could be susceptible to erosion and sediment transport.

Installation of the LRT tracks and bicycle/pedestrian path along at-grade portions of Segment 2 (from Carmelina Avenue to Cloverfield Boulevard), road widening along Sepulveda Boulevard, construction at road crossings, construction of the at-grade Expo/Sepulveda and Olympic/26th Street Stations and station parking, and construction of the Stewart Street Maintenance Facility would involve minimal grading, which would not contribute to a substantial erosion and sediment transport hazard. However, as discussed above, removal of pavement and structures and paving activities could release contaminants into surface water bodies.

Segment 3: Olympic

In addition to the general construction water quality effects discussed above, construction activities along Segment 3 could result in water quality impacts due to construction of aerial structures. Construction of the proposed aerial structure (from 11th Street to the Santa Monica Terminus Stations) and the aerial Colorado/4th Street Santa Monica Terminus Station would require fill materials and excavation for installation of pilings and supports for the overhead aerial structures. Excavated soil and fill materials used for support structures could be susceptible to erosion and sediment transport. Excavated soil and fill materials for construction of aerial support structures could be susceptible to erosion and sediment transport.

Installation of the LRT tracks and bicycle/pedestrian path along at-grade portions of Segment 3 (from Cloverfield Boulevard to 11th Street), road widening along Olympic Boulevard, construction at road crossings, construction of the at-grade Olympic/17th Street Station, and construction of station parking would involve minimal grading, which would not contribute to a substantial erosion and sediment transport hazard. However, as discussed above, removal of pavement and structures and paving activities could release contaminants into surface water bodies.

Segment 3a: Colorado

Segment 3a would run mostly within Colorado Boulevard, an existing paved roadway. The entire length would be at-grade and no fill would be required. Installation of the LRT tracks and

bicycle/pedestrian path along at-grade portions of Segment 3a (from Cloverfield Boulevard to 4th Street), road widening along Colorado Boulevard, construction at road crossings, construction of the at-grade Colorado/17th Street and the Santa Monica Terminus Stations, and construction of station parking would involve minimal grading, which would not contribute to a substantial erosion and sediment transport hazard. However, as discussed above, removal of pavement and structures and paving activities could release contaminants into surface water bodies.

Regulatory Requirements

All construction activities, including construction of the stations, road crossings, installation and realignment of utilities, installation of aerial structures, installation of tracks, and demolition activities would be subject to existing regulatory requirements, including BMPs for erosion and sediment control, and material and waste handling and management, as outlined below.

City Municipal Code

City Municipal Codes regulate potential discharge of pollutants associated with construction activities and would require the Project Developer to implement construction BMPs prior to receiving a building or grading permit.

Section 5.05.035 of the Culver City Municipal Code requires erosion, sediment, and pollution controls; equipment and vehicle maintenance BMPs; stockpiles and disturbed area management; and other stormwater quality BMPs for construction activities. An approved Local SWPPP (LSWPPP) and Wet Weather Erosion Control Plan (ECP) for construction activities, consistent with the Municipal NPDES Permit, would also be required prior to the issuance of any building or grading permit.

The City of Los Angeles Department of Building and Safety also requires that prior to issuing a grading permit or building permit, the applicant must incorporate into the plan documents BMPs necessary to control stormwater pollution from sediments, erosion, and construction materials leaving the construction site in accordance with the provisions contained in the "Development Best Management Practices Handbook, Part A Construction Activities" (Section 91.206.4.1, Ord. No. 172,673). Furthermore, Section 91.7007.1 includes restrictions on construction and work during the rainy season (October 1 to April 15) (Ord. No. 172,592); Section 91.7013 describes the requirements for erosion control and drainage devices; and Section 91.7014 provides additional construction requirements and limitations to protect disturbed areas from erosion and sediment transport such as finished slope characteristics (Section 91.7014.1) and requirement for flood and mudflow protection (Section 91.7014.3) (Ord. No. 171,175). The Board of Public Works may also require that the permittee prepare and submit plans for the installation of temporary erosion control devices not later than September 15 preceding the rainy season (Section 61.02, Ord. No. 175,596). The authority to inspect and enforce stormwater pollution control measure is provided for in Section 64.72.04.

Section 7.10.060 of the City of Santa Monica Municipal Code includes requirements for urban runoff for construction sites such as compliance with the Construction General Permit and submittal of the SWPPP to the City, as well as the RWQCB; retention of all polluted runoff on-site; sediment tracking BMPs; erosion and sediment control BMPs; materials management; equipment maintenance BMPs; and drainage controls, where necessary. The City also includes ROW Management Regulations (Chapter 7.06) to establish regulations to manage the installation of facilities in or along the Public ROW. Section 8.08.050 describe the required permit(s) for erecting, constructing, enlarging, altering, repairing, moving, improving, removing,

converting, or demolishing any building, structure or building service equipment regulated by this Chapter. This section also provides for construction and post construction inspection to ensure that permit conditions are met. Additionally, No-Building permit or demolition permit shall be issued by the City for any development that requires a coastal development permit until such time as a coastal development permit has been issued for such development (Section 8.08.70); and while it is unlikely that the LRT Alternatives would require a coastal development permit, a finding of consistency with the Local Coastal Plan would be obtained.

Construction General Permit

The proposed project would cumulatively disturb more than one acre of land and would therefore require coverage under the Construction General Permit. Coverage under this permit would include preparation of a SWPPP, including typical construction BMPs. Typical construction BMPs for compliance with the NPDES Construction General Permit include, but are not limited to: scheduling or limiting activities to certain times of year; prohibiting certain construction practices; vehicle and equipment maintenance and operations; implementing a monitoring program; erosion and sediment control BMPs; vehicle tracking BMPs; waste and materials management such as concrete wash out areas, stockpile management, and spill prevention and control; protected designated staging areas; and others. The Construction General Permit is considered protective of water quality, and the Cities' Municipal Code would ensure compliance with the Construction General Permit.

Construction Dewatering General Permit

If construction dewatering activities are necessary, because of either locally high groundwater or dewatering of trenches and excavations during the rainy season, the Expo Authority and their contractor(s) would have to comply with the Construction Dewatering General Permit. This General Permit includes effluent and receiving water limitations for metals and other potential contaminants in discharges from dewatering operations to freshwater and saltwater, as well as monitoring and reporting requirements that are considered protective of water quality. To be covered under this General Permit, a discharger must do the following:

a. Demonstrate that pollutant concentrations in the discharge shall not cause violation of any applicable water quality objective for the receiving waters, including discharge prohibitions.
b. Demonstrate that discharge shall not exceed the water quality criteria for toxic pollutants (Attachment B and Part E of this Order), and there shall be no reasonable potential to cause or contribute to an excursion above the criteria.
c. Perform reasonable potential analysis using a representative sample of groundwater to be discharged. The sample shall be analyzed and the data compared to the water quality screening criteria for the constituents listed on Attachment A to determine the most appropriate permit.
d. The discharge shall not cause acute nor chronic toxicity in receiving waters.
e. If necessary, the discharge shall pass through a treatment system designed and operated to reduce the concentration of contaminants to meet the effluent limitations of this Order.
f. The discharger shall be able to comply with the terms or provisions of this General Permit.

To be authorized to discharge under this General Permit, the discharger must submit an ROWD and an application for an NPDES permit. Upon receipt of the application, the Executive Officer would determine the applicability of this Order to such a discharge. If the discharge is eligible, the Executive Officer would notify the discharger that the discharge is authorized under the terms and conditions of this Order and prescribe an appropriate monitoring and reporting program. For new discharges, the discharge shall not commence until receipt of the Executive Officer's written determination of eligibility for coverage under this general permit or until an individual NPDES permit is issued by the Regional Board.

Discharge of Non-Hazardous Contaminated Soils WDRs

These WDRs basically allow for temporary stockpiling of non-hazardous, contaminated soils until they can be appropriately disposed of or reused, per permit conditions. Therefore, no hazardous contaminated excavated soils would be stored on-site and exposed to erosion and sediment transport hazards. The temporary and non-hazardous nature of this discharge is considered to pose a minimal risk to water quality. Additionally, implementation of the Construction General Permit and Municipal Code includes BMPs for stockpiles and material management would ensure that materials are not transported off-site and to the storm drain system.

~~Coastal Development Permit~~

~~If Segment 3a were chosen, the proposed project would have to obtain a finding of consistency with the Local Coastal Plan or a coastal development permit because the area west of 4th Street is located within the coastal zone. Development in this area must be consistent with policies of the Coastal Act, outlined above.~~

Determination of Effect

Surface disturbance activities within the LRT Alternative corridors would be minimal and therefore, potential erosion and sediment transport would not be substantial. Additionally, the cities of Los Angeles, Santa Monica, and Culver City include provisions within their Municipal Code requiring compliance with the Construction General Permit prior to receiving a building or grading permit~~, and obtaining a coastal development permit for Segment 3a~~. Construction dewatering activities would not be allowed until the discharge is covered under the Construction Dewatering General Permit. Potential discharge of non-hazardous contaminated soils is not considered a substantial risk to water quality and implementation BMPs, in accordance with Municipal Codes and the Construction General Permit, would further minimize potential risk to water quality. These three cities' Municipal Codes provide for construction site inspection during operations and after completion of activities to ensure that permit requirements are implemented and that appropriate construction BMPs are in place and operation. The Construction General Permit requires preparation of a SWPPP including BMPs for protecting stormwater quality and preventing runoff and material transport from construction sites. Therefore, Municipal Code and the Construction General Permit would ensure that the LRT Alternatives would not violate any WDRs during construction activities. ***No adverse effect*** would occur.

Operation

~~It is anticipated that the proportion of impervious to pervious surfaces in the study area would remain similar to existing conditions with implementation of the LRT Alternatives; that is, the mostly paved study area would remain paved.~~ The LRT Alternatives could result in a small

amount of additional impervious areas in Segment 1 (approximately 1.1 acre), Segment 1a (approximately 0.7 acre), and Segment 3 (approximately 0.6 acre) for stations, station parking facilities, and the guideway. In some cases, such as the maintenance facility, existing impervious surface cover would be replaced with pervious surface cover. Therefore, facilities associated with the LRT Alternatives would not contribute to a substantial increase in stormwater runoff. Moreover, all runoff leaving the alignment would be routed to existing underground storm drain systems and/or lined channels. Therefore, any potential increase in stormwater volume within the alignments would not cause or contribute to off-site erosion water quality or habitat degradation.

Pollutants and their concentrations in runoff vary according to land cover, land use, topography, and the amount of impervious cover, as well as the intensity and frequency of irrigation or rainfall. Runoff in developed areas may typically contain oil, grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. Trash and debris may also be released into stormwater drains. Pollutants could be generated during the operation or the LRT Alternatives as a result of widened roads, operation of the bicycle/pedestrian pathway, and operation of stations and station parking lots. Operation of the light-rail vehicles along the guideway would not be expected to cause or contribute to substantial additional pollutant loads because the vehicles would be powered by overhead electrical lines and would generate only a small increase in oil, grease, and metals.

Potential operational effects specific to individual segments of the proposed LRT alignment are discussed below.

Segment 1: Expo ROW

In addition to the operational water quality effects discussed above, the parking lot at the Expo/Westwood Station could result in the release of vehicular pollutants, such as metals and oil and grease, in stormwater runoff.

Segment 1a: Venice/Sepulveda

In addition to the operational water quality effects discussed above, the parking lot at the Sepulveda/National Station could result in the release of vehicular pollutants, such as metals and oil and grease, in stormwater runoff.

Along Sepulveda Boulevard, just past Tilden Avenue, the alignment corridor crosses the Sepulveda Channel. The proposed project would operate within the center median of an aerial structure in this area and would not increase the potential for pollutant transport to the Sepulveda Channel.

Segment 2: Sepulveda to Cloverfield

In addition to the operational water quality effects discussed above, a maintenance facility site (the Stewart Maintenance Facility) has been proposed in this segment. Although it would not substantially alter the amount of impervious surfaces, this facility could potentially release oil and grease, metals, solvents (e.g., degreasing chemicals), paints, gross pollutants (e.g., trash and debris), and other pollutants into the storm drain system. However, *Metro Fire/Life Safety Design Criteria* would require that the drainage system for the Maintenance Facility include oil separators, grease and sand traps on all floor drainage systems which service maintenance and

vehicle storage areas to provide for the extraction of oil, grease, sand and other substances that are harmful or hazardous to the structure or public drainage systems, thereby reducing this impact. Additionally, all solvents used in association with the maintenance activities will be water based and, the *Metro Design Criteria* would require that the wash facility be equipped with required waste water treatment facility.

Also, parking lots at the Expo/Sepulveda and Expo/Bundy could result in the release of vehicular pollutants, such as metals and oil and grease, in stormwater runoff.

Segment 3: Olympic

In addition to the operational water quality effects discussed above, the parking lot associated with the Santa Monica Terminus Station could result in the release of vehicular pollutants, such as metals and oil and grease, in stormwater runoff.

Segment 3a: Colorado

In addition to the operational water quality effects discussed above, the parking lot associated with the Santa Monica Terminus Station could result in the release of vehicular pollutants, such as metals and oil and grease, in stormwater runoff.

Regulatory Requirements

Development and operation of the LRT Alternatives would be subject to existing regulatory requirements, including BMPs for erosion and sediment control, and material and waste handling and management, and parking lot BMPs as outlined below.

City Municipal Codes

City Municipal Codes regulate potential discharge of pollutants associated with post-construction and require dischargers to implement post-construction BMPs prior to receiving a building or grading permit.

The City of Culver City Municipal Code would require a Standard Urban Stormwater Mitigation Plan (SUSMP) for the proposed project prior to receiving any permits (Section 5.50.040). The SUSMP must include post-development stormwater mitigation measures. The SUSMP and Site-Specific Stormwater Mitigation Plans must be incorporated into project plans. Numerical design criteria for volumetric or flow-based treatment controls are included in Section 5.50.040. Prior to receiving a Final Inspection or Occupancy Permit, whichever is applicable, verification that construction of all stormwater pollution control BMPs and structural and/or treatment control BMPs identified on the approved project plans have been completed is required through a signed certification statement.

The City of Los Angeles Municipal Code Section 64.70.02 prohibits discharges of non-stormwater to storm drains or receiving waters including spill controls; requires measures to prevent, control, and reduce stormwater pollutants, including construction BMPs; requires the control of pollutants from parking lots through rainy season debris removal. Section 64.72 describes the required stormwater pollution control measures for development planning and construction activities (Ord. No. 173,494). The provisions of this section set forth requirements for facility operations of development and redevelopment projects to comply with the requirements of the SUSMP adopted by the Board of Public Works (Ord. No. 178,132), and

includes the authority to inspect and enforce stormwater pollution control measures (Section 64.72.04). BMPs identified in the project SUSMP or Site Specific Mitigation Plan (SSMP) are checked during the plan check process to ensure compliance with the SUSMP. Additionally the Department of Building and Safety can withhold grading and building permits until applicant incorporates into the development BMPs necessary to control stormwater pollution in accordance with the "Development Best Management Practices Handbook, Part B Planning Activities" and the City receives a Covenant and Agreement, signed by the owner and recorded with the Los Angeles County Recorder, declaring that the best management practices necessary to control stormwater pollution shall be installed and/or constructed and maintained in proper working condition at all times (Ord. No. 178,132).

The City of Santa Monica Municipal Code Section 7.10.050 includes urban runoff reduction requirements for all applications for new development within the City. Compliance with an approved Urban Runoff Mitigation Plan (URMP) is required for any planning approval (Ord. No. 1992CCS § 1 (part)). The ordinance requires a 0.75-inch reduction in rainfall leaving all impermeable surfaces of all newly developed parcels within the city. The Director of the Department of Environmental and Public Works Management or his or her designee approves or disapproves the plan. Any plan disapproved by the Director of Environmental and Public Works Management or his or her designee must be revised by the developer and resubmitted for approval. No-Building permit would be issued until an URMP has been approved by the Department of Environmental and Public Works Management. In developing an URMP, projected stormwater runoff from the new development must be infiltrated or treated. The URMP must also include the applicant's plan for the maintenance of all BMPs requiring ongoing maintenance and the applicant's signed statement accepting responsibility for all structural and treatment control BMP maintenance. The City also includes Right-of-Way Management Regulations (Chapter 7.06) to establish regulations to manage the installation of facilities in or along the PROW. Section 8.08.050 of the City of Santa Monica Municipal Code also provides for post-construction inspection to ensure that permit conditions area met.

Standard Urban Stormwater Mitigation Plan (SUSMP)

The proposed project would also be required to comply with the Los Angeles County SUSMP provisions. The SUSMP was developed for compliance with the Municipal NPDES Permit conditions. Provisions within the SUSMP include:

- Post-development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak stormwater discharge rate will result in increased potential for downstream erosion. The proposed project would not be subject to this requirement because it discharges into storm drain culverts or lined channels.
- The development must be designed so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant effects, generated from site runoff of directly connected impervious areas (DCIA), to the stormwater conveyance system as approved by the building official. This will require the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the Maximum Extent Practicable and as listed in the referenced handbooks and guidelines. The proposed project would be subject to this SUSMP requirement.

- Project plans must include BMPs consistent with local codes and ordinances and the SUSMP to decrease the potential of slopes and/or channels from eroding and impacting stormwater runoff. The proposed project would be subject to this SUSMP requirement.
- Where proposed project plans include outdoor areas for storage of materials that may contribute pollutants to the stormwater conveyance system, structural or treatment BMPs are required. The proposed project would be subject to this requirement wherever there are any outdoor materials storage areas.
- All trash container areas (including areas associated with the proposed project, such as stations) must meet the following Structural or Treatment Control BMP requirements:
  - Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s).
  - Trash container areas must be screened or walled to prevent off-site transport of trash.
- As part of project review, if a project applicant has included or is required to include, Structural or Treatment Control BMPs in project plans, the Permittee shall require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements, and/or Conditional Use Permits. The proposed project would be subject to this SUSMP requirement.

  Design Standards for post-construction Structural BMPs. The proposed project would be subject to this SUSMP requirement. To minimize the offsite transport of pollutants, the following design criteria are required:
  - Reduce impervious land coverage of parking areas
  - Infiltrate runoff before it reaches storm drain system
  - Treat runoff before it reaches storm drain system
- Limitations on Infiltration BMPs: a water table distance separation of 10 feet depth in California presumptively poses negligible risk for stormwater not associated with industrial activity or high vehicular traffic (25,000 or greater average daily traffic (ADT) on main roadway or 15,000 or more ADT on any intersecting roadway). The proposed project would be subject to this SUSMP requirement for any portions of the alignment within industrial areas and high traffic. The proposed project may be subject to this requirement in other areas if the water table is within 10 feet of the bottom of any potential infiltration BMP.

The Cities of Los Angeles, Santa Monica, and Culver City include provisions within their Municipal Code requiring post-construction stormwater BMPs and compliance with the SUSMP and Municipal NPDES Permit conditions. Municipal Codes also provide for review of construction plans and construction inspection to ensure that the proposed project complies with permit conditions. Therefore, operation of the LRT Alternatives would not violate waste discharge requirements.

As identified above, the LRT Alternatives would not substantially alter the land use along the alignment corridor such that there would be a substantial increase in the amount of pollutants associated with urban development. The increases in amount of impervious surface areas within the LRT Alternatives corridors would not be substantial, except for the portion of

Segment 1 between Overland Avenue and Military Avenue. Additionally, pursuant to the Municipal Codes and the Municipal NPDES Permit, the LRT Alternatives would have to implement and maintain post-construction BMPs to reduce potential stormwater pollution. The few areas with potentially unstable soil surfaces, including fill areas for support of the aerial structures and any potential areas left as or converted to pervious surfaces (e.g., Segment 1a and Segment 3), would have to be stabilized and parking lots would have to be maintained in accordance with Municipal Codes and the Municipal NPDES Permit.

Industrial General Permit

As a Category 8 discharger, because of the associated maintenance facilities, the proposed project would also have to comply with the Industrial General Permit. Any Industrial General Permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for (a) enforcement action for (b) Industrial General Permit termination, revocation and reissuance, or modification or (c) denial of an Industrial General Permit renewal application. The facility operator must comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants Additionally, the facility operator must furnish the RWQCB, U.S. EPA, or local stormwater management agency any requested information to determine compliance with the Industrial General Permit. The facility operator must also furnish, upon request, copies of records required to be kept by the Industrial General Permit.

The Industrial General Permit includes discharge prohibitions, effluent limitation, and receiving water limitations. All facility operators seeking coverage under the Industrial General Permit must submit a Notice of Intent (NOI) for each of the facilities they operate and prepare and implement a SWPPP and Monitoring and Reporting program. in accordance with the Industrial General Permit, all facility operators must also comply with lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding stormwater discharges and non-stormwater discharges entering storm drain systems or other watercourses under their jurisdiction, including applicable requirements in municipal stormwater management programs developed to comply with NPDES permits issued by the Regional Water Boards to local agencies.

In 2005, a Draft Industrial General Permit was prepared. If adopted by the time the proposed project operates its maintenance facilities, operations would be subject to the new permit conditions. Important differences between the Draft Industrial General Permit and the existing Industrial General Permit include:

- Minimum BMPs that all dischargers must incorporate into their SWPPPs
- More stringent requirements to ensure that discharges comply with water quality standards
- More extensive monitoring requirements
- Application to all industries designated by USEPA, including what it formerly termed “light industry.”

Determination of Effect

The Cities of Los Angeles, Santa Monica, and Culver City include provisions within their Municipal Code requiring post-construction stormwater BMPs and compliance with the SUSMP

and Municipal NPDES Permit conditions. Compliance with these requirements would ensure that the LRT Alternatives do not violate any WDRs. ***No adverse effect*** would occur.

FEIR Design Options

Development of the Sepulveda Grade Separation, Colorado Parking Retention, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options would involve minor alterations to the footprint of the proposed alignment; however, the operation or uses associated with the design options would not change from what was contemplated for the LRT Alternatives. Therefore, impacts with respect to proposed uses in those areas would be largely the same as the project. In addition, the type of development that is contemplated under the design options is substantially similar to the project such that compliance with *Metro Fire/Life Safety Design Criteria*, *Metro Design Criteria*, and other existing regulatory requirements, such as BMPs, would insure that ***no adverse effect*** would occur, consistent with the project discussion above.

CEQA Determination

Less-Than-Significant Impact. There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. Widening the I-405 would physically modify the area and impact water discharge, but no conflict is anticipated. The project would comply with Caltrans NPDES permit regulations, runoff would drain into freeway storm drains instead of city storm drains, and the project would not further impair 303(d)-listed water bodies. Potential operational impacts on water quality associated with increased bus capacity would be minimal. Therefore, the No-Build Alternative would not violate any water quality standards or waste discharge requirements. The No-Build Alternative would result in a ***less-than-significant*** impact.

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. As a result, operational effects on water quality would be minimal, and the TSM Alternative would result in a ***less-than-significant*** impact.

Implementation of the LRT Alternatives would increase the potential amount of pollutants in stormwater runoff, compliance with regulatory requirements is mandatory. The LRT Alternatives would not conflict with applicable water quality standards. Therefore, the LRT Alternatives would have a ***less-than-significant*** impact.

Criterion	**Would the proposed project substantially degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources in a manner that would cause water-related hazards, such as subsidence?**

Impact WQ-2 Implementation of the project would not substantially degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources in a manner that would cause water-related hazards, such as subsidence, and *no adverse effect* would occur.

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. The paving associated with this portion of the project in the Expo ROW would not be expected to affect groundwater recharge in the area. The existing drainage systems are sufficient to contain and treat anticipated increased runoff and no increase in pollutant loadings is anticipated that would percolate into groundwater. Bus and other on-street improvements are also proposed as part of the No-Build Alternative but they would not involve ground disturbance or interference with groundwater quality or recharge. Therefore, the No-Build Alternative would not increase groundwater supply withdrawals, would not alter groundwater recharge potential, and would not affect groundwater quality. The No-Build Alternative would result in ***no effect***.

TSM Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses, which would not affect groundwater resources. As with the No-Build Alternative, the TSM Alternative would result in ***no effect***.

LRT Alternatives

Construction

This discussion applies to all the segments of the Expo Phase 2 project.

According to a Phase I Environmental Site Assessment (ESA) prepared for the project, primary regional groundwater contaminants are PCE, TCE, and MTBE with higher contaminant level concentrations found between Centinela Avenue and Cloverfield Boulevard. However, per the Phase I ESA, the regional groundwater contamination issue has low potential to affect the project based on proposed construction plans. Potential to affect the project is low due to the proposed at-grade construction only affecting the upper 5 feet of soil, the existing depth to groundwater is in excess of 60 feet bgs, and the proposed construction of piles for overcrossings are not proposed to generate soil cuttings or require dewatering. A construction health and safety plan will address proper handling procedures in the event that groundwater is unexpectedly encountered. In addition, if construction plans change and dewatering is required, groundwater sampling and analysis should be conducted prior to dewatering activities. Contaminated groundwater, if identified, could be transported to an appropriate water treatment facility, or could be treated on-site prior to discharge to the municipal sewer system or storm drain under an approved NPDES permit (Leighton Consulting, Inc 2009).

As discussed briefly above, ~~D~~during construction of the LRT Alternatives, temporary dewatering may be required if groundwater is encountered or if construction occurs during the wet-weather season and dewatering of excavations is required. The potential for construction dewatering would not likely be substantial because groundwater resources in the area are at least about 60 feet below ground surface. However, perched (water trapped near the surface of the soil), local shallow groundwater may be encountered. Dewatering activities would require coverage under the Construction Dewatering General Permit and be temporary in nature.

Additionally, as mentioned above, the depth to groundwater is estimated to be between 110 to 180 feet below ground surface (bgs) along Segment 1 and Segment 2, while depth to groundwater along Segment 1a is estimated to be approximately 100 feet bgs. Depth to groundwater along Segment 3 and Segment 3a is estimated to be between 60 to 140 feet below ground surface. Therefore, the potential for construction pollutants from spills and leaks to migrate to groundwater is minimal. Additionally, construction activities would require coverage under the Construction General Permit and preparation of a SWPPP, including spill prevention and control BMPs, waste and materials management BMPs, and other BMPs designed to protect both surface and groundwater quality. Municipal Codes require compliance with these General Permits ensuring that General Permit provisions are met. Further, if unanticipated groundwater is encountered, it would be subject to the Construction Dewatering General Permit previously described in the Regulatory section. Therefore, the LRT Alternatives would result in ***no adverse effect***.

Operation

No new wells would be developed as part of the LRT Alternatives ~~and there would be no direct impact on groundwater levels~~. However, an environmental site assessment was conducted after the selection of the Recommended Preferred Alternative in the fall of 2009, which identified that groundwater monitoring wells are located within the Expo ROW. Therefore, the Expo Authority would be required to remove any existing groundwater monitoring wells located within the ROW as required by state law, and in coordination with the RWQCB. There would be no direct effect on groundwater levels. Potential indirect effects on groundwater levels are discussed below.

Potential groundwater recharge within the Santa Monica Subbasin is primarily from upland runoff through streams and over land surfaces. Direct precipitation on the basin within the proposed project vicinity is not a major source of groundwater recharge. However, groundwater recharge could be impeded if a substantial amount of pervious area was converted to impervious surfaces. Pervious portions of the alignment would remain essentially pervious (crushed gravel track beds) except for the parking lot areas between Overland Avenue and Military Avenue in Segment 1, road widening of Overland Avenue and Westwood Avenue, and portions of the bike/pedestrian pathway, which would be paved. Therefore, construction of the LRT Alternatives would result in additional impervious areas within the study area. Segment 1 would add approximately 1.1 acres, Segment 1a would add approximately 0.7 acre, and Segment 3 would add approximately 0.6 acre of impervious surfaces by paving over existing pervious surfaces for stations, station parking facilities, and the guideway. However, because rainfall is not a major source of groundwater recharge in the study area, the increase in impervious surface created by the project would not substantially affect groundwater recharge. The development of the remainder of Segment 2 and Segment 3a would not increase pervious area as the majority of these segments are paved currently. Further, portions of the currently paved Verizon site would be converted to pervious surface with development of the maintenance facility at that site.~~The LRT Alternatives may create some additional impervious area in Segment 3 for stations, parking lots, the tracks within the Olympic Boulevard median; however, as discussed in Impact WQ-1, this increase would not be substantial regarding groundwater recharge.~~ The LRT Alternatives would result in ***no adverse effect***.

FEIR Design Options

Development of the Sepulveda Grade Separation, Colorado Parking Retention, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood

Station No Parking design options would involve minor alterations to the footprint of the proposed alignment; however, the level of impervious surfaces would not dramatically increase with the Sepulveda Boulevard Grade Separation Design Option, Colorado Parking Retention, Colorado/4th Parallel Platform and South Side Parking. The Maintenance Facility Buffer Design Option could, to some degree, increase the level of pervious surfaces in the buffer zone. The Expo/Westwood Station No Parking Design Option would reduce the level of pervious surfaces, with the reduction of surface parking spaces from 170 to 20. The potential impacts associated with the design options relative to groundwater resources would be ***no adverse effect***, consistent with the above discussion for the LRT Alternatives.

CEQA Determination

No Impact. There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. The paving associated with this portion of the project in the Expo ROW would not be expected to affect groundwater recharge in the area. The existing drainage systems are sufficient to contain and treat anticipated increased runoff and no increase in pollutant loadings is anticipated that would percolate into groundwater. Bus and other on-street improvements are also proposed as part of the No-Build Alternative but they would not involve ground disturbance or interference with groundwater quality or recharge. Therefore, the No-Build Alternative would not increase groundwater supply withdrawals, would not alter groundwater recharge potential, and would not affect groundwater quality. The No-Build Alternative would result in ***no impact***.

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses, which would not affect groundwater resources. As with the No-Build Alternative, the TSM Alternative would result in ***no impact***.

Less-Than-Significant Impact. Implementation of the LRT Alternatives would not substantially degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources. This is a ***less-than-significant*** impact.

Criterion	**Would the proposed project alter the existing drainage pattern of the site or area in a manner that would cause substantial flooding, erosion, or siltation?**

Impact WQ-3 **Implementation of the proposed project (except for Segment 1 [Expo ROW]) would not substantially alter the existing drainage pattern of the site or area in a manner that would cause substantial localized flooding. Implementation of mitigation measure MM WQ-1 (for LRT Alternatives using Segment 1), below, would reduce potential effects to *no adverse effect*.**

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. For the I-405 Widening project, a

Construction SWPPP would be prepared to ensure compliance with existing NPDES permits and implementation of BMPs would prevent sediment and other pollutants from entering the storm drain system. Four drainages need to be relocated but they are not located in the Expo Phase 2 ROW. Bus and other on-street improvements are also proposed in the No-Build Alternative but these modifications would occur in a highly urbanized area and would not alter drainage patterns~~affect wetlands~~. Therefore, the No-Build Alternative would result in ***no effect*** with respect to drainage.

TSM Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses, which would not alter drainage patterns. As with the No-Build Alternative, the TSM Alternative would result in ***no effect.***

LRT Alternatives

Segment 1: Expo ROW

The LRT Alternatives potential effect on erosion and siltation is fully discussed under Impact WQ-1. Increased impervious area can greatly alter runoff from small, frequent flood events by up to 10 times increased flow rate (SCBWMI 2003, 4-10). However, increased impervious area often has little effect on flows during extreme events (e.g., 100-year flood flow events) because during these events, rainfall saturates even natural soils, rendering them effectively impervious (SCBWMI 2003, 4-10; SFCCRM and PFECTF 1997, 17). Drainage patterns would not be substantially altered with implementation of the LRT Alternatives; there would be no substantial alteration in LRT Alternatives topography and none of the LRT Alternatives would substantially increase the amount of impervious surfaces for most of the alignment corridors.

Increased impervious area can greatly alter runoff from small, frequent flood events by up to 10 times increased flow rate (SCBWMI 2003, 4-10). Development of parking lots for the Expo/Westwood Station, would, however, substantially increase the amount of impervious area within Segment 1, which could contribute to localized flooding within this area and vicinity. Implementation of mitigation measure MM WQ-1 would reduce potential effects of localized flooding within the 100-year flood limits to ***no adverse effect***.

MM WQ-1 *The Expo Authority shall grade the Expo/Westwood Station and associated station parking facility and provide a stormwater drainage system with detention facilities and/or pervious pavement adequate to convey runoff from the Expo/Westwood Station during a 100-year storm event to prevent on-site flooding. The Expo Authority shall also implement stormwater detention facilities and/or pervious pavement for parking lots to reduce the off-site peak runoff from the Expo/Westwood Station and associated parking lots to existing condition levels. All detention facilities shall be designed to drain within 48 hours to minimize vector control and human safety concerns.*

The Expo Authority shall include these facilities and their design specifications in the engineering plans. Use of pervious pavement shall be consistent with the SUSMP and Municipal NPDES Permit limitations on

infiltration BMPs. Construction and operation of these BMPs shall be incorporated as part of the proposed project and subject to all applicable existing regulatory requirements.

Segment 1a: Venice/Sepulveda

While some site grading and an overall increase in impervious surfaces would occur, drainage patterns would not be substantially altered with implementation of the LRT Alternatives. There would be site grading and some increase in impervious surface within Segment 1a but the existing area topography would be retained. While the volume of runoff water would increase, the existing drainage pattern of the site and its surroundings would not be changed in a manner that would result in substantial flooding, erosion, or siltation. Further, portions of the currently paved Verizon site would be converted to pervious surface with development of the maintenance facility at that site. (Refer also to the WQ-1 analysis for a discussion of erosion and siltation with respect to water quality.) ***No adverse effect*** would occur.

Segment 2: Sepulveda to Cloverfield

While some site grading and an overall increase in impervious surfaces would occur, drainage patterns would not be substantially altered with implementation of the LRT Alternatives. There would be site grading and some increase in impervious surface within Segment 2 but the existing area topography would be retained. While the volume of runoff water would increase, the existing drainage pattern of the site and its surroundings would not be changed in a manner that would result in substantial flooding, erosion, or siltation. Further, portions of the currently paved Verizon site would be converted to pervious surface with development of the maintenance facility at that site. (Refer also to the WQ-1 analysis for a discussion of erosion and siltation with respect to water quality.) ***No adverse effect*** would occur.

Segment 3: Olympic

While some site grading and an overall increase in impervious surfaces would occur, drainage patterns would not be substantially altered with implementation of the LRT Alternatives. There would be site grading and some increase in impervious surface within Segment 3 but the existing area topography would be retained. While the volume of runoff water would increase, the existing drainage pattern of the site and its surroundings would not be changed in a manner that would result in substantial flooding, erosion, or siltation. Further, portions of the currently paved Verizon site would be converted to pervious surface with development of the maintenance facility at that site. (Refer also to the WQ-1 analysis for a discussion of erosion and siltation with respect to water quality.) ***No adverse effect*** would occur.

Segment 3a: Colorado

While some site grading and an overall increase in impervious surfaces would occur, drainage patterns would not be substantially altered with implementation of the LRT Alternatives. There would be site grading and some increase in impervious surface within Segment 3a, but the existing area topography would be retained. While the volume of runoff water would increase, the existing drainage pattern of the site and its surroundings would not be changed in a manner that would result in substantial flooding, erosion, or siltation. Further, portions of the currently paved Verizon site would be converted to pervious surface with development of the maintenance facility at that site. (Refer also to the WQ-1 analysis for a discussion of erosion and siltation with respect to water quality.) ***No adverse effect*** would occur.

FEIR Design Options

The Expo/Westwood Station No Parking Design Option would reduce the number of surface parking spaces from 170 to 20; however, the area of development would remain largely the same with implementation of this design option. Mitigation measure WQ-1 would reduce potential impacts associated with altering the existing drainage of this area to ***no adverse effect***.

The Sepulveda Boulevard Grade Separation Design Option, which is the only other design option located within Segment 1 (Expo ROW), would not increase the amount of impervious surface over the at-grade crossing configuration. Impacts would be ***no adverse effect***, similar to the LRT Alternatives.

The proposed Colorado Parking Retention and Colorado/4th Street Parallel Platform Design Options would involve minor alterations to the existing alignment that would not alter the drainage pattern of the area, beyond that already discussed above for the LRT Alternatives. ***No adverse effect*** would occur, consistent with the project analysis.

Further, the 100- to 110-foot buffer to the south of the proposed Maintenance Facility Buffer Design Option could potentially replace existing structures and paved surfaces with a pervious surface. As such, the potential for additional flooding and erosion impacts with implementation of the contemplated design options would be minimal. ***No adverse effect*** would occur, consistent with the project analysis.

CEQA Determination

No Impact. There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. For the I-405 Widening project, a Construction SWPPP would be prepared to ensure compliance with existing NPDES permits and implementation of BMPs would prevent sediment and other pollutants from entering the storm drain system. Four drainages need to be relocated but they are not located in the Expo Phase 2 ROW. Bus and other on-street improvements are also proposed in the No-Build Alternative but these modifications would occur in a highly urbanized area and not affect wetlands. Therefore, the No-Build Alternative would result in ***no impact*** with respect to drainage.

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses, which would not alter drainage patterns. As with the No-Build Alternative, the TSM Alternative would result in ***no impact.***

Less-Than-Significant Impact. Implementation of the LRT Alternatives through Segment 1 could alter the existing drainage pattern of the site or area in a manner that would cause localized flooding. Implementation of MM WQ-1 would reduce this impact to ***less than significant***.

Criterion	**Would the proposed project create or contribute to runoff that would exceed the drainage and flood control capacity of existing or planned stormwater drainage systems?**

Impact WQ-4 Implementation of the proposed (except for Segment 1 [Expo ROW]) project would not substantially increase runoff that could contribute to exceedance of the capacity of stormwater drainage systems. Implementation of MM WQ-1 (for LRT Alternatives using Segment 1), above, would reduce potential effects to *no adverse effect*.

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. In total, ~~T~~the I-405 Widening project would include paving of permeable land (14.3 acres) and disturb 121 acres of soil area. Bus and other on-street improvements are also proposed are also proposed as part of the No-Build Alternative but would not adversely affect drainage systems. Therefore, the No-Build Alternative could alter runoff conditions but would not contribute to drainage system capacity exceedance. The No-Build Alternative would result in a ***no adverse effect***.

TSM Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses which would not contribute to additional runoff. As with the No-Build Alternative, the TSM Alternative would result in a ***no adverse effect***.

LRT Alternatives

This discussion applies to all the segments of the Expo Phase 2 project.

Potential effects of LRT Alternatives on flooding and runoff are fully discussed under Impact WQ-3 and Impact WQ-1 and were found to have no substantial effects with implementation of mitigation measure MM WQ-1. Therefore, because the LRT Alternatives would not substantially increase flooding or runoff with implementation of mitigation measure MM WQ-1, this alternative would not contribute to exceedance of the capacity of existing or planned stormwater drainage systems, and ***no adverse effect*** would occur.

FEIR Design Options

Development of the Sepulveda Grade Separation, Colorado Parking Retention, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options would involve minor alterations to the existing alignment that would not alter the drainage pattern of the area beyond that already discussed above for the LRT Alternatives. The 100- to 110-foot buffer to the south of the proposed Maintenance Facility Buffer Design Option could potentially replace existing structures and paved surfaces with a pervious surface, and the Expo/Westwood Station No Parking Design Option would reduce impervious surfaces, with a reduction in surface parking from 170 to 20 spaces. However, the

potential for additional stormwater flows that could exceed the capacity of the local storm drainage facilities with implementation of the contemplated design options would be minimal. ***No adverse effect*** would occur, consistent with the project analysis.

CEQA Determination

Less-Than-Significant Impact. There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. In total, The I-405 Widening project would include paving of permeable land (14.3 acres) and disturb 121 acres of soil area. Bus and other on-street improvements are also proposed are also proposed as part of the No-Build Alternative but would not adversely affect drainage systems. Therefore, the No-Build Alternative could alter runoff conditions but would not contribute to drainage system capacity exceedance. The No-Build Alternative would result in a ***less-than-significant*** impact.

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses which would not contribute to additional runoff. As with the No-Build Alternative, the TSM Alternative would result in a ***less-than-significant*** impact.

Implementation of the LRT Alternatives except for Segment 1 would not substantially increase runoff that could contribute to exceedance of the capacity of stormwater drainage systems, and this impact would be ***less than significant***. Implementation of the LRT Alternatives through Segment 1 would increase runoff that could contribute to exceedance of the capacity of stormwater drainage systems. Implementation of MM WQ-1 would reduce this impact to ***less-than-significant*** levels.

Criterion	**Would the proposed project place within a 100-year flood hazard area structures that would impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding?**

Impact WQ-5 **Implementation of the proposed project (except for Segment 1 [Expo ROW]) would not place within a 100-year flood hazard area structures that would impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding. However, implementation of MM WQ-2 (for LRT Alternatives using Segment 1), below, would be required to reduce potential effects to *no adverse effect*.**

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. There is no 100-year flood hazard area associated with the 405 project within the Expo Phase 2 ROW. Bus and other on-street improvements are also proposed as part of the No-Build Alternative but such improvements would not affect flood flows. Therefore, the No-Build Alternative would result in ***no effect*** associated with flooding hazards.

TSM Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. In addition to the impacts identified in the No-Build Alternative, the TSM Alternative would construct upgraded bus stops. However, the new on-street improvements would not affect flood flows. Therefore, the TSM Alternative would result in ***no effect*** associated with flooding hazards.

LRT Alternatives

Segment 1: Expo ROW

The proposed Expo/Westwood Station would be located within an area designated as a 100-year flood hazard area Zone A. Placement of the LRT system within a designated 100-year flood hazard area would result in a potentially significant impact. Initial surveys appropriate for this stage of project development suggest that project facilities would not be at an elevation that would result in flood hazard. This is further bolstered by the fact that several properties in the area have successfully obtained Letters of Map Amendment (LOMA) from FEMA, demonstrating that those properties, or portions of the property, are not at an elevation that would result in flood hazard.

AsShould Segment 1 isbe part of the Locally preliminary Recommended Preferred Alterative, and the Expo Authority will has conducted a detailed survey in August of 2009. during Preliminary Engineering, cross sections were developed to identify the existing natural grade relative to the proposed LRT alignment. The cross sections were reviewed to determine if the existing natural grade would be maintained during project implementation and to establish the elevation difference between the base of the LRT guideway and station area and the highest adjacent grade. Based on the survey and review of the cross sections it was determined that the existing natural grade would not be maintained with project implementation, as excavation would be required to construct the project and that the base of the proposed LRT guideway would not be 1 foot higher than the highest adjacent grade at some cross sections. As a result of these findings, the minimum conditions for approval of a LOMA application are not satisfied.and would request a letter from FEMA that distinguishes the station area as outside the 100-year flood hazard area.

Removing the proposed project alignment from the FEMA-defined 100-year flood hazard area, or mitigating potential flooding, would ensure that the LRT system is not exposed to service disruption during a flood event and that people and structures are not exposed to flood risks. This can be accomplished through implementation of either of the mitigation measures described below. Implementation of MM WQ-2(b) would be consistent with Executive Order 11988 and would essentially remove the corridor from the floodplain and reduce any potential risks to people to ***no adverse effect***.

MM WQ-2(a) The Expo Authority shall conduct a detailed topographic survey of the Segment 1 (Expo ROW) within the Federal Emergency Management Agency (FEMA)-defined 100-year flood hazard area, including Westwood Boulevard, and extending at least 50 feet beyond the proposed project ROW. The Expo Authority shall consult with the Los Angeles County Department of Public Works and/or FEMA to determine the current flood elevations within this area.

~~*The Expo Authority shall establish that the proposed facilities are at an elevation 2 feet greater than the highest adjacent grade and shall provide fill where needed to meet this requirement. The Expo Authority shall submit an application to FEMA for a Conditional Letter of Map Revision (CLOMR-F) prior to construction and, following construction, a Letter of Map Revision (LOMR-F), removing the proposed project alignment from the FEMA 100-year flood hazard area.*~~

~~*OR:*~~

MM WQ-2(b) *The Expo Authority shall design drainage and flood protection improvements to remove the portion of the LRT Alternative from the Federal Emergency Management Agency (FEMA)-defined 100-year flood hazard area. This shall include sufficient drainage structures to pass existing flood flow from areas up-gradient from the portion of the LRT Alternative to areas down-gradient, such that there is no net change in off-site flooding and flood flows or on storm drain system capacity. This may include rerouting of flood waters from Westwood Boulevard at locations further north from the portion of the LRT Alternative to bypass the alignment corridor and Westwood Boulevard intersection.*

Prior to the beginning of construction activities, the Expo Authority shall submit to FEMA an application for and obtain a Conditional Letter of Map Revision (CLOMR) and shall implement all conditions imposed by FEMA. The CLOMR would ensure that the project design is sufficient for removing the portion of the LRT Alternative from the 100-year flood hazard area. Prior to the beginning of operation, the Expo Authority shall obtain a Letter of Map Revision (LOMR), and potentially a No Rise Certificate, indicating that construction and implementation of the designed improvements have been conducted in accordance with the CLOMR and FEMA requirements and that the proposed project alignment corridor has been effectively removed from the 100-year flood hazard area.

Implementation of Segment 1 (Expo ROW) would use fill material, or place other structures (such as station platforms) in the floodplain, that could impede flood flows or reduce flood storage capacity. Therefore, MM WQ-2(b) shall not include use of fill material within an existing floodplain unless sufficient additional detention and flood storage is also provided. Any detention used as part of the flood improvements shall be designed to drain within 48 hours to minimize vector control and human safety issues.

The Expo Authority shall include any facilities used for flood improvements and their design specifications in the engineering drawings. As such, construction and operation of these facilities shall be incorporated as part of the proposed project and subject to existing regulatory requirements.

With implementation of mitigation measure MM WQ-2(b), potential effects associated with the LRT Alternative through Segment 1 flood hazards would result in ***no adverse effect***.

Segment 1a: Venice/Sepulveda

Segment 1a is not located within a food hazard area; therefore, development in this area would have ***no effect*** with respect to flood hazards.

Segment 2: Sepulveda to Cloverfield

Segment 2 is not located within a food hazard area; therefore, development in this area would have ***no effect*** with respect to flood hazards.

Segment 3: Olympic

Segment 3 is not located within a food hazard area; therefore, development in this area would have ***no effect*** with respect to flood hazards.

Segment 3a: Colorado

Segment 3a is not located within a food hazard area; therefore, development in this area would have ***no effect*** with respect to flood hazards.

FEIR Design Options

The Expo/Westwood Station No Parking Design Option would reduce the number of surface parking spaces from 170 to 20, reducing the station construction footprint within the 100-year flood hazard area; however, the area of overall development for the LRT guideway and station platforms would remain largely the same with implementation of this design option. Mitigation measure WQ-2 would ensure that impacts remain ***less than significant*** with development of the Expo/Westwood Station No Parking Design Option.

The contemplated Sepulveda Boulevard Grade Separation Design Option, which is located within Segment 1 (Expo ROW), would not be located within a 100-year flood hazard area. As such, ***no impact*** would occur.

The contemplated Maintenance Facility Buffer, Colorado Parking Retention, and Colorado/4th Street Parallel Platform Design Options would not be located within a 100-year floodplain. As such, ***no impact*** would occur.

CEQA Determination

No Impact. There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. There is no 100-year flood hazard area associated with the 405 project within the Expo Phase 2 ROW. Bus and other on-street improvements are also proposed as part of the No-Build Alternative but such improvements would not affect flood flows. Therefore, the No-Build Alternative would result in ***no impact*** associated with flooding hazards.

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. In addition to the impacts identified in the No-Build Alternative, the

TSM Alternative would construct upgraded bus stops. However, the new on-street improvements would not affect flood flows. Therefore, the TSM Alternative would result in ***no impact*** associated with flooding hazards.

Less-Than-Significant Impact. Implementation of the LRT Alternatives using Segment 1 would place within a 100-year flood hazard area structures that would impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding, implementation of MM WQ-2 would reduce this impact to ***less-than-significant*** levels.

4.4 Cumulative Impacts

A cumulative analysis addresses the impacts of the proposed project in combination with other planned and approved projects. This analysis evaluates the proposed project along with planned and approved development within the Ballona Creek watershed, the Pico-Kenter Storm Drainage Area, and the Santa Monica Subbasin.

Since no impacts have been identified for the No-Build and TSM Alternative relative to water quality, groundwater resources, stormwater drainage capacity, and flooding hazards, no cumulative effect could occur, and no further discussion is provided of these alternatives.

Criterion	**Would the proposed project conflict with applicable legal requirements related to hydrology or water quality, including a violation of state water quality standards or waste discharge requirements?**

All development within the Ballona Creek watershed and Pico-Kenter Storm Drainage Area watershed would be subject to the Construction General Permit, Municipal NPDES Permit, Construction Dewatering General Permit, Industrial General Permit, and Discharge of Non-Hazardous Contaminated Soils WDRs. These WDRs are considered protective of water quality. Additionally, for impaired water resources, TMDLs have been or will be developed to protect designated beneficial uses and ensure that water quality standards are not violated. The list of impaired water bodies is updated every two years based on water quality monitoring program data and watershed assessments. Municipal Codes are required to incorporate compliance mechanisms for the Municipal NPDES Permit. The Cities of Santa Monica, Culver City, and Los Angeles, all require compliance with existing federal, state, and regional regulations, including the applicable WDRs. Furthermore, development would be subject to the environmental review process. Therefore, cumulative effects would not be adverse. The LRT Alternatives would also have to comply with these existing WDRs and Cities' Municipal Codes. As discussed above, compliance with existing regulations would reduce potential adverse effects. Therefore, the LRT Alternatives would not contribute considerably to cumulative impacts and there would be ***no adverse cumulative effect*** on violation of water quality standards, including erosion and siltation effects, or waste discharge requirements.

Criterion	**Would the proposed project substantially degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources in a manner that would cause water-related hazards, such as subsidence?**

Cumulative development within the Santa Monica Subbasin could increase use of groundwater supplies. As mentioned in the Environmental Setting of this section, several groundwater wells have been shut down for MTBE contamination remediation. This remediation may take up to 20 years to complete. However, as groundwater is cleaned up and wells come on-line, these groundwater supplies will be available for use. Saltwater intrusion along the coastal areas may limit the use of the Santa Monica Subbasin for water supplies. The City of Santa Monica operates a SMMURF facility to treat low flow, dry weather discharges into the main storm drains. This water is reclaimed for use as irrigation for landscaping. Reclaimed water offsets some of the demands for potable groundwater for water supplies.

According to a Phase I Environmental Site Assessment (ESA) prepared for the proposed project, primary regional groundwater contaminants are PCE, TCE, and MTBE with higher contaminant level concentrations found between Centinela Avenue and Cloverfield Boulevard. However, per the Phase I ESA, the regional groundwater contamination issue has low potential to affect the project based on proposed construction plans. Potential to affect the project is low due to the proposed at-grade construction only affecting the upper 5 feet of soil, the existing depth to groundwater is in excess of 60 feet bgs, and the proposed construction of piles for overcrossings are not proposed to generate soil cuttings or require dewatering. A construction health and safety plan will address proper handling procedures in the event that groundwater is unexpectedly encountered. In addition, if construction plans change and dewatering is required, groundwater sampling and analysis should be conducted prior to dewatering activities. Contaminated groundwater, if identified, could be transported to an appropriate water treatment facility, or could be treated on-site prior to discharge to the municipal sewer system or storm drain under an approved NPDES permit (Leighton Consulting, Inc 2009).

Although the Cities of Los Angeles and Culver City do not currently use groundwater, the City of Santa Monica historically relied on groundwater for about 50 percent of its water supply and other cities within the Santa Monica Subbasin may use groundwater. Future development within the region could also increase reliance on groundwater supplies and the Santa Monica Subbasin is not adjudicated. However, all major development would have to complete a water supply assessment showing that adequate water supplies are available, either through surface water or groundwater resources.

Furthermore, global warming could alter surface water supplies and therefore, potentially alter reliance of communities on groundwater resources. Global climate models do not agree upon the exact nature of changes in water supplies; however, it is likely that climate change could reduce the snow pack and change the timing of precipitation and storm events. This could change the hydrologic regime of large surface water reservoirs and supply systems used by the cities within the Santa Monica Subbasin.

Consequently, future development within the area could substantially deplete groundwater resources, an adverse effect. The LRT Alternatives would not, however, have a substantial effect on groundwater resources; no new water supplies would be required, and associated development would have a minimal effect on groundwater recharge. Therefore, the LRT

Alternatives' contributions to groundwater supply depletion would not be considerable, and thus, there would be ***no adverse cumulative effect*** on groundwater resources.

Criterion	**Would the proposed project alter the existing drainage pattern of the site or area in a manner that would cause substantial flooding, erosion, or siltation?**

The Ballona Creek and Pico-Kenter Storm Drainage Area watersheds have remaining pervious areas that could be developed. Urban development could increase the rate and amount of stormwater runoff entering the area drainage systems that could lead to substantial increases in flood potential. However, development within these watersheds would be subject to existing regulations including the Municipal NPDES permit and environmental review process. These mechanisms would serve to prevent development from causing or contributing to exacerbated flood conditions and cumulative impacts on flooding would be less than significant. The LRT Alternatives would not have a substantial effect on flooding; impervious surfaces would be replaced with impervious surfaces. For all alternatives, potential impacts on erosion and siltation would be less than significant. Implementation of the LRT Alternatives through Segment 1 would, however, have a substantial effect on potential localized flooding at the Westwood station. As discussed above in the impacts analysis, mitigation measure MM WQ-1 would reduce potential adverse effects. Therefore, the alternative would not contribute considerably to cumulative effects and there would be ***no adverse cumulative effect*** on flooding, erosion, or siltation.

Criterion	**Would the proposed project create or contribute to runoff that would exceed the drainage and flood control capacity of existing or planned stormwater drainage systems?**

The Ballona Creek and Pico-Kenter Storm Drainage Area watersheds have remaining pervious areas that could be developed. Urban development could increase the rate and amount of stormwater runoff entering the area drainage systems that could lead to substantial increases in flood potential. However, development within the Ballona Creek and Pico-Kenter Storm Drainage Area watersheds would be subject to existing regulations including the Municipal NPDES permit and environmental review process. Development within the County of Los Angeles would also be subject to the existing Drainage Master Plans. These mechanisms would serve to prevent development from causing or contributing to exacerbated flood conditions and cumulative impacts on flooding would be less than significant. The LRT Alternatives would have a minimal effect on runoff and drainage system capacity exceedance because it would not substantially alter runoff characteristics such as topography and impervious area. Implementation of the LRT Alternatives through Segment 1, however, have a substantial effect on potential localized runoff, and therefore, storm drain system capacity exceedance, at the Expo/Westwood Station. As discussed above in the impacts analysis, mitigation measure WQ-1 would reduce potential impacts to a not adverse level. Therefore, each alternative would not contribute considerably to cumulative impacts and there would be ***no adverse cumulative effect*** on flooding and storm drain system capacity exceedance.

Criterion	**Would the proposed project place within a 100-year flood hazard area structures that would impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding?**

Development, within areas defined by FEMA as a Special Flood Hazard Area, is regulated by FEMA and Executive Order 11988, encroachment permits, and the environmental review process. These mechanisms would ensure that cumulative impacts would be less than significant. Floodplain encroachment by the LRT Alternatives would be addressed by mitigation measure MM WQ-2(a) or MM WQ-2(b). Therefore, there would be ***no adverse cumulative effect*** on floodplain encroachment and risk.

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APPENDIX 1 FLOODPLAIN MANAGEMENT (EXECUTIVE ORDER NO. 11988)

Executive Order 11988
Floodplain Management
42 Fed. Reg. 26951 (Issued 5/24/77)

By virtue of the authority vested in me by the Constitution and statutes of the United States of America, and as President of the United States of America. in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4001 et seq.), and the Flood Disaster Protection Act of 1973 (Public Law 93-234, 87 Star. 975), in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, it is hereby ordered as follows:

Section 1. Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety. health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing. and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

Section 2. In carrying out the activities described in Section 1 of this Order, each agency has a responsibility to evaluate the potential effects of any actions it may take in a floodplain; to ensure that its planning programs and budget requests reflect consideration of flood hazards and floodplain management; and to prescribe procedures to implement the policies and requirements of this Order, as follows:

(a)

(1) Before taking an action, each agency shall determine whether the proposed action will occur in a floodplain--for major Federal actions significantly affecting the quality of the human environment, the evaluation required below will be included in any statement prepared under Section 102(2)(C) of the National Environmental Policy Act. This determination shall be made according to a Department of Housing and Urban Development (HUD) floodplain map or a more detailed map of an area, if available. If such maps are not available, the agency shall make a determination of the location of the floodplain based on the best available information. The Water Resources Council shall issue guidance on this information not later than October 1, 1977.

(2) If an agency has determined to, or proposes to, conduct, support, or allow an action to be located in a floodplain. the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. If the head of the agency finds that the only practicable alternative consistent with the law and with the policy set forth in this Order requires siting in a floodplain, the agency shall, prior to taking action, (i) design or modify its action in order to minimize potential harm to or within the floodplain, consistent with regulations issued in accord with Section 2(d) of this Order, and (ii) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.

(3) For programs subject to the Office of Management and Budget Circular A-95, the agency shall send the notice, not to exceed three pages in length including a location map, to the state and areawide A-95 clearinghouses for the geographic areas affected. The notice shall in-elude: (i) the reasons why the action is proposed to be located in a floodplain; (ii) a statement indicating whether the action conforms to applicable state or local floodplain protection standards and (iii) a list of the alternatives considered. Agencies shall endeavor to allow a brief comment period prior to taking any action.

(4) Each agency shall also provide opportunity for early public review of any plans or proposals for actions in floodplains, in accordance with Section 2(b) of Executive Order No. 11514, as amended, including the development of procedures to accomplish this .objective for Federal actions whose impact is not significant enough to require the preparation of an environmental impact statement under Section 102(2)(C) of the National Environmental Policy Act of 1969, as amended.

(b) Any requests for new authorizations or appropriations transmitted to the Office of Management and Budget shall indicate, if an action to be proposed will be located in a floodplain, whether the proposed action is in accord with this Order.

(c) Each agency shall take floodplain management into account when formulating or evaluating any water and land use plans and shall require land and water resources use appropriate to the degree of hazard involved. Agencies shall include adequate provision for the evaluation and consideration of flood hazards in the regulations and operating procedures for the licenses, permits, loan or grants-in-aid programs that they administer. Agencies shall also encourage and provide appropriate guidance to applicants to evaluate the effects of their proposals in floodplains prior to submitting applications for Federal licenses, permits, loans or grants.

(d) As allowed by law, each agency shall issue or amend existing regulations and procedures within one year to comply with this Order. These procedures shall incorporate the Unified National Program for Floodplain Management of the Water Resources Council, and shall explain the means that the agency will employ to pursue the nonhazardous use of riverine, coastal and other floodplains in connection with the activities under its authority. To the extent possible, existing processes, such as those of the Council on Environmental Quality and the Water Resources Council, shall be utilized to fulfill the requirements of this Order. Agencies shall prepare their procedures in consultation with the Water Resources Council, the Federal Insurance Administration, and the Council on Environmental Quality, and shall update such procedures as necessary.

Section 3. In addition to the requirements of Section 2, agencies with responsibilities for Federal real property and facilities shall take the following measures:

(a) The regulations and procedures established under Section 2(d) of this Order shall, at a minimum, require the construction of Federal structures and facilities to be in accordance with the standards and criteria and to be consistent with the intent of those promulgated under the National Flood Insurance Program. They shall deviate only to the extent that the standards of the Flood Insurance Program are demonstrably inappropriate for a given type of structure or facility.

(b) If, after compliance with the requirements of this Order, new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures shall be applied to new construction or rehabilitation. To achieve flood protection, agencies shall, wherever practicable, elevate structures above the base flood level rather than filling in land.

(c) If property used by the general public has suffered flood damage or is located in an identified flood hazard area, the responsible agency shall provide on structures, and other places where appropriate, conspicuous delineation of past and probable flood height in order to enhance public awareness of and knowledge about flood hazards.

(d) When property in floodplains is proposed for lease, easement, right-of-way, or disposal to non-Federal public or private parties, the Federal agency shall (1) reference .in the conveyance those uses that are restricted under identified Federal, State or local floodplain regulations; and (2) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successors, except where prohibited by law; or (3) withhold such properties from conveyance.

Section 4. In addition to any responsibilities under this Order and Sections 202 and 205 of the Flood Disaster Protection Act of 1973, as amended (42 U.S.C. 4106 and 4128), agencies which guarantee, approve, regulate, or insure any financial transaction which is related to an area located in a floodplain shall, prior to completing action on such transaction, inform any private parties participating in the transaction of the hazards of locating structures in the floodplain.
Section 5. The head of each agency shall submit a report to the Council on Environmental Quality and to the Water Resources Council on June 30, 1978, regarding the status of their procedures and the impact of this Order on the agency's operations. Thereafter, the Water Resources Council shall periodically evaluate agency procedures and their effectiveness.
Section 6. As used in this Order:
(a) The term "agency" shall have the same meaning as the term "Executive agency" in Section 105 of Title 5 of the United States Code and shall include the military departments; the directives contained in this Order, however, are meant to apply only to those agencies which perform the activities described in Section 1 which are located in or affecting floodplains.
(b) The term "base flood" shall mean that flood which has a one percent or greater chance of occurrence in any given year.
(c) The term "floodplain" shall mean the lowland and relatively flat areas adjoining inland and coastal waters including floodprone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.
Section 7. Executive Order No. 11296 of August 10, 1966, is hereby revoked. All actions, procedures, and issuances taken under that Order and still in effect shall remain in effect until modified by appropriate authority under the terms of this Order.
Section 8. Nothing in this Order shall apply to assistance provided for emergency work essential to save lives and protect property and public health and safety, performed pursuant to Sections 305 and 306 of the Disaster Relief Act of 1974 (88 Stat. 148, 42 U.S.C. 5145 and 5146).
Section 9. To the extent the provisions of Section 2(a) of this Order are applicable to projects covered by Section 104 (h) of the Housing and Community Development Act of 1974. as amended (88 Stat. 640, 42 U.S.C. 5304(h)), the responsibilities under those provisions may be assumed by the appropriate applicant, if the applicant has also assumed, with respect to such projects, all of the responsibilities for environmental review, decision making, and action pursuant to the National Environmental Policy Act of 1969, as amended.

The White House, President Carter
May 24, 1977