Lost Hills Road/Route 101
Lost Hills Road Overcrossing Replacement & Interchange Modification Project

Project ID 0700000419

CITY OF CALABASAS, LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – US-101 (PM 31.9/32.3)

Water Quality Assessment Report

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Chapter 1 – Introduction

This Water Quality Assessment Report (WQAR) analyzes the potential short- and long-term water quality impacts from the proposed project on existing conditions of the project area. Water quality control measures are provided to mitigate any identified impacts.

Project Description

The City of Calabasas proposes to replace the existing Lost Hills Road/US-101 Overcrossing. It is currently inadequate due to closely spaced intersections in the vicinity and the relatively high cross-traffic flows, especially for future conditions. The proposed improvements would increase roadway widths to accommodate proper lane arrangements on the overcrossing, modify the existing U.S. Highway 101 (US-101) northbound and southbound ramps and replace the existing overcrossing with a new one designed with higher seismic safety standards. Without the Proposed Project, traffic conditions would continue to worsen as result of the continued population growth in the area.

U.S. Highway 101 is a primary north-south route extending along the coastal area of California. The segment of the highway that is within the project area however, trends in an east-west direction and provides the primary regional access for the City of Calabasas and adjacent cities within the western part of Los Angeles County and eastern part of Ventura County. The Project location and vicinity are shown in Figure 1.

The project area includes the bridge and the on- and off-ramps located at the US-101/Lost Hills Road Interchange. The exact footprint of the project area would vary depending on which alternative is implemented. The project study area, shown on Figure 2, is intended to include the largest potential disturbance area.

The existing US-101 is an eight-lane facility, with four mixed-flow lanes in each direction. The existing US-101/Lost Hills Road interchange has signalized intersections at the on- and off-ramps for the existing diamond interchange. The ramp locations are currently operating at a level of service (LOS) C for the peak AM hour and LOS C for the peak PM hour. Based on the traffic forecast for the future (2040) without a project, the LOS would be F for the peak PM hour (DKS Associates, 2009). The proposed improvements would substantially enhance the traffic operation at the interchange and address operational, traffic, and safety needs.

Purpose and Need

The purpose of this project is to improve mobility and safety by reducing existing and forecasted traffic congestion on US-101 within the project limits. This project would reduce congestion and is expected to enhance traffic operations in an area that experiences delays during peak hours. It would also enhance safety within the project limits, while minimizing environmental and socio-economic impacts.

The US-101 Freeway provides the primary regional access for the City of Calabasas and adjacent cities, within the western part of Los Angeles County. The proposed improvement to Lost Hills Road Overcrossing and US-101 Freeway interchange would substantially enhance the traffic operation at the interchange. The ramp intersections are currently operating at a level of service (LOS) C for the AM and PM peak hours. It should be noted that the actual operating

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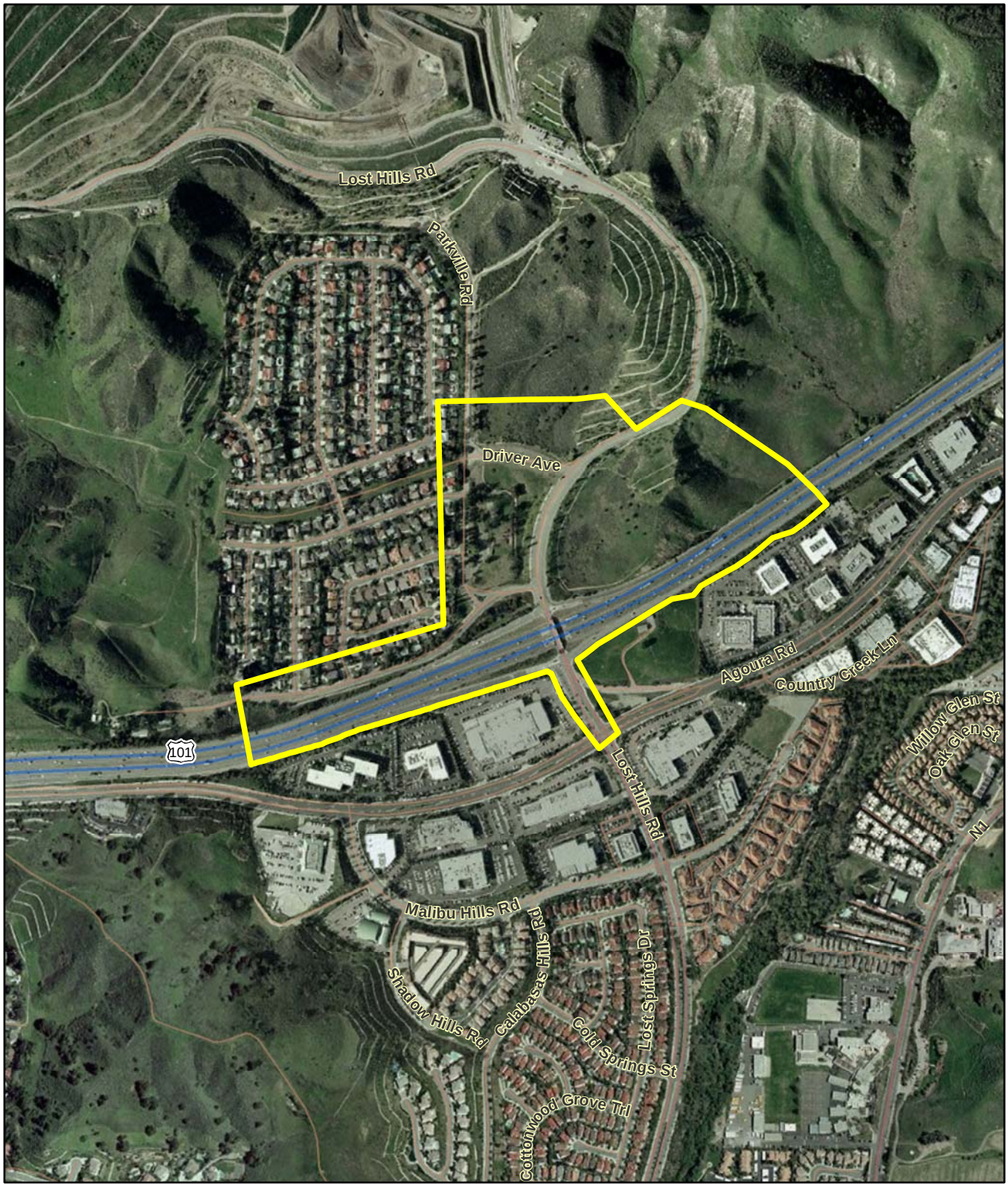
Figure 1
Project Vicinity



Chambers Group Inc.

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US 101/Lost Hills Road Interchange
Project Location Map
Figure 2

conditions tend to be worse than indicated by the theoretical level of service calculation due to lane merging on the bridge and queue backup between intersections. Based on the traffic forecasts for 2040, level of service (LOS) F would occur for the PM peak hour. A Project Study Report (PSR) and Preliminary Environment Analysis Report (PEAR) were completed in 2007 for the Proposed Project (Caltrans, 2007).

In addition to the limited traffic mobility, the existing overcrossing is too narrow for the amount of traffic. The Lost Hills Road Overcrossing provides the only emergency access to the residential community to the north and improving the operating conditions at the interchange would result in an overall operational improvement. Per State of California Department of Transportation (Caltrans) Retrofit Program Manager, the bridge requires seismic restrainer evaluation due to the current higher design criteria of Peak Rock Acceleration magnitude from 0.4g to 0.5g. The structure is 6km from a M6.25 fault and could possibly be vulnerable for near fault effects and vertical acceleration effects. Also, the current vertical clearance of the overcrossing is deficient at 15.42 feet, at its lowest point. The current overcrossing has a four span configuration with column bents located within the median and along the outside shoulders of the US-101 Freeway. This configuration cannot accommodate any future additional lanes on the US-101 Freeway.

The proposed project is intended to achieve the following goals:

- To improve existing and future traffic flows for the future growth conditions in the area.
- To decrease travel times for travelers.
- To improve safety for local residents and regional commuters.
- To facilitate the efficient flow of goods and services through this area.

Current demand is overwhelming the existing capacity of US-101 during peak periods including weekends. The 2007 Average Daily Traffic (ADT) was calculated to be 174,000 vehicles (Caltrans website data, 2009) and LOS calculations indicate that the Freeway Mainline operates at unacceptable levels of service in the existing and future conditions.

Based upon the Lost Hills Road/US-101 Interchange Traffic study, regional trips were estimated to increase by 31 percent between now and year 2040, about one percent per year (DKS Associates, 2009). Caltrans' policy is to maintain freeway mainline and ramp operations and to improve LOS based on the *Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002). Without improvements to the existing highway, population growth and increasing travel demand would present even greater challenges to an already overtaxed transportation facility. Current congested conditions would continue to cause delay for local traffic and regional commuters.

Project Alternatives

This section describes the proposed action and the design alternatives that were developed by a multidisciplinary team to achieve the project purpose and need, while avoiding or minimizing environmental impacts. Alternatives considered in the PEAR-PSR (Caltrans, 2007) and Draft IS/EA prepared for this project included the No-Build Alternative (1), the Transportation System Management Alternative (2), the Roundabout Alternative (3), the Expanded Diamond Alternative (4), the Partial Cloverleaf Alternative (5), and the Full Standard Expanded Diamond Interchange Alternative (6). The Cloverleaf Alternative (7) was considered in the Draft IS/EA prepared for this project but was not considered at the time the PEAR and the PSR were prepared.

The design alternatives will require various amounts of right-of-way acquisition (Table 1). Ownership of the land to be acquired will be private and/or public property based on which alternative is considered.

Table 1 – Right of way Acquisition

Alternative	Square Footage	Ownership
1	--	--
2	--	--
3	2,938	Private, County of Los Angeles
4	0	
5	186,055	County of Los Angeles
6	0	
7	378,052	County of Los Angeles

Source: Huitt Zollars, April 2011

The seven project alternatives are discussed below.

Alternative 1: No-Build

The no build alternative would retain the existing roadway condition. The existing features include a non-standard vertical clearance under the Lost Hills Road Overcrossing, with non-standard shoulders, an abrupt northbound merge on the bridge, and lack of left turn storage. The existing bridge is 39.7 feet wide with 6.8 feet of sidewalk and 32.0 feet of roadway. The existing north end of the bridge has two lanes, one in each direction, while the existing south end accommodates three lanes, two northbound lanes and one southbound lane. The two northbound lanes merge abruptly into one lane in the middle of the bridge. This no-build alternative would leave the City of Calabasas with a growing congestion problem at this location. There would be no proposed engineering features for this alternative.

Alternative 2: Transportation System Management

This alternative would involve traffic signalization changes and address potential improvements in traffic signal coordination and timing. This may help increase the efficiency of traffic flow, but based on the projected increase in vehicular volume and demand, would not be a sufficient alternative to serve future traffic needs.

Alternative 3: Roundabout

This alternative features a four-legged roundabout on the north side and south side of the overcrossing at the intersections of the freeway ramps and Lost Hills Road. This alternative would accommodate 10 lanes of traffic on US-101 Freeway. Interim ramp connections are required to connect the Lost Hills Road alignment on and off ramps. The design speed for this alternative is 37 mph.

This alternative connects the existing tangents (south and north of the overcrossing) with a 1640 feet horizontal curve with a radius of 1000 feet. The vertical alignment for Lost Hills Road was designed to join the existing grade on the north side of the intersection with Agoura Road, rising north to a crest curve at the proposed overcrossing, sinking north to a sag curve approximately located at the intersection with Canwood Street, and rising north to join the existing grade.

This alternative would provide a minimum permanent vertical clearance of 19.62 feet and temporary vertical clearance of 15.09 feet over the ultimate 10-lane US-101 Freeway and the interim 8-lane US-101 Freeway configuration. The new bridge would be super-elevated at three percent. The designed Stopping Sight Distance is 274 feet. Bridge geometric improvements consist of providing a minimum standard shoulder of 4 feet in each direction, four (4) 12 feet lanes with a 5 feet sidewalk on the west side and standard Type 732 and Type 26 barriers.

Canwood Street would need to be closed (pending City and County approval) except for emergency vehicle access from Parkville Road to Lost Hills Road. In order to maintain access for local residents, Driver Road from Parkville Road to Lost Hills Road will need to be graded, paved, and opened to the public.

Alternative 4: Expanded Diamond

This alternative proposes to lengthen the bridge to accommodate the anticipated widening of the US-101 Freeway (to include HOV lanes in both directions), but would retain the same diamond interchange configuration. This alternative would accommodate 10 lanes of traffic on the US-101 Freeway. Interim ramp connections are required to connect the Lost Hills Road alignment on- and off- ramps. The design speed for this alternative is 37 mph.

The new bridge would be wider by a minimum total of 34.6 feet and would be longer by a total of 29.2 feet. The current number of lanes serving the existing on- and off-ramps would remain the same. However, all four ramp intersections would need to be removed and replaced with ramps further from the freeway centerline to accommodate the longer bridge. The new bridge would be super-elevated at three percent. The designed Stopping Sight Distance is 274 feet.

This alternative would connect the existing tangents (south and north of the overcrossing) with a 1640 feet horizontal curve with radius of 1000 feet. The vertical alignment for Lost Hills Road was designed to join the existing grade on the north side of the intersection with Agoura Road, rising north to a crest curve at the proposed overcrossing, sinking north to a sag curve approximately located at the intersection with Canwood Street, and rising north to join the existing grade. The goal is to provide minimum vertical clearance (16.5 feet) above a widened US-101 Freeway.

Canwood Street would remain open for this alternative. The current design would require some right-of-way acquisition. This alternative would provide a minimum permanent vertical clearance of 19.3 feet and temporary vertical clearance of 15.1 feet under the ultimate 10-lane US-101 Freeway and the interim 8-lane US-101 Freeway lane configuration. The bridge geometric improvements consist of providing a minimum standard shoulder of 4 feet in each direction, five (5) 12 feet lanes with a 5 feet sidewalk on the west side and standard Type 732 and Type 26 barriers.

Alternative 5: Partial Cloverleaf

This alternative features a partial cloverleaf interchange (on- and off-ramp) that replaces the current northbound off-ramp and adds an additional northbound on-ramp. Under this alternative, none of the intersections north of the bridge would be signalized. The most northerly intersection (the US-101 Freeway northbound off-ramp) would have all-way stop control and no control would be needed at the US-101 Freeway northbound on-ramp. The bridge would be widened by 34.7 feet (minimum) and lengthened by 67.6 feet.

This alternative would accommodate 10 lanes of traffic on the US-101 Freeway. Interim ramp connections are required to connect the Lost Hills Road alignment on- and off-ramps. All four existing ramp intersections would need to be removed and replaced with ramps further from the freeway centerline to accommodate the longer overcrossing. The northbound off-ramp would be realigned to the north to allow construction of the new loop on-ramp. The design speed for this alternative is 35 mph.

This alternative would connect the existing tangents (south and north of the overcrossing) with a 1640 feet horizontal curve with a radius of 1000 feet. The vertical alignment was established using existing grades leaving Agoura Road and heading up the hill past Canwood Street. The goal is to provide minimum vertical clearance (16.5 feet) above a widened US-101 Freeway shoulder during construction. With this alternative the vertical clearance requirements are severely restricted by the depth of the new structure and horizontal constraints of Agoura Road.

The new bridge would be super-elevated at three percent. The designed Stopping Sight Distance is 316 feet. This alternative would provide a minimum permanent vertical clearance of 19.2 feet and temporary vertical clearance of 15.1 feet under the ultimate 10-lane US-101 Freeway and the interim 8-lane US-101 Freeway configurations. The bridge geometric improvements consist of providing a minimum standard shoulder of 4 feet in each direction, five (5) 12 feet lanes with a 5 feet sidewalk on the west side and standard Type 732 and Type 26 barriers.

Canwood Street would need to be closed (pending City and County approval) except for emergency vehicle access from Parkville Road to Lost Hills Road will need to be graded, paved, and opened to the public.

Alternative 6: Full Standard Expanded Diamond

Alternative 6 was derived from Alternative 4 (described above) by adjusting the southbound on-ramp further away from Agoura Road and by moving the vertical alignment to obtain a higher design speed. The bridge would be lengthened to accommodate the anticipated widening of the US-101 Freeway (to include HOV lanes in both directions), but would retain the same diamond interchange configuration. The bridge would be widened by a total 34.6 feet (minimum) and would be lengthened by a total of 29.2 feet. Permanent access to the residential community to the northwest would be relocated to Driver Road.

This alternative would accommodate 10 lanes of traffic on the US-101 Freeway. Interim ramp connections would be required to connect the Lost Hills Road alignment to the on- and off-ramps. The design speed for this alternative is 42 mph.

The current number of lanes serving the existing on- and off-ramps would remain the same. However, all four ramp intersections would need to be removed and replaced with ramps further from the freeway centerline to accommodate the longer bridge. The new bridge would be super-elevated at three percent. The designed Stopping Sight Distance is 325 feet.

This alternative would connect the existing tangents (south and north of the overcrossing) with a 1640 feet horizontal curve with a radius of 1000 feet. The vertical alignment for Lost Hills Road was designed to join the existing grade on the north side of the intersection with Agoura Road, rising north to a crest curve at the proposed overcrossing, sinking north to a

sag curve approximately located at the intersection with Canwood Street, and rising north to join the existing grade.

The current design may not require right-of-way acquisition. Retaining walls would be required along Lost Hills Road to accommodate the revised Lost Hills Road Interchange to meet the higher design speed across the bridge.

This alternative would provide a minimum permanent vertical clearance of 19.3 feet and temporary vertical clearance of 15.1 feet under the ultimate 10-lane US-101 Freeway and the interim 8-lane US-101 Freeway lane configuration. The bridge geometric improvements consist of providing a minimum standard shoulder of 4 feet in each direction, five (5) 12 feet lanes with a 5 feet sidewalk on the west side and standard Type 732 and Type 26 barriers.

Canwood Street would need to be closed (pending City and County approval) except for emergency vehicle access from Parkville Road to Lost Hills Road. Access for local residences, Driver Road from Parkville Road to Lost Hills Road will need to be graded, paved, and opened to the public.

Alternative 7: Cloverleaf

This alternative features a Cloverleaf interchange (on-and-off ramp) that replaces the existing northbound on- and off-ramp. This alternative considers a new cloverleaf on-ramp for northbound US-101, and the closure of the existing US-101 northbound on-ramp. The new cloverleaf northbound on-ramp would serve both northbound and southbound traffic on Lost Hills Road. Access to the residential community to the northwest of the interchange would remain at Canwood Street.

This alternative would accommodate 10 lanes of traffic on the US-101 Freeway. The northbound off-ramp would be realigned to the north to allow construction of the new loop on-ramp. The design speed for this alternative is 36 mph.

The new bridge would be super-elevated at three percent. The designed Stopping Sight Distance is 260 feet. With this alternative, the vertical clearance requirements are severely restricted by the depth of the new structure and horizontal constraints of Agoura Road. The current design requires right-of-way acquisition. Total net acquisition would be approximately 8.8 acres.

This alternative would connect the existing tangents (south and north of the overcrossing) with a 1640 feet horizontal curve with a radius of 1000 feet. The vertical alignment for Lost Hills Road was designed to join the existing grade on the north side of the intersection with Agoura Road, rising north to a crest curve at the proposed overcrossing, sinking north to a sag curve approximately located at the intersection with Canwood Street, and rising north to join the existing grade.

This alternative would provide a minimum permanent vertical clearance of 19.2 feet and temporary vertical clearance of 15.1 feet under the ultimate 10-lane US-101 Freeway and the interim 8-lane US-101 Freeway configurations. The bridge geometric improvements consist of providing a minimum standard shoulder of 4 feet in each direction, five (5) 12 feet lanes with a 5 feet sidewalk on the west side and standard Type 732 and Type 26 barriers.

Related Projects

Table 2 below represents the list of surrounding projects within the vicinity of the Proposed Project.

Table 2 – Surrounding Projects

EA	Route	Jurisdiction	Proposed Project	Status
28150	LA 101 29.2/38.1	Various	GSRD/other Treatment BMP	PSR approved October 2010. Not yet programmed.
25720	LA 101 33.0/34.4	Agoura (O/S)	Palo Comado Interchange Improvements	PA&ED - expected completion August 2011
24920	LA 101 24.9/38.2	Various	Restripe Roadway for Auxiliary Lanes	PSR approved. Not funded for any phases.
25210	LA 101 31.1/38.2	Various	Pavement Rehabilitation	Construction planned completion July 2012
25810	LA 101 37.0/38.0	Westlake Village (OS)	Lindero Canyon Road Interchange improvements	Design phase – expected completion August 2011

Source: California Department of Transportation District 7 and the City of Calabasas, April 2011.

Southern California Association of Governments (SCAG)-Regional Transportation Plan (RTP) – The SCAG 2008 RTP includes construction of Lindero Canyon Road from Agoura Road to Janlor Drive (Project ID: LA960142). Work on this project would include construction of a bike path, re-striped street, intersection widening, and signal coordination. In addition to that, Lindero Canyon Road would be widened from two to three lanes in each direction between Via Colinas and Agoura Road. The overcrossing would require reconfiguration to eliminate a sidewalk on the north side and provide a combination bike path/sidewalk on the south side. Bridge reconfiguration would occur within the existing width of the bridge surface. The proposed project would not interfere with construction of this project.

Approach to Water Quality Assessment

To determine the potential water quality impacts of the proposed Project, the following factors would be analyzed and assessed:

- Pollutant sources and anticipated changes in concentration of point-source pollutants due to changes in land use;
- Pre-and post-project impervious areas and changes after project completion and in relation to the amount of runoff (and whether it increases or decreases);
- Best Management Practice (BMP) technologies, types and numbers of BMPs to be used, and their efficiency;
- Amounts and types of discharges into impaired waters (as listed in Section 303(d) of the Federal CWA); and
- Existing water quality regulations and Department methods of compliance.

Applicable federal and state laws and regulations addressed in this report include:

Federal Laws

- Clean Water Act

State Laws

- Porter-Cologne Water Quality Act
- California Toxics Rule
- Section 1602 of the California Department of Fish and Game Code (Streambed Alteration Agreement)

Chapter 2 – Affected Environment

Surface Water Resources

The proposed Project is located within the Malibu Creek Watershed, which encompasses approximately 109 square miles of Los Angeles County. Las Virgenes Creek crosses under Highway 101 approximately one half mile east of the Project footprint. Las Virgenes Creek is a blue-line stream that originates in the Santa Monica Mountains and runs parallel to Highway 101 before converging with Malibu Creek and ultimately Santa Monica Bay. The creek is characterized by medium flows through the Project area. A total of 4,757 linear feet of concrete culverts have been installed along both sides of Lost Hills Road and within the landscaped road cuts. These culverts are concrete-lined and function to convey nuisance flows (e.g., road and irrigation runoff) from the surrounding areas to Las Virgenes Creek.

Flood Plains

The Project area is not within the 100-year flood plain. The Project area is designated as Zone X, which represents the 500-year flood and areas protected by levees from the 100-year flood (FEMA Flood Insurance Rate Map 06037C1264F, September 2008)). This is the area of a 100-year flood with average depths of less than 1 foot or with drainage areas less than one square mile.

Groundwater Resources

The Las Virgenes Municipal Water District supplies water to the Project area. Groundwater in the service area is of poor quality and is used to augment supplies for the recycled water system. The water district operates two wells out of the Russell Valley groundwater basin, which is a relatively small alluvial basin with total storage capacity of about 11,000 acre-feet bounded by semi-permeable rocks of the Santa Monica Mountains. Recharge is predominantly from percolation of rainfall and irrigation runoff.

Topography

The project site consists of fill slopes with inclinations of approximately 2:1 (horizontal to vertical) up to approximately 15 feet high that border the north and west sides of Highway 101. Existing slope conditions consist of adjacent park and commercial areas with relatively flat, paved areas along with a 2:1 downhill slope to a drainage channel. Concrete drainage ditches are present at the base of the slopes. The south side of the crossing includes a cut slope up to approximately 17 feet in height. Drainage along the south side generally is diverted to the storm drains.

The project site is situated adjacent to a pre-existing north-south trending drainage tributary that merges with the Las Virgenes Creek to the south (USGS, 1967). The creek bed previously was at an elevation of approximately 780 feet above MSL along the northeast side of the crossing. Grading in the area has altered the pre-existing topography resulting in the placement of fill soils associated with road and bridge construction.

Climate

The climate is classified as Mediterranean, which is characterized by pronounced seasonal changes in rainfall (i.e., dry summer and rainy winters) with relatively modest transitions in

temperature. The average annual temperature high is 90 degrees Fahrenheit and the low is 40 degrees Fahrenheit in Calabasas. The average annual rainfall is 13.6 inches. The rainy season has been defined by the RWQCB as October 1 through May 1.

Soils

Soil types in the Project area consist of younger alluvium (Qyf2, Qf, Qw) and alluvial basin or flood plain deposits (Qa). The younger alluviums are characterized by silty sand and sandy silt with sand, silt, and clay. The alluvial basin or flood plain deposits are generally clay with some silt and sandy clay. The dominant soil composition is cumulic haploxerolls, according to the US Department of Agriculture, National Resources Conservation Service web soil survey (accessed November 2009).

Existing Water Quality

Sources of pollution to surface and groundwater resources in the watershed include stormwater runoff from paved areas. Las Virgenes Creek has been identified as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (RWQCB 2007). The impairments identified for this creek are coliform bacteria, nutrients (algae), organic enrichment/low dissolved oxygen, scum/foam – unnatural, sedimentation/siltation, selenium, and trash. During the site assessment for the Hazardous Materials Initial Site Assessment, a potential for aerially deposited lead within the project limits was identified.

Highway Pollutants Affecting Water Quality

Based on data collected by the 2003 Caltrans Discharge Characterization Study Report (CTSW-RT-03-065.51.42), California highways demonstrate an increase in pollutant concentrations with higher traffic levels, a decrease in pollutant concentration with increased precipitation, higher pollutant concentrations with longer dry periods, lower concentrations of a few pollutants in larger drainage areas, and higher concentrations in agricultural and commercial areas than residential areas, transportation corridors, and open land use areas. Typical pollutants include sediment, nutrients, organic compounds, metals, bacteria, and oil and grease. In addition, trash has been identified as a pollutant in Las Virgenes Creek.

Chapter 3 – Regulatory Setting

Discharges into waters of the State or United States (US) are subject to the regulatory authority of the US Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG). The regulatory requirements are provided below.

Clean Water Act (CWA)

Section 303 of the CWA requires that the state identify and prioritize waters that do not meet, or are not expected to meet water quality standards by technology-based controls alone. Lists of these waters are included in the Section 303(d) lists submitted to the USEPA. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

Section 401 of the CWA specifies than any applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable water shall provide the licensing or permitting agency with a certification. The certification shall indicate that the project complies with all water quality standards, including beneficial uses, water quality objectives, and the state antidegradation policy.

Section 402 of the CWA permits discharge of a pollutant based on certain discharge conditions as part of the National Pollutant Discharge Elimination System (NPDES). The NPDES program establishes enforceable effluent limitations on discharges, require monitoring, designate reporting requirements, and require BMPs.

Section 404 of the CWA regulates the discharge of dredge or fill materials into waters of the US. The program is jointly administered by the USACE and US Environmental Protection Agency (USEPA) The USACE enforces the Section 404 provisions and reviews applications for individual and nationwide permits. The USACE also verified jurisdictional delineations identifying waters of the US.

Total Maximum Daily Load (TMDL) is a regulatory term in the (CWA, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.[1] Alternatively, TMDL is an allocation of that water pollutant deemed acceptable to the subject receiving waters.

The Malibu Creek Watershed Bacteria TMDL became effective on January 24, 2006. Caltrans is working cooperatively with a group of Responsible Agencies to jointly comply with the TMDL.

The Malibu Creek Trash TMDL became effective on July 7, 2009. The TMDL requires the Responsible Agencies, including Caltrans to reduce amount of trash deposited in the water body and in the storm water discharges to “zero” in eight years. Responsible Agencies may implement a Minimum Frequency of Assessment and Collection Program in or adjacent to the water body or place full capture devices at the drainage outfalls.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act established a regulatory program to protect water quality and beneficial uses of State waters. Each RWQCB formulated and adopted a Basin Plan and established water quality objectives to reasonably protect the beneficial uses and prevent the nuisance of

waters. The California Water Code provides flexibility for some change in water quality, provided beneficial uses are not adversely affected.

California Toxics Rule (CTR)

The CTR established numeric water quality criteria for certain priority toxic pollutants for inland surface waters, enclosed bays, and estuaries for the State of California to protect human health and the environment. The USEPA promulgated this rule to fill the gap in water quality standards for all purposes and programs under the Clean Water Act.

California Fish and Game Code Section 1602

The CDFG issues agreements for any alteration of a river, stream or lake where fish or wildlife resources may be adversely affected. Streams and rivers are defined by the presence of a channel bed, banks, and perennial, intermittent, or ephemeral flow of water. CDFG typically extends the limits of their jurisdictional laterally beyond the channel banks for streams to the outer edges of riparian vegetation.

National Pollutant Discharge Elimination System (NPDES) Permit

Construction and monitoring of the Project is subject to the requirements of the NPDES General Permit, Waste Discharge Requirements (WDRs) for Discharges of Stormwater Runoff associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES No. CA S000002), or General Construction Activity NPDES Permit and any subsequent statewide permit in effect at the time. Construction and operation of the Project is subject to the requirements of the NPDES Permit, Statewide Stormwater Permit and WDRs for the State of California, Department of Transportation Properties, Facilities and Activities (Order No. 99-06-DWQ, NPDES No. CA S000003) or Department NPDES Permit. Operation requirements include implementation of Design Pollution Prevention, Treatment and Maintenance BMPs. In addition, the Project would be in compliance with the Caltrans Stormwater Management Plan, spill containment and spill prevention control measures, and the General Construction Activity NPDES Permit.

Beneficial Uses for Surface Waters

The beneficial uses identified for Las Virgenes Creek include existing REC-1 (recreational use for body contact), REC-2 (recreational use for secondary contact), WILD (wildlife habitat), WARM (warm freshwater habitat), and RARE (rare, threatened or endangered species), and potential COLD (cold freshwater habitat), MIGR (migration of aquatic organisms), and SPWN (spawning, reproduction, and/or early development).

Water Quality Objectives

The Los Angeles RWQCB Basin Plan (1994) contains water quality objectives to reasonably protect and to maintain or enhance the beneficial uses of water. Parameters with regional objectives for inland surface waters include ammonia, bacteria/coliform, bioaccumulation, biochemical oxygen demand, biostimulatory substances, chemical constituents, total residual chlorine, color, exotic vegetation, floating material, methylene blue activated substances, mineral quality, nitrogen, oil and grease, dissolved oxygen, pesticides, pH, polychlorinated biphenyls, radioactive substances, solid/suspended/settleable materials, taste and odor, temperature, toxicity, and turbidity.

Chapter 4 – Environmental Consequences

This chapter discusses the potential environmental effects related to water quality due to Project implementation and measures to minimize those effects. With the Stormwater Management Program (SWMP), Caltrans intends to prevent the adverse effects of stormwater runoff from Caltrans roadways and facilities.

Project Planning and Design

Caltrans is required to evaluate and incorporate water quality treatment into a project. The SWMP provides the framework for management of stormwater discharges and temporary or permanent water quality controls. The BMPs that must be considered during the planning and design phase include Design Pollution Prevention, Treatment, and Construction Site BMPs. Design Pollution Prevention and Construction Site BMPs must be considered for every project. Treatment BMPs must be considered for all projects that are not considered exempt.

Best Management Practices

Best Management Practices (BMPs) were identified in the Storm Water Data Report to minimize discharge of constituents from the highway to nearby surface water bodies. Caltrans approved Design Pollution Prevention, Treatment, and Construction Site BMPs shall be utilized during construction and post-construction for this project in order to avoid or reduce potential storm water impacts. BMPs to be implemented for this Project shall be determined after detailed hydraulic and hydrology calculations are completed at the PS&E phase. Proposed design pollution prevention BMPs, proposed permanent treatment BMPs, proposed temporary construction site BMPs, and proposed maintenance BMPs, are provided below.

Proposed Design Pollution Prevention BMPs

Existing storm drains and channels would be extended and realigned to convey project run off to the same locations.

Cut and fill slopes would be modified and created adjacent to the proposed roadway realignment. Proposed slopes would be 2:1 (horizontal:vertical) or flatter for up-slopes and 4:1 or flatter for down-slopes to join existing slopes. Sediment loading would be minimal given existing slopes are maturely vegetated. Any disturbed project slope shall be re-vegetated following Caltrans Landscape Policy.

The total acreage required for post construction BMP implementation would be determined during the PS&E project phase. This includes all post-construction stabilized cut and fill slopes and drainage realignments.

Concentrated project flows are to be conveyed to an existing, realigned storm drain system with capacity upgrades as required to accommodate any additional flows. As identified previously, the implementation of the minimum standard and reduced standard alternatives is expected to result in some modifications to the existing slopes and hardscapes.

Proposed Permanent Treatment BMPs

The Treatment BMP strategy for the watersheds within the project limits should include capturing storm water off the pavement and directing into one of the aforementioned BMPs prior

to release back into the public storm drainage system. For all nine Caltrans approved treatment BMPs, see Appendix B of the Caltrans Project Planning and Design Guide (2010 version). All nine of the approved BMPs may not apply to the project, but all approved BMPs will be considered for possible application to the project.

With all four ramps being modified there should be opportunities to place treatment devices that reduce sediments along with other materials.

Biofiltration swales and strips located alongside on- and off-ramps are feasible treatment BMPs for this project. Detailed hydrology and hydraulic evaluations would be prepared during PS&E phase to properly determine the feasibility of biofiltration swales and strips. Biofiltration swales and strips can be considered at all four on- and off-ramp locations.

Infiltration Basins are currently planned for this project at areas alongside the rerouted on- and off-ramps where new slopes would allow. An identified location is the large, depressed area north of the NB off-ramp.

Detention Basins are considered feasible for this project since the detention device's volume could be greater than the WQV. The WQV is estimated at approximately 15,000 cubic feet.

Radial and inclined screened gross solids removal devices (GSRDs) should be planned for this project, but the number of GSRDs and their locations would be determined during the next phase of this project.

The Austin Sand Media Filter appears to be feasible for this project and needs to be investigated further. The proposed location would be inline with the existing concrete drainage channel north of the northbound off-ramp.

Traction Sand Traps are not feasible for this project. These devices are designed to capture sand and other abrasives that are used for traction during snow events; preventing it from entering storm water leaving the site. The proposed project's location does not have snow events and does not use sand or other abrasives for traction.

Dry Weather Flow Diversions are not feasible for this project. These devices allow for a persistent flow of a known quantity and length of time to be diverted into a sanitary sewer system for eventual treatment by a water treatment facility. The project specifies that the existing storm drain system be modified to handle the seasonal runoff. There is no persistent flow currently occurring at the project site, one will not be established.

The Multi-Chamber Treatment Train is not considered feasible or necessary for this project. Multi-Chamber Treatment Trains are designed to contain and partially treat storm water runoff from areas such as parking lots, vehicle service stations, fueling stations, and paved storage areas. These systems treat sediments and pollutants from areas with a large amount of runoff from impervious surfaces. This system is not applicable to the proposed project.

Wet Basin creates a manmade pond like storage basin that uses natural vegetation to contain storm water until it is removed by additional piping. This BMP requires an outside water source to ensure a certain depth to maintain the vegetation. Wet Basins are usually placed near existing rest areas. The proposed project's design specifications and location require the existing storm drain system to be modified to handle the seasonal runoff.

Proposed Temporary Construction Site BMPs

Temporary Construction Site BMPs shall be developed in accordance with Appendix C of the Project Planning and Design Guide (PPDG) along with the most recent cost guidelines from Caltrans Headquarters. Caltrans intends to prevent the adverse effects of stormwater runoff from Caltrans roadways and facilities. For the new construction permit, new items such as "rain event action plan", "storm water annual report", " storm water sampling and analysis day" were introduced. These items are listed in Section 4 of the Caltrans Project Planning and Design Guide (2010 version).

Silt fencing, fiber rolls, stormwater pollution prevention plan, and stabilized construction entrances shall be utilized.

Surface disturbance of soil and vegetation shall be kept to a minimum. Existing access and maintenance roads shall be used wherever feasible.

Any stockpiled soil shall be placed and sloped so that it would not be subject to accelerated erosion.

Discharge of all project-related materials and fluids into drainages shall be avoided to the extent possibly by using hay bales or silt fences, constructing berms or barriers around construction materials or installing geofabric in the area of disturbance.

After ground-disturbing activities are complete all graded or disturbed areas shall be covered with protective material, such as mulch, or re-seeded with native plant species.

Proposed Maintenance BMPs

Drain inlet stenciling is required at all storm drain inlets and catch basins. Any existing or new basins within the project limits along publicly accessible streets (not the ramps) must have “NO DUMPING – DRAINS TO OCEAN” with appropriate graphical icon stenciled on the sidewalk at each drain.

TMDL Controls

The Project Engineer of projects located where dry weather diversion exists needs only consider infiltration devices for bacteria removal; however, all other projects, shall consider both dry weather flow diversion and infiltration devices.

The Project Engineer shall consider treatment controls for the project and consult with the District NPDES Storm Water Coordinator.

Project Construction

The Stormwater Pollution Prevention Plan (SWPPP) for the proposed Project shall identify the specific BMPs to be implemented during project construction to avoid contribution to an exceedance of any applicable water quality standard contained in the Basin Plan. These BMPs shall meet the requirements stipulated in the NPDES Permit. At a minimum, the SWPPP shall describe measures that would be used to minimize wind and water erosion and the transport of sediments during construction.

Project Operation and Maintenance

The NPDES permit also governs operation and maintenance of completed projects. The discharges from a facility shall not create a condition of nuisance or adversely affect the beneficial uses of waters of the State. BMPs would be implemented to minimize potential stormwater pollution from accidental spills, illicit connections, and illegal discharges and dumping. As appropriate, illegal discharges and dumping are reported to local enforcement agencies when discovered.

Potential Impacts to Water Quality

Short-term Impacts during Construction

Build Alternatives

Direct impacts to water quality may result from construction activities associated with the US 101/ Lost Hills Interchange Project. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste, sanitary waste, and chemicals. Under the General Construction activity NPDES Permit, the project would be required to prepare a SWPPP and implement erosion and sediment control BMPs detailed in the SWPPP during construction activities.

Soil disturbance results in the movement of sediment and dust which can be transported into tributaries and Las Virgenes Creek through the existing concrete culverts located in the project area. However, the project would have to comply with the RWQCB requirements, and provisions set forth by the NDPES Stormwater Discharge Permit. The implementation of construction BMPs would result in reducing any impacts to less than significant. A SWPPP also would be required.

During the site assessment for the SWDR, a potential for aerially deposited lead within the project limits was identified. Further exploration of potential groundwater contamination may be warranted if dewatering is required for the project due to the presence of the landfill north of the project site. The proposed Project does not require additional water supplies that would substantially deplete existing groundwater supplies or result in a net deficit in aquifer volume or lowering of the local groundwater table.

No Build Alternative

No improvements, other than routine roadway and bridge maintenance would occur. Therefore, the No Build Alternative would result in no short-term water quality impacts from construction related activities.

Long-term Impacts during Operation

Build Alternatives

Pollutants of concern during operation of this Project are related to the permanent increase of impervious surfaces and a permanent increase in runoff and pollutant loading. The increase of impervious surfaces for use by vehicles may gradually expand the amount of storm water runoff, and the amount of vehicle pollutants transported from these surfaces during storm events. The changes to the existing topography as a result of the improvements would not result in an

increase in the velocity of flow within the project limits and should have negligible downstream impacts. In addition, future development along Las Virgenes Creek may incrementally increase the conveyance of contaminated runoff into the creek. As part of the requirements of the NPDES Permit, the Project shall consider approved Design Pollution Prevention and Treatment Control BMPs for the Project site. There are no existing Treatment BMPs within the project limits.

No Build Alternative

No improvements, other than routine roadway and bridge maintenance would occur. There would not be an increase in impervious area or change in land use. Therefore, the No Build Alternative would result in no short-term water quality impacts from construction related activities.

Chapter 5 – Conclusions and Recommendations

The potential impacts to water quality from the proposed Project are at a level of less than significant with the implementation of proposed BMPs and compliance with permit requirements. The Project is designed to minimize impacts and BMPs would be utilized during and after construction to control potential discharges of pollutants to surface water. Consideration of treatment BMPs would be a part of this Project. Permanent stormwater treatment BMPs shall be incorporated to the maximum extent practicable in compliance with the Caltrans SWMP and stormwater guidance.

Construction site BMPs would be prepared and implemented with the provisions of the NPDES Permit and any subsequent permit as they relate to construction activities for this Project. This would include submission of a Notice of Intent to the State Water Resources Control Board at least 30 days before the start of construction, preparation and implementation of the SWPPP, and submission of a Notice of Construction Completion or Notice of Termination to the Los Angeles RWQCB upon completion of construction and stabilization of the project site. Also, BMPs would be considered and incorporated in accordance with the procedures outlined in the PPDG Stormwater Quality Handbooks. If dewatering activities are required, the provision of the general WDRs for discharges to surface waters would be followed.

Chapter 6 – References

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