6th Street Viaduct Seismic Improvement Project

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – Bridge Nos. 53C-1880 and 53-0595

EA 251200

Federal Project Number 5006 (342)

SCH#2007081005

Final Environmental Impact Report/ Environmental Impact Statement and Section 4(f) Evaluation

VOLUME I – MAIN TEXT

Prepared by

State of California Department of Transportation (NEPA Lead Agency)
and
City of Los Angeles (CEQA Lead Agency)

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

October 2011

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6TH STREET VIADUCT SEISMIC IMPROVEMENT PROJECT

FINAL
ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(f) EVALUATION

Submitted Pursuant to: (State) Division 13, Public Resources Code
(Federal) 42 U.S.C. 4332(2)(C), 49 U.S.C. 303, and 23 U.S.C. 327.

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STATE OF CALIFORNIA
Department of Transportation (NEPA Lead Agency)
and
City of Los Angeles (CEQA Lead Agency)

10/5/2011
Date

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October 3, 2011
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Abstract

The 6th Street Viaduct was constructed in 1932 using then state-of-the-art concrete technology and an onsite mixing plant. Over the last 75 years, concrete elements of the viaduct have cracked and deteriorated as a result of an internal chemical reaction called Alkali Silica Reaction (ASR). The results of seismic vulnerability studies, completed in 2004, concluded that the viaduct, in its current state of material deterioration and lack of structural strength, has a high vulnerability to failure as a result of a major earthquake. In addition to its vulnerability to collapse under predictable seismic forces, the 6th Street Viaduct also has geometric design and safety deficiencies.

This joint Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) documents potential environmental impacts associated with two build alternatives and a No Action Alternative. Notable impacts that have been identified consist of:

- Use of an historic site protected under Section 4(f) of the U.S. Department of Transportation Act of 1966, an adverse effect under Section 106 of the National Historic Preservation Act of 1966, and a significant impact under CEQA
- Displacement and relocation of active industrial and commercial activities
- Air pollutant emissions during the construction period
- Traffic disruption during the construction period
- Emergency response delay during the construction period

The preferred alternative chosen is replacement of the existing viaduct on Alignment 3B using the principles of Bridge Concept 4.

Table of Contents

VOLUME I – MAIN TEXT

VOLUME II – APPENDICES

List of Figures

List of Tables

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Summary

Project Overview

The City of Los Angeles (City) and the California Department of Transportation (Caltrans) propose to undertake the seismic improvement of the 6th Street Viaduct over the Los Angeles River (Bridge No. 53C-1880) and the 6th Street Overcrossing, which spans the US 101 Hollywood Freeway (Bridge No. 53-0595). These two bridges comprise a single structure – the 6th Street Viaduct.

The viaduct was determined eligible for listing in the National Register of Historic Places (NRHP) for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne steel and reinforced concrete design. Because the viaduct has been determined eligible for listing in the NRHP, it is also listed in the California Register of Historical Resources (CRHR). It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California" as part of the Caltrans Statewide Bridge Inventory in 1987. In addition, the 6th Street Viaduct is designated as City of Los Angeles Historic-Cultural Monument (HCM) #905. Based on its NRHP eligibility, the 6th Street Viaduct is also a historic site protected under Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code [U.S.C.] 303. The 6th Street Viaduct was also determined to be one of 29 City of Los Angeles "monumental bridges" based on an update to the 1987 statewide historic bridge survey commissioned by Caltrans in 2004 (*City of Los Angeles Monumental Bridges, 1990-1950*, prepared by JRP Historic Consulting). However, the study concluded that the bridges in Los Angeles that are significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the NRHP criteria. Caltrans submitted the study findings to the State Historic Preservation Officer (SHPO).

The 6th Street Viaduct Seismic Improvement Project is included in the Final 2008 Regional Transportation Improvement Program (RTIP) and Federal Transportation Improvement Program (FTIP), in which the project is programmed for $245 million over a 6-year period, Fiscal Years 2008/9 to 2013/14. The RTIP is currently being amended to include the total project cost of $401.2 million. A Financial Plan has been prepared in accordance with the Federal Highway Administration (FHWA) guidance to identify additional funding sources to undertake the project.

The proposed project would correct seismic deficiencies of this critical Los Angeles River crossing by either retrofitting the existing structure or replacing the 6th Street Viaduct entirely. Under the replacement alternative, the proposed project would also correct geometric design and structural detailing deficiencies of the existing viaduct by constructing the replacement to current standards set forth by American Association of State Highway and Transportation officials (AASHTO) and the City of Los Angeles Department of Transportation (LADOT).

The project is subject to both federal and state environmental review requirements because the City proposes the use of federal funds managed by the Federal Highway Administration (FHWA). This environmental documentation has been prepared in compliance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being carried out by Caltrans under its assumption of responsibility pursuant to Section 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) codified at 23 U.S.C. 327(a)(2)(A). The City is responsible for compliance with CEQA.

The Draft EIR/EIS was circulated for public review and comment between June 16, 2009 and August 24, 2009. The Notice of Availability (NOA) was published in the *Los Angeles Times* on June 11, 2009, and was filed with the County Clerk on June 18, 2009, and the *Federal Register* on July 10, 2009 (Volume 73, Number 131 *EIS No. 20090226)*. Three public hearings were conducted. During the 70-day public review period ending August 24, 2009, 26 written comment letters and e-mails pertaining to the Draft EIR/EIS were received. Responses to all written comments are included in Appendix M of this Final EIR/EIS.

Purpose and Need

The 3,500–foot (ft) long 6th Street Viaduct was constructed in 1932 using state-of-the-art concrete technology at that time. Over the last 75 years, concrete elements of the viaduct have cracked and deteriorated as a result of an internal chemical reaction called Alkali Silica Reaction (ASR), which is caused by the reactive aggregate used in the concrete. Because of this ongoing and irreversible chemical action, the 6th Street Viaduct's concrete has lost significant strength, and the structure is subject to failure under predictable seismic energy releases. The viaduct also has design deficiencies consisting of cracking and condition of deck, superstructure, and superstructure elements; inadequate roadway width; out of specification bridge and approach railing, and approach rail ends; poor roadway alignment; and out-of-specification geometric and seismic detail design.

As an outcome of these needs, the purpose of the project is threefold:

- Preserve 6th Street as a viable east-west link between Boyle Heights and Downtown Los Angeles
- Reduce vulnerability of the 6th Street Viaduct in major earthquake events[1]
- Resolve design deficiencies of the 6th Street Viaduct

Alternatives Considered

Three alternatives are being analyzed in this Environmental Impact Report/Environmental Impact Statement (EIR/EIS) as follows:

Alternative 1 – No Action

This alternative provides neither retrofit nor replacement of the seismically and functionally deficient 6th Street Viaduct. The Alkali Silica Reaction (ASR) deterioration of the structure would continue, and the seismic vulnerabilities would worsen as the concrete strength continues to degrade. The City would continue to provide ongoing inspection and maintenance on the viaduct to keep it open to traffic as long as possible, given the ongoing ASR deterioration and seismic vulnerabilities. Furthermore, the 6th Street Viaduct would remain at its existing roadway width of 46 feet (ft), which accommodates 2 travel lanes in each direction with no outside shoulders or safety median. The substandard sidewalk widths and railings, and the lack of shoulders, would also not be corrected under this alternative.

The Final EIR/EIS also addresses the impacts of no action in the event the viaduct was rendered unserviceable due to advanced ASR deterioration or a major seismic event in the future, neither of which can be predicted. Under such an event, the City would seek emergency funding sources to replace it. It is estimated that the time to identify funding, complete design, acquire right-of-way (ROW), and construct a new viaduct would range between 5 and 7 years from the time it was placed out of service.

Alternative 2 – Viaduct Retrofit

This alternative would reduce vulnerability of the 6th Street Viaduct, seismically retrofitting the viaduct's columns by encasing them with heavy steel, and constructing infill walls between selected columns. In addition, new foundations, grade beams, retrofitting of bent caps, and

[1] A magnitude of 7.3 for this structure.

closure of some expansion joints in the superstructure would be constructed in combination with the column retrofits. The structure would be retrofitted to the minimal standard of "no collapse" for the major earthquake (design seismic event). Based on the cost estimates of $197 million, Alternative 2 is a fully funded alternative[2].

Alternative 3 – Viaduct Replacement

This alternative is comprised of two elements: alignment and bridge type (or concept). The replacement alternative would construct a new viaduct along one of three alignments under consideration, including 3A, 3B, and 3C. The main-span bridge type would be selected from one of five concepts under study, including (1) Main Span Replication; (2) Cast-in-Place (CIP) Box Girder with Steel Tied Arch Pedestrian Ways; (3) Steel Half-Through Arch with CIP Box Girder Approaches; (4) Extradosed (cable-supported) Concrete Box Girder with Dual Pylons with Concept 4A as one of the design expression examples; and (5) Extradosed Concrete Box Girder with Single Pylon. The new structure would have a cross section that meets modified secondary highway standards as required by LADOT. The new roadway would have a maximum width of 70 ft (curb-to-curb) within the City ROW and 74 ft (curb-to-curb) on the State ROW. The proposed cross section would also allow for sidewalks with a maximum width of 10 ft within City ROW and transition to 8 ft within the State ROW. Bridge rails located on the outside edges of the structure would have a maximum width of 2 ft. The typical width to the outside of the bridge rails would therefore be 94 ft maximum for spans that are not supported on cables. The cross section within Caltrans' ROW (over US 101) would be slightly different. In this section, the viaduct roadway would be 74 ft, curb to curb, consisting of two 12-ft-wide lanes in each direction, a 10-ft-wide median, and 8-ft-wide shoulders. The proposed cross section also allows for 8-ft-wide sidewalks on both sides of the structure.

Project Funding

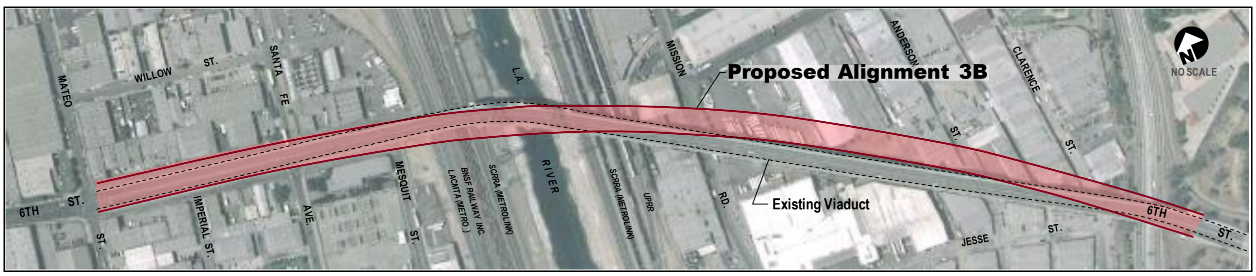
The Project Financial Plan for the 6th Street Viaduct Seismic Improvement Project has been prepared, in accordance with the FHWA guidance, using the average cost of $401.2 million to cover the costs of preliminary design and preparation of the Project Report and EIR/EIS; preparation of plans, specifications, and estimate, as well as ROW and construction costs. The funding sources identified in the Financial Plan include Federal Highway Bridge Program (HBP) funds of $364.1 million, State Proposition 1B "Local Bridge Seismic Retrofit Account" (LBSRA) of $29.7 million, other State Funds of $0.2 million, City Matching Funds of $5.2 million, and Bond Financing (HBP/Prop 1B) Funds to pay for the interest costs as a result of the needed cash flow. The City will receive Caltrans programming approval for the state and federal

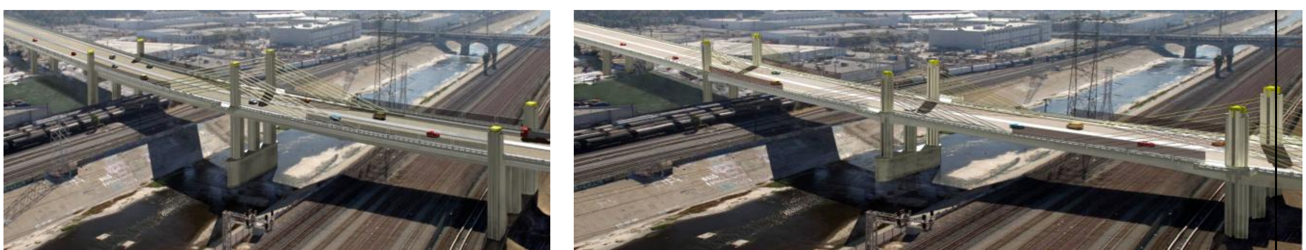
[2] The 6th Street Viaduct Seismic Improvement Project is included in the 2008 Regional Transportation Improvement Program (RTIP), which is programmed for $245 million over a 6-year period (Fiscal Years 2008/9 to 2013/14).

funds listed above once Caltrans approves the project's Financial Plan, prior to the EIR/EIS Record of Decision (ROD).

Identification of Preferred Alternative

After comparing and weighing the benefits and impacts of all of the feasible alternatives, as summarized in Summary Table ES-1 and described in detail in Chapter 3, the Project Development Team (PDT) has identified the Replacement Alternative (Alternative 3) with Alignment 3B and the design principle of Bridge Concept 4, with Concept 4A as one of the design expression examples, as the Preferred Alternative for the 6th Street Viaduct Seismic Improvement Project. The City and Caltrans have made the final determination of the project's impact on the environment based on the comments and concerns expressed during the public review period and the results of the engineering and environmental technical analysis. The Preferred Alternative would attain the purpose of the project.





Examples of Design Expression of Bridge Concept 4

The City will go through a process to refine the final design for the bridge replacement to ensure that both an architecturally distinctive and cost-effective design expression is selected for construction. Design details of the preferred cable-supported bridge type could evolve into different engineering and architectural expressions of this concept, in terms of tower and cable connection form for example, in addition to aesthetic elements of colors, textures, lighting, railings, and gateway elements.

Section 4(f) Evaluation

Both build alternatives of the 6th Street Viaduct Seismic Improvement Project involve the use of one Section 4(f) property, the NRHP-eligible 6th Street Viaduct. A Section 4(f) Evaluation was prepared to identify the Section 4(f) resources in the project area, describe the nature and extent of the use of these properties, evaluate alternatives that would avoid the use of Section 4(f) resources, and describe measures to minimize harm to the affected resources.

To meet the overall project purposes of preserving the 6th Street Viaduct as a viable east-west link between Boyle Heights and Downtown Los Angeles, reducing vulnerability of the 6th Street Viaduct in major earthquake events, and resolving design deficiencies of the viaduct, this historic viaduct requires retrofitting or replacing. Only two alternatives considered would completely avoid the Section 4(f) property: the No Build Alternative and Replacement Alternative (Alignment Alternatives 8 and 9 out of the 10 alignments studied during the initial screening phase, as shown on Figure 2-16, in Section 2.5 of this Final EIR/EIS). The No Build Alternative does not meet the project purpose and need. Alignment Alternatives 8 and 9 are not prudent avoidance alternatives because they would result in substantially greater ROW impacts, require major alteration of the viaduct adversely affecting the resource while not alleviating the seismic safety problem because the ASR would continue, and the construction costs of these alternatives would be so high as to be considered of an extraordinary magnitude. Therefore, it is not prudent and feasible to avoid the Section 4(f) property with any of the build alternatives that meet the purpose and need of the project, including those alternatives already eliminated from further consideration.

Specific measures to minimize harm to the historic property, as well as agency consultation requirements, are stipulated in the Memorandum of Agreement (MOA) developed for this project under Section 106 of the National Historic Preservation Act (NHPA). The MOA was executed by Caltrans and the SHPO, with the City of Los Angeles as a concurring party, on May 10, 2010.

Environmental Impacts

Environmental impacts associated with the two Build Alternatives and the No Action Alternative were fully analyzed, and the results are summarized in Table S-1.

Areas of Public Controversy

Under both build alternatives for this project, the proposed undertaking would have an adverse effect on the 6th Street Viaduct pursuant to provisions of the NHPA. Alternative 2 proposes work that would alter the character-defining features of the viaduct, potentially making the property ineligible for inclusion in the NRHP by compromising the historic integrity of the structure. Alternative 3 proposes to replace the existing viaduct with the new structure, resulting in the removal of the historic structure. The 6th Street Viaduct is 1 of 12 historically significant bridges/viaducts that cross the Los Angeles River and are considered important both for their distinctive architecture and for the critical role they played in the development of Los Angeles as a world-class city. The 6th Street Viaduct is also a visual landmark that links the communities of Boyle Heights and Downtown Los Angeles. City preservationists are concerned about the loss of the historic viaduct, designated as City of Los Angeles HCM #905, and citizens of both communities have expressed concern at public meetings about the importance of this landmark to the community and how modifications to the structure or its removal could have an adverse effect on community values.

In public and agency meetings held during project scoping, support was expressed for opportunities created by viaduct replacement to redevelop the area surrounding 6th Street Viaduct. This was viewed as an opportunity to enhance the quality of life of those living in the local community and the region. Examples of redevelopment and land use opportunities included adding more recreational area adjacent to the new viaduct; making the viaduct a landmark destination; development of retail and gallery space; provision of river access; and making the area around the viaduct a usable space. While these opportunities are compatible with the objectives and plans of the Los Angeles River Revitalization Master Plan, redevelopment of this land for non-industrial uses would be inconsistent with the local community plans that aim to preserve the industrial land uses and protect employment within the community plan area.

Another area of public debate that arose during project meetings has been the wide-ranging preferences for replacement bridge types to be constructed for the main span over the Los Angeles River. Six bridge types have been evaluated by the PDT members, the bridge experts, and the general public. The bridge types under consideration include a replication of the existing viaduct, variations of a contemporary arch structure, and ultra-modern “extradosed” (cable-supported) structures.

Agreements and Permits to be Obtained from other Agencies

The following permits, reviews, and approvals would be required for project construction:

Agency	Permit/Approval
U.S. Army Corps of Engineers (USACE)	Section 404– Nationwide Permit for possible discharge of dredged or fill material into the Los Angeles River
State Historic Preservation Officer (SHPO)	Section 106 consultation and agreement document to resolve the adverse effect to the historic 6th Street Viaduct
Los Angeles Regional Water Quality Control Board (RWQCB)	Construction General Permit and Project Registration Documents.
RWQCB	National Pollutant Discharge Elimination System (NPDES) Permit
RWQCB	Groundwater Dewatering Permit for discharges of groundwater from construction and project dewatering to surface waters in the watersheds of Los Angeles
California Department of Fish and Game (CDFG)	Section 1602 Agreement for Streambed Alteration
California Public Utilities Commission (PUC) Rail Crossing Engineering Section (RCES)	Rail crossing construction or alteration authorization
Caltrans	Encroachment Permit
All railroad agencies owning and operating railroad tracks along both sides of the Los Angeles River	Railroad Maintenance Agreement for work within railroad ROW

CEQA EIR Certification and NEPA EIS Record of Decision

After the public circulation period, all comments were considered, and the City of Los Angeles and Caltrans have identified Alternative 3 – Alignment B with the principles of Bridge Concept 4 (cable-supported) – as the preferred alternative. Prior to approving the proposed project, the City Council must certify the EIR and adopt the mitigation monitoring and reporting plan and a statement of overriding considerations. With respect to NEPA, Caltrans, as assigned by FHWA, will document and explain its decision regarding the preferred alternative, project impacts, and mitigation measures in a ROD in accordance with NEPA.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
Land Use and Planning	Would not provide the City with an opportunity to designate 6th Street along the 6th Street Viaduct as a bikeway. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Up to 19 businesses would be affected, 2 of which would be subject to relocation. These right-of-way (ROW) displacements would be inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would not provide the City with an opportunity to designate 6th Street along the 6th Street Viaduct as a bikeway. • Would provide a seismically safe bridge, with a 30-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies. • Would provide less redevelopment opportunity for the area in the immediate vicinity of the viaduct.	• Up to 30 businesses would be affected, 11 of which would be subject to relocation. These businesses are located in the designated "industrial preservation and employment protection zone," the proposed action would be inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe bridge, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies. • Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct. • Impact level would be the same for any bridge concept.	• Up to 33 businesses would be affected, 11 of which would be subject to relocation under Alignment 3B. These businesses are located in the designated "industrial preservation and employment protection zone." Inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe link, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies. • Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct. • Impact level would be the same for any bridge concept.	• Up to 30 businesses would be affected, 8 of which would be subject to relocation. These businesses are located in the designated "industrial preservation and employment protection zone.". Inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe bridge, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies. • Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct. • Impact level would be the same for any bridge concept.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
Community Character and Cohesion	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Community disconnection could occur on a temporary basis during construction.	• Community disconnection could occur on a temporary basis during construction • Loss of historic resource and community landmark to which many residents are attached. • Based on some input from the public, Bridge Concept 1 (main span replication) would likely be perceived as keeping the old community icon, whereas Concepts 4, 4A, and 5 (modern cable-supported bridge) would be viewed as a new community icon.	Same as Alignment 3A.	Same as Alignment 3A.
Relocation and Business Disruption	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Construction would require a partial lane closure on the 6th Street Viaduct. Temporary blockage of roadways would occur during construction due to the required partial traffic lane closure and construction equipment movement. • Up to 19 businesses would be affected, 2 of which would be subject to relocation. • Minimal employment impacts.	• The viaduct and all acquired buildings would be first removed. Roadway blockage to the remaining businesses would temporarily occur during the demolition and construction activities. • Up to 30 businesses would be affected, 11 of which would be subject to relocation. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.	• The viaduct and all acquired buildings would be first removed. Roadway blockage to the remaining businesses would temporarily occur during the demolition and construction activities. • Up to 33 businesses would be affected, 11 of which would be subject to relocation under Alignment 3B. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.	• Although many buildings adjacent to the bridge would not have to relocate, roadway blockage to these businesses would cause operational disruption during the 4-year demolition and construction period. • Up to 30 businesses would be affected, 8 of which would be subject to relocation. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
Environmental Justice	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• The project study area contains predominantly minority and low-income populations compared to the larger area within the city and county of Los Angeles. Construction would require partial lane closures on the 6th Street Viaduct. Construction of Alternative 2 would cause disproportionately high adverse effects on minority and/or low-income populations living closer to the construction zone as per Executive Order 12898 regarding environmental justice.	• Construction would require full closure of the 6th Street Viaduct. Construction of the Replacement Alternative would cause disproportionately high adverse effects on minority and/or low-income populations who live closer to the viaduct and the proposed detour routes as per Executive Order 12898 regarding environmental justice. • Residents in the area adjacent to the viaduct would receive higher benefit from the opportunity to redevelop the area as a result of the proposed project. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.
Utilities and Emergency Services	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Temporary or permanent relocation of some utility services may be required. • Disruption to railroad operations during construction. • Permanently reduce horizontal clearance between the center of existing tracks and the retrofitted columns of the viaduct by approximately 1 ft. • Partial lane closure on the 6th Street Viaduct during the 2.5-year construction period would delay emergency response services.	• Temporary or permanent relocation of some utility services would be required. • Disruption to railroad operations during construction. • Full closure of the 6th Street Viaduct during the 4-year construction period would delay emergency response services. • Beneficial effects from providing the median and shoulders for emergency use. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
Traffic, Transportation, Pedestrian Facilities	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Construction would cause localized, temporary traffic disruption, sidewalk blockage, and parking space obstruction. • Possible loss of some currently public parking spaces underneath and along the local streets near the viaduct, creating inconvenience to area residents and businesses. • Minor disruption to public transit operations due to possible partial lane closures on the 6th Street Viaduct.	• Construction would require full closure of the 6th Street Viaduct for up to 4 years, resulting in traffic detours along the street network east and west of the river. Traffic analysis revealed up to 13 out of 31 intersections under study would be impacted by detouring traffic. Temporary access restriction would occur around the construction zone. Sidewalk closure requiring rerouting of pedestrians, and the loss of approximately 50 public parking spaces around the viaduct would also occur during the construction phase. • Loss of public parking spaces underneath and along the local streets near the viaduct would create inconvenience to area residents and businesses. • Travel delays of 5 to 10 minutes on public transit would occur from traffic detours. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.
Visual/Aesthetic	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3,	• Retrofit would encase most of the existing columns with heavy steel covered by architectural mortar creating a more massive column configuration. In addition, construction of sheer walls between many of the columns would limit many of the views under the	• Replacement of the viaduct and the subsequent loss of the historic landmark would impact the views to the structure. The various bridge replacement concepts would be expected to alter the existing views to varying degrees. The most notable visual impact would be from replacement of the historic structure with a new	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	but the period the viaduct would be out of service for replacement could be up to 7 years.	viaduct. The view restriction under the viaduct deck could affect activities such as filming.	structure of contemporary design (i.e., the cable-supported design); however, each of the designs analyzed would maintain the vividness/memorability, unity, and visual intactness experienced with the current viaduct structure. • Modern bridge concepts 4, 4A, and 5 would likely include architectural lighting. It is likely that the accent lighting would be a noticeable addition to the nighttime viewscape.		
Cultural Resources	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• The project area has the potential for buried archaeological materials to be encountered during ground disturbance. • Retrofitting would alter and/or destroy the historic materials, features, and spatial relationships that characterize the viaduct, resulting in an adverse effect to a designated historic resource.	• The project area has the potential for buried archaeological materials to be encountered during ground disturbance. • Replacement of the viaduct would remove the 6th Street Viaduct, resulting in an adverse effect to a designated historic resource. • The viaduct would be removed from the city-wide inventory of historic bridges over the Los Angeles River, impacting the City's remaining monumental resources on a cumulative basis.	Same as Alignment 3A.	Same as Alignment 3A.
Hydrology and Floodplains	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts	None	• Construction of Bridge Concept 1 would adversely affect the river hydraulics upstream of the viaduct due to the larger pier size. • Construction of other bridge types (2, 3, 4, 4A, 5) would have either negligible or beneficial impacts to the river hydraulics.	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.				
Water Quality and Stormwater Runoff	All stormwater runoff from the viaduct would continue to be discharged to the Los Angeles River without prior treatment. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• No permanent treatment best management practice (BMP) devices would be installed with this alternative; all stormwater runoff from the viaduct would continue to be discharged to the Los Angeles River without prior treatment.	• Stormwater from the new viaduct would be treated before discharging to the Los Angeles River. • Implementation of Bridge Concept 1 would result in a net increase of the placement of fill area in the Los Angeles River. Other bridge concepts would result in a net decrease of the placement of fill area in the river.	Same as Alignment 3A.	Same as Alignment 3A.
Geology, Soils, Seismicity	None, but the viaduct would continue to deteriorate from Alkali Silica Reaction (ASR) weakening the concrete elements. If the viaduct was determined to be unserviceable,	• Alternative 2 would design the retrofitted features to prevent collapse under a design seismic event. Due to access restrictions near the railroad, Bent 12 would not be retrofitted. The design life expectancy to prevent seismic collapse under this alternative is approximately 30 years. The viaduct would have to be replaced if it	• Would have a beneficial effect because Alternative 3 would replace the existing severely damaged viaduct with a new viaduct that is designed to meet current seismic safety standards required by Caltrans. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	collapses during a major earthquake or the ASR deterioration renders it unsafe.			
Paleontology	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• No previously recorded paleontological sites were identified during the records search; however, there is the potential to uncover fossil remains as a result of earth-moving activities.	Same as Alternative 2 for all bridge concepts	Same as Alternative 2.	Same as Alternative 2.
Hazardous Waste/Materials	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for	• Based on the results of a site investigation conducted along the existing viaduct corridor, soil and groundwater at the project site have the potential to be contaminated with volatile organic compounds (VOCs) and petroleum hydrocarbons; this could impact workers and the environment. • Bridge elements and	• Based on the results of a site investigation conducted along the existing viaduct corridor, soil and groundwater at the project site have the potential to be contaminated with VOCs and petroleum hydrocarbons; this could impact workers and the environment. • Bridge elements and buildings to be demolished may have ACM in the form of coatings, insulation, and/or expansion joint	Same as Alternative 2.	Same as Alternative 2.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	replacement could be up to 7 years.	buildings to be demolished may have asbestos-containing materials (ACM) in the form of coatings, insulation, and/or expansion joint compounds and lead-based paint (LBP) coatings, which could cause health effects to workers. • Costs associated with hazardous waste remediation and disposal under Retrofit Alternative are estimated at $6 million.	compounds and LBP coatings, which could cause health effects to workers. • Soils near US 101 may contain aerially deposited lead (ADL) generated by motor vehicle exhaust, which could cause health effects to workers. • Costs associated with hazardous waste remediation and disposal under Replacement Alternative are estimated at $4.7 million. • Impact level would be the same for any bridge concept.		
Air Quality	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Under the worst-case day of the construction period (i.e., viaduct closed and traffic detour in effect), the regional emissions of nitrogen oxides (NO_x) would exceed the daily significance threshold set forth by South Coast Air Quality Management District (SCAQMD).	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.
Noise and Vibration	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts	• Noise impacts from retrofit activities would be confined to a relatively narrow corridor extending along both sides of the viaduct and corresponding to the construction sequence. The	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	commercial/industrial areas adjacent to the viaduct are not identified as "frequent human outdoor-use" locations; therefore, no adverse construction noise impacts to commercial/ manufacturing uses along the 6th Street corridor are anticipated. The closest residences to the viaduct are located 600 ft away; no adverse noise impact would occur. • During construction, the highest vibration levels would be caused by the impact pile driver. Buildings located adjacent to the pile driving location could temporarily experience the vibration effect. Since no fragile buildings or historic buildings are located within 50 ft of the proposed construction site, no adverse impacts from construction vibration to adjacent buildings are expected to occur.			
Biological Resources	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same	• Limited biological resources exist within the viaduct footprint where construction activities would occur. No mature trees would be removed; hence, no adverse impacts to plant species are anticipated. Cliff swallows or roosting bats may	• Ornamental trees within the survey area have a limited potential to support nesting birds, which are protected by the Migratory Bird Treaty Act. A preconstruction survey would be conducted to identify any mature trees subject to removal prior to the commencement of	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	as direct impacts under Alternatives 2 and 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	establish new nests or roosts under the viaduct deck. A preconstruction survey would be conducted to confirm the absence or presence of any nesting birds or roosting bats. If found, steps would be taken to remove them and prevent establishment of new nests or roosts prior to the beginning of the nesting season.	construction activities. Cliff swallows and roosting bats may establish new nests under the viaduct deck. A preconstruction survey would be conducted to confirm the absence or presence of any nesting birds or roosting bats. If found, steps would be taken to remove them and prevent establishment of new nests or roosts prior to the beginning of the nesting season. • Impact level would be the same for any bridge concept.		
Cumulative Effect: Land Use	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• No substantial cumulative effect with current land use policy. • Would potentially be in conflict with future High-Speed Rail Project and the Westside Subway Extension Project.	• More business relocation could occur within the vicinity of the proposed project because there are foreseeable projects proposed to be constructed within the same locality of the proposed project.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.
Cumulative Effect: Community Impacts	None as long as viaduct remains in service. Cumulative impacts in the event the	• Cumulative community impacts could occur to area residents and businesses because there are foreseeable projects scheduled to be constructed in nearby	• Cumulative community impacts could occur to area residents and businesses because there are foreseeable projects scheduled to be constructed in nearby vicinity during the same period as the	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
	viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	vicinity during the same period as the proposed project. • Low-income and/or minority populations living close to the viaduct would be subject to disproportionately higher impacts from concurrent construction activities.	proposed project. • Low-income and/or minority populations living close to the Viaduct would be subject to disproportionately higher impacts from concurrent construction activities. • More business relocations within the project vicinity could occur with implementation of other foreseeable projects; thus, impacting local businesses on a cumulative basis. • Impact level would be the same for any bridge concept.		
Cumulative Effect: Traffic and Circulation	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Cumulative traffic impacts could occur during the 2.5-year project construction if other projects within the same locality are scheduled for construction during the same timeframe and utilize the same hauling routes.	• Cumulative traffic impacts would be larger than Alternative 2 due to the required closure of the 6th Street Viaduct during the 4-year construction period.	Same as Alignment 3A.	Same as Alignment 3A.
Cumulative Effect: Visual and	None as long as viaduct remains in service.	• Alteration of the historic fabric of the 6th Street Viaduct would not result in	• The new viaduct could have iconic value to the community and City. Given the highly urban	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
Aesthetics	Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	cumulative impacts to visual and aesthetic resources within the landscape units surrounding the 6th Street Viaduct.	and industrial nature of the development within and adjacent to the project area, implementation of the future foreseeable projects along with the Replacement Alternative for this project would not appreciably change the existing character of the area.		
Cumulative Effect: Cultural Resources	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Implementation of the Retrofit Alternative would not contribute to cumulative effects on archeological resources within the APE or citywide. • Alteration of the historic fabric of the 6th Street Viaduct under Retrofit Alternative would not constitute cumulative impacts to historic resources within the APE or citywide when considered together with other foreseeable projects. • The 6th Street Viaduct is designated City of Los Angeles HCM #905, as one of 11 historic Los Angeles River bridges (HCM #900 – #910). The 6th Street Viaduct contributes to City historic	• Implementation of the Replacement Alternative would not contribute to cumulative effects on archeological resources within the APE or citywide. • Cumulative impacts on the loss of historic resources within the APE or Citywide cannot be determined since there is no known information about the loss of other historic resources as a result of other foreseeable projects. • Removal of the 6th Street Viaduct under the Replacement Alternative would impact the City's historic-cultural monument bridges on a cumulative basis.	Same as Alignment 3A.	Same as Alignment 3A.

Table S-1
Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Replacement Alignment 3A	Alternative 3 Replacement Alignment 3B	Alternative 3 Replacement Alignment 3C
		themes; implementation of the Retrofit Alternative would not impact the City's historic-cultural monument bridges on a cumulative basis.			
Cumulative Effect: Air Quality	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Cumulative air pollutant emissions could occur if several projects within the vicinity of the viaduct are under construction at the same time during the 2.5-year construction duration.	• Cumulative air pollutant emissions could occur because there are foreseeable projects scheduled to be constructed in the vicinity during the same period as the proposed project. Impact level would be the same for any bridge concept.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.
Section 4(f) Resources	None	• Would have a permanent, adverse impact on historic 6th Street Viaduct.	• Would have a permanent, adverse impact on historic 6th Street Viaduct.	Same as Alignment 3A.	Same as Alignment 3A.

Avoidance, Minimization, and Mitigation Measures

The proposed project alternatives have been designed to avoid or minimize potential environmental impacts. Mitigation measures are proposed when avoidance and minimization attempts could not fully resolve the impacts. Several measures outlined in this document are the requirements of applicable laws, regulations, ordinances, and formally adopted City standards (e.g., Los Angeles Municipal Code and Bureau of Engineering Standard Plans), which govern the City and its contractors. Moreover, many measures are part of the requirements of the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook) (WATCH Manual) as specifically adopted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works Additions and Amendments to the Standard Specifications For Public Works Construction [aka "The Brown Book," formerly Standard Plan S-610]).

Table S-2 summarizes proposed specific mitigation measures to minimize impacts under Alternatives 2 and 3 implementation.

Table S-2
Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	**Alternative 3 – Replacement**
Community Impacts and Environmental Justice	• Develop a construction staging plan and Traffic Management Plan (TMP) in close coordination with the members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP shall also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period. • Inform key event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid conflict on the use of areas near the 6th Street Viaduct for any festive events. • If homeless people were found within the construction site, the Los Angeles Homeless Services Authority (LAHSA) will be contacted to provide services to any homeless people found within the project area prior to construction.	• Conduct a public outreach program to keep residents, businesses, utility service providers, emergency service providers (including Fire and Police Departments) within the project area informed of the project construction schedule, demolition plan, material hauling plan, relocation plans and assistance programs, traffic-impacted areas, and the TMP and other relevant project information. • Require the construction contractor to submit the means and methods for demolition for LABOE review and approval. During the demolition period, construction inspectors shall ensure the contractors adhere to the approved plan. • Participate in ongoing meetings with the LABOE Los Angeles River Project Office (LARPO) to implement elements of the Los Angeles River Revitalization Master Plan (LARRMP) related to Greening Concept objectives to improve the area near the 6th Street Viaduct and provide potential future connections to the river corridor from the viaduct. In addition to LARPO, meetings will include, but are not limited to, the Planning Department, the Recreation and Parks Department, and the Community Redevelopment Agency. • Provide improvements to enhance the aesthetics and pedestrian safety of 11 out of 13 affected

Table S-2
Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	**Alternative 3 – Replacement**
		intersections along the proposed detour routes that could not be mitigated (see Traffic Impacts Section)..Types of improvements would be developed with public input and using context-sensitive design solutions, and may include but not be limited to decorative crosswalk with community theme and raised median with hardscape treatment where space allows. • Develop a construction staging plan and TMP in close coordination with members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP shall also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian and bicycle routes, and residential and commercial access routes to be used during the construction period. • Inform key event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid conflict on the use of areas near 6th Street Viaduct for any festive events. • If homeless people were found within the construction site, the LAHSA will be contacted to provide services to any homeless people found within the project area prior to construction.
Utilities and Emergency Services	• Notify emergency service providers at least 2 weeks in advance of the project construction schedule. Provide detailed information on the construction schedule, roadway closures, traffic detour route maps, and expected congested intersections. • Coordinate with emergency service providers throughout the construction period to notify them of any changes in construction schedule, roadway closures, and detour routes.	• Conduct a public outreach program to keep residents, businesses, utility service providers, emergency service providers (including Fire and Police Departments) within the project area informed of the project construction schedule, demolition plan, material hauling plan, relocation plans and assistance programs, traffic-impacted areas, and the TMP and other relevant project information.
Traffic, Transportation and Pedestrian Facilities	No specific mitigation is required.	• Require the construction contractor to install new traffic signals at the intersection of 4th Street and US 101 SB On- and Off-Ramps, and connect to Los Angeles City ATSAC system.. • Require the construction contractor to restripe to add an eastbound right-turn lane at the intersection of 4th Street and Soto Street.
Aesthetics and Visual Resources	None is required.	• Establish an Aesthetics Advisory Committee (AAC) to provide input and advice throughout the design period of the project, including input on bridge aesthetics for the new structure and associated roadways under improvement within the scope of this project. The AAC will participate in design review meetings and provide input on selected

Table S-2
Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	**Alternative 3 – Replacement**
		design elements including, but not limited to, colors, textures, lighting, railings, and community/City gateway monumental elements. • Participate in ongoing meetings with the LABOE and LARPO to implement elements of the LARRMP related to Greening Concept objectives to improve the area near the 6th Street Viaduct and provide potential future connections to the river corridor from the viaduct. In addition to LARPO, meetings will include, but are not limited to, the Planning Department, the Recreation and Parks Department, and the Community Redevelopment Agency. • Provide improvements to enhance the aesthetics and pedestrian safety of 11 out of 13 affected intersections along the proposed detour routes that could not be mitigated (see Traffic Impacts Section). Types of improvements would be developed with public input and using context-sensitive design solutions, and may include but not be limited to decorative crosswalk with community theme and raised median with hardscape treatment where space allows.
Cultural/ Historical Resources	• Incorporate all applicable Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) into the design of retrofitting components. • Prior to any viaduct alteration or construction activities, contact the National Park Service Western Region Office (NPS) in Oakland, California, to determine the degree of additional recordation required for the property beyond that provided in 1996 (Historic American Engineering Record [HAER] No. CA-176). Unless otherwise agreed to by the NPS HABS/HAER, Caltrans and the City shall ensure that all documentation is completed and accepted by HABS/HAER before the viaduct is altered or demolished. • Install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced. • Establish an Environmentally Sensitive Area (ESA) Action Plan, which will include fencing of site no. 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.	• Prior to the start of any work that could adversely affect any characteristics that qualify the 6th Street Viaduct (Bridge No. 53C-1880 and 53-0595) as a historic property, contact the NPS in Oakland, California, to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, 6th Street Bridge, HAER No. CA-176," dated May 7, 1996. The City shall provide NPS 30 calendar days to respond to their additional recordation determination request. If additional documentation is required, the City shall ensure that the additional documentation is completed and accepted by NPS before the Viaduct is altered and/or demolished. The City shall prepare draft and final reports to be reviewed by NPS. • Upon completion, copies of the documentation prescribed in the above measure, consisting of an acid-free xerographic copy of the report, prepared on standard 8.5-inch by 11-inch paper, shall be retained by Caltrans District 7, deposited in the Caltrans Transportation History Library in Sacramento, and offered by the City to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, City of Los Angeles Office of Historical Resources, and the California Office of Historic Preservation. • Work with the Los Angeles Public Library to place the historical information from the HABS/HAER report on a City Web site with a link to a public library Web site, such as the Los Angeles Public

Table S-2
Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	**Alternative 3 – Replacement**
		Library Web site, available to the public for a minimum period of 3 years. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their Web site. • Produce a documentary (motion picture or video) that addresses the history of the Los Angeles River Monument bridges, and their importance and use within the broader contextual history of the City of Los Angeles. The motion picture or video shall be of broadcast quality, between 30- and 90-minute duration, and shall be made available to local broadcast stations, public access channels in the local cable systems, and requesting schools/libraries; one copy shall be submitted to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento. • Produce and publish a booklet on the Historic Los Angeles River Bridges that addresses the history of the monumental concrete bridges of Los Angeles and this bridge's place in that history. The booklet shall be similar in general format to the "Historic Highway Bridges of California" published by Caltrans (1991) and shall include high-quality black-and-white images of the Los Angeles River Bridges, historic photographs or drawings, as appropriate, and text describing each of the bridges' location, year built, builder, bridge type, significant character-defining features, and its historic significance. City shall post an electronic version of the booklet on a City Web site and produce paper copies for distribution to local libraries, institutions, and historical societies. One copy shall be submitted to the Caltrans Transportation Library and History Center in Sacramento. City shall maintain the camera-ready master booklet and produce additional copies if there is demand. • Install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced. • Offer artifacts removed from the viaduct during demolition to local museums or other suitable facilities to be determined by the City. The accepting institutions shall arrange their own transportation to deliver the artifacts to designated locations. • Establish an ESA Action Plan, which will include fencing of site no. 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.

Table S-2
Proposed Specific Mitigation Measures

<table>
<tr><th rowspan="2">Environmental Factor</th><th colspan="2">Mitigation Measures</th></tr>
<tr><th>Alternative 2 – Retrofit</th><th>Alternative 3 – Replacement</th></tr>
<tr><td>Paleontology</td><td>Retain a qualified paleontologist to develop and implement a Paleontological Monitoring Plan. Conduct paleontological monitoring onsite to inspect new exposures created by earth-moving activities in areas underlain by the older alluvium and at depths greater than 5 ft below current grade for the younger alluvium.</td><td>Same as Alternative 2.</td></tr>
<tr><td>Air Quality</td><td>Implement fugitive dust source controls by requiring the contractor to:
– Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to active and inactive sites during workdays, weekends, holidays, and windy conditions.
– Install wind fencing and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
Implement mobile and stationary source controls by requiring the contractor to:
– Reduce use, trips, and unnecessary idling from heavy equipment.
– Maintain and tune engines per manufacturer’s specifications to perform at U.S. Environmental Protection Agency (EPA) certification levels, where applicable, and at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.</td><td>Same as Alternative 2.</td></tr>
<tr><td>Air Quality</td><td>– Prohibit any tampering with engines and adhere to manufacturer’s recommendation.
– Lease new and clean equipment meeting the most stringent of applicable federal and state standards, if practicable.
– Utilize EPA-registered particulate traps and other appropriate controls, where suitable, to reduce emissions of particulate matter and other pollutants at the construction site.
Implement administrative controls by requiring its staff to:
– Require the contractor to prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of</td><td>Same as Alternative 2.</td></tr>
</table>

Table S-2
Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	**Alternative 3 – Replacement**
	equipment before groundbreaking. (Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.) – Where appropriate, use alternative fuels such as natural gas and electric. Develop a construction traffic and parking management plan that minimizes interference and maintains traffic flow as part of the TMP.	
Biological Resources	• If construction occurs between February 1 and August 31, conduct a preconstruction survey by a qualified biologist to identify any active nesting or roosting locations. If active nests of migratory species occur within the construction area, then a temporary exclusion fence 50 ft in diameter shall be assembled around the nest. The biologist shall then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such areas can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.	• Prevent possible damage and injury to migratory birds by scheduling the removal of vegetation (whether native or horticultural landscaping) in the project area between September 1 and January 31. If initial vegetation removal and ground clearance cannot be avoided between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey of trees and shrubbery for active nests. If active nests of migratory species occur within the construction area, then a temporary exclusion fence 50 ft in diameter shall be assembled around the nest. The biologist shall then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such areas can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.
Cumulative Effects	With implementation of the proposed mitigation measures under each individual resource; no additional mitigation measures would be required.	With implementation of the proposed mitigation measures under each individual resource; no additional mitigation measures would be required.

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Chapter 1
Proposed Project

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) and the City of Los Angeles (City) propose to undertake the improvement of the 6th Street Viaduct over the Los Angeles River (Bridge No. 53C-1880) and the 6th Street Overcrossing, which includes the US 101 Hollywood Freeway (Bridge No. 53-0595). The structure is located in a highly urbanized area just east of Downtown Los Angeles in the County of Los Angeles, California, as shown in Figure 1-1.

On September 11, 2007, Caltrans entered into the cooperative agreement, in which the City of Los Angeles is designated as the California Environmental Quality Act (CEQA) lead agency for the whole project, which covers both the City (3,264 feet [ft]) and state (235 ft) portion of the viaduct. The City has accepted CEQA responsibility.

This Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) has been prepared in accordance with the Guidelines for CEQA (*California Code of Regulations*, Title 14 Sections 15000-15387), the Council on Environmental Quality (CEQ) Regulations implementing the National Environmental Policy Act (NEPA) (40 *Code of Federal Regulations* [CFR] 1500-1508), and the Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771) to inform the public and decision makers of the environmental effects of the 6th Street Viaduct Seismic Improvement Project. This document has been prepared jointly by Caltrans, the federal lead agency for NEPA, functioning as a designee of FHWA, and by the City of Los Angeles, who is the lead agency for CEQA.

Caltrans first published a Notice of Intent (NOI), in accordance with NEPA, in the *Federal Register*, and the City simultaneously published a Notice of Preparation (NOP), in accordance with CEQA, to announce preparation of an EIR/EIS for the 6th Street Viaduct Seismic Improvement Project. The NOI was published in the *Federal Register* on August 31, 2007, and the NOP was filed on August 1, 2007, with the Governor's Office of Planning and Research Statewide Clearinghouse. The NOP was also published in newspapers of general circulation and ethnic publications corresponding to the demographic profile of the communities subject to impact. The NOP and invitations to attend a scoping meeting were also mailed to government agencies, business groups, neighborhood associations, property owners, and additional stakeholders. Three separate scoping meetings (two on August 24, 2007, and one on August 26, 2007) were held to receive recommendations for the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed in the EIR/EIS.

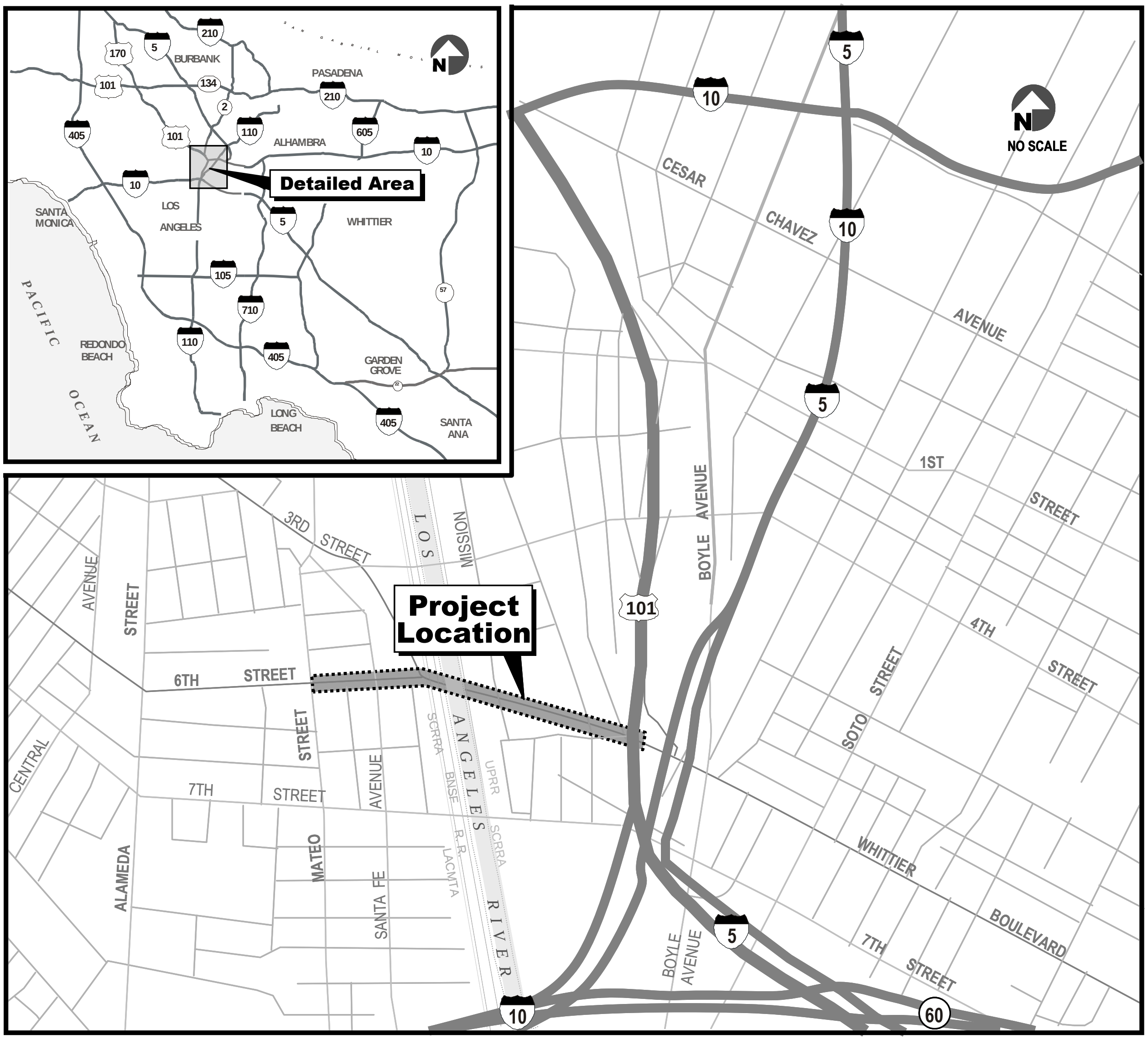

Figure 1-1 Project Location and Vicinity Maps

Caltrans and the City circulated the Draft EIR/EIS for public review between June 16, 2009, and August 24, 2009. The Notice of Availability (NOA) was published in the *Los Angeles Times* on June 11, 2009, and was filed with the County Clerk on June 18, 2009, and the *Federal Register* on July 10, 2009 (Volume 73, Number 131 *EIS No. 20090226)*. The Draft EIR/EIS was mailed to elected officials, government agencies, and interested parties. Advertisements announcing the Draft EIR/EIS public hearings were placed in the *Los Angeles Times*, *La Opinión*, *Eastside Sun*, and *Los Angeles Downtown News* newspapers. In addition, public notices written in English and Spanish were mailed to occupants located within a 2,000-foot (ft) radius of the 6th Street Viaduct.

Three Draft EIR/EIS public hearings were held. The first public hearing was held at the Caltrans District 7 Headquarters at 100 S. Main Street in Los Angeles, on July 14, 2009, from 2:00 p.m. to 4:00 p.m. The second public hearing was held on the east side of the project area at the Boyle Heights Senior Center at 2839 East 3rd Street in Los Angeles, on July 14, 2009, from 6:00 p.m. to 8:30 p.m. The third and final public hearing was held on the west side of the project area at the Inner City Arts Building at 720 Kohler Street in Los Angeles, on July 21, 2009, from 5:00 p.m. to 7:00 p.m. The agenda for all of the hearings included an open house viewing of project displays, introduction of project team members, a project presentation, and a public comment session with court reporters. The project display boards included aerial photographs, engineering drawings, photo simulations, and bridge concept models for attendees to view while interacting with project representatives. A total of 73 people attended the meetings.

1.2 Project Location and Setting

The 6th Street Viaduct (Bridge No. 53C-1880) and 6th Street Overcrossing (Bridge No. 53-0595) comprise a single structure that spans a portion of the Hollywood Freeway (US 101), the Los Angeles River, city streets, and several railroad tracks (Figure 1-2). The structure is located in a highly urbanized area just east of Downtown Los Angeles and connects Downtown Los Angeles on the west side of the river with the Boyle Heights community on the east side of the river. The 66-ft-wide viaduct (from outside edge to outside edge) is approximately 3,500 ft long, with a 46-ft-wide (curb-to-curb) four-lane roadway having 11-ft-wide interior and 12-ft-wide exterior traffic lanes, no shoulders, and variable-width sidewalks extending along both sides. An approximate 3,264-ft-long segment of the viaduct is owned by the City, and a 235-ft-long segment which crosses over the US 101 freeway is owned by Caltrans.

The proposed project is located within a fully developed, mixed-use urban setting. The project limits would extend along 6th Street from west of southbound (SB) Interstate 5 (I-5) on the east side of the Los Angeles River to Mill Street on the west side of the river (see Figure 1-2). The project is located at the boundary of the City of Los Angeles' Central City North and Boyle Heights General Plan areas. Sixth Street is one of the primary thoroughfares connecting Downtown Los Angeles and Boyle Heights.

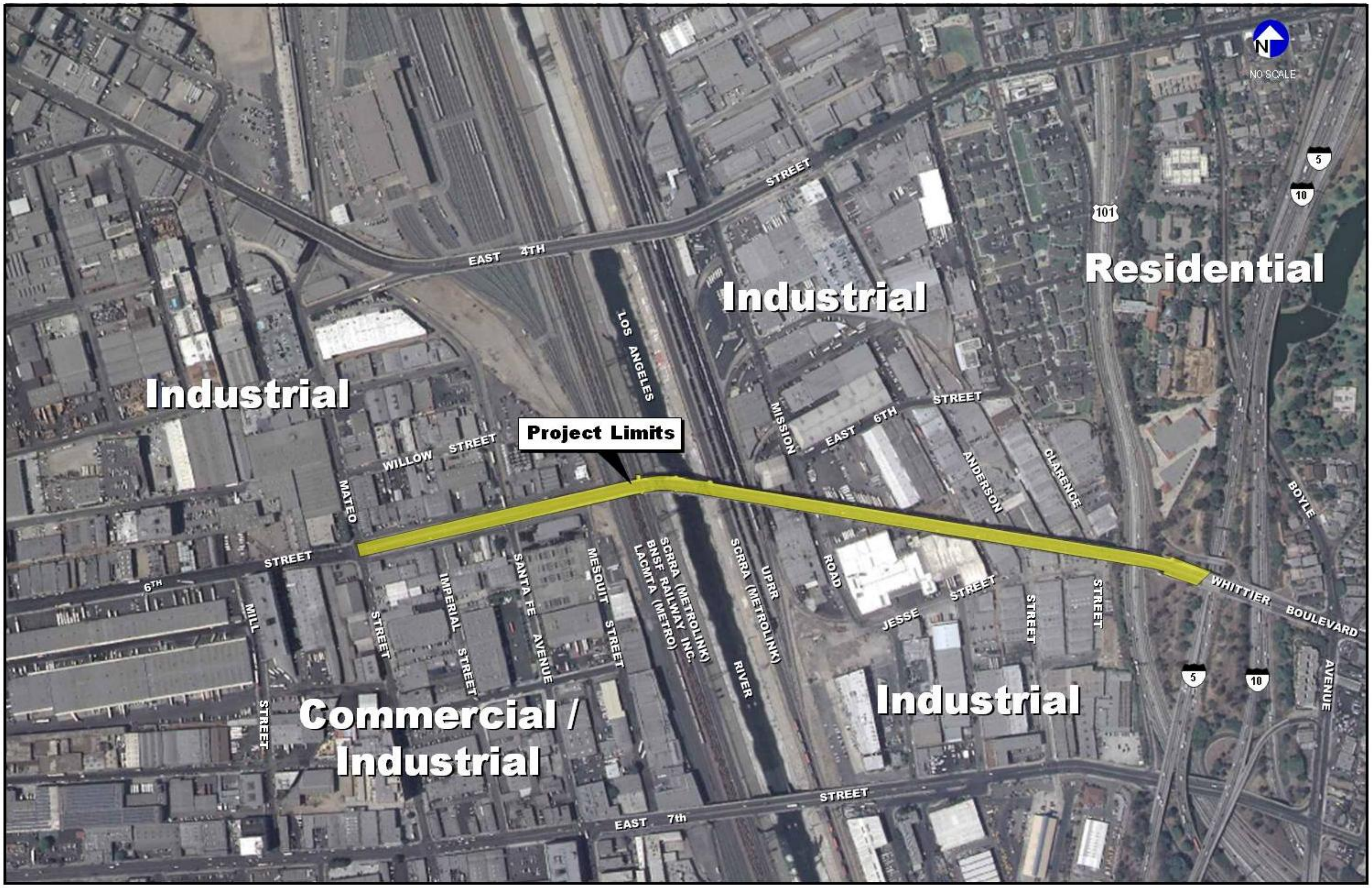

Figure 1-2 Aerial View of the Proposed Project Vicinity

The 6th Street Viaduct crosses the Los Angeles River along an east-west alignment. Land uses along the north and south sides of the viaduct are predominantly industrial and commercial. A City Department of Public Works maintenance office is located within the area underneath the viaduct on the west side of the river. Some homeless people occasionally present under the viaduct on both sides of the river. A tunnel, owned by the City of Los Angeles, which is located under the viaduct on the west side of the river, provides access to the river from Santa Fe Avenue near the frontage road on the south side of the viaduct (Figure 1-3).

Figure 1-3 Existing River Access Tunnel

Railroad corridors exist along the east and west banks of the river. On the west bank of the river, the two tracks closest to the river are owned by the Metropolitan Transportation Authority (MTA) and used by the Southern California Regional Rail Authority (SCRRA) to operate Metrolink trains. The five tracks west of the MTA tracks are owned by Burlington Northern Santa Fe (BNSF), and the rest of the tracks are owned by MTA and used for the Metro Red Line. Amtrak and BNSF also operate trains on MTA's two tracks on the west bank. On the east bank, the two tracks closest to the river are owned by MTA, and the Union Pacific Railroad (UPRR) owns the rest of the tracks. UPRR also operates trains on MTA's tracks on the east side of the river (See Figure 1-4).

The Los Angeles River, which passes beneath the viaduct in a north-south direction, is contained within a trapezoidal concrete-lined channel. The Los Angeles River is a flood control channel that receives stormwater runoff from its 834-square-mile watershed, treated effluent from two wastewater treatment plants, and some rising groundwater in the Glendale Narrows area. The river discharges to an estuary in Queensway Bay in the Long Beach Harbor.

Figure 1-4 Railroad Corridors Along East River Bank Looking North

Within the immediate project area, three high-voltage transmission lines, which are operated by the Los Angeles Department of Water and Power (LADWP), are located along and cross the river – one line on each bank with wires overhanging the viaduct and one crossing on the south side of the viaduct (see Figure 1-5).

Figure 1-5 High-Voltage Transmission Towers in the Vicinity of the Viaduct

1.3 Project Funding

The 6th Street Viaduct Seismic Improvement Project is included in the Final 2008 Regional Transportation Improvement Program (RTIP), page 48, on the Los Angeles Local Highway Projects, under the conformity category "exempt," and Federal Transportation Improvement Program (FTIP), in which the project is programmed for $245 million over a 6-year period, Fiscal Years 2008/9 to 2013/14. The RTIP is currently being amended to include the total project cost of $401.2 million. The actual cash flow for the project extends through Fiscal Year 2017/18.

On December 8, 2005, FHWA issued a Memorandum *"Project Financial Plan Requirements under SAFETEA-LU,"* which directs every state Department of Transportation (DOT) to prepare Project Financial Plans for projects between $100 and $500 million in accordance with the FHWA Financial Plan Guidance issued May 2000 and updated December 2005.

The Project Financial Plan for the 6th Street Viaduct Seismic Improvement Project has been prepared in accordance with the FHWA guidance. Cost estimates for various project alternatives, as outlined in Chapter 3, range from $197 million for the Retrofit Alternative to $409 million for the most costly bridge concept under the Replacement Alternative. The Project Financial Plan is developed using the average cost of $401.2 million, which would include:

- Preliminary design and preparation of Project Report and Environmental Document.
- Preparation of plans, specifications, and estimate, as well as Caltrans services to secure required right-of-way (ROW).
- Construction services, including Caltrans construction contract administration and inspection, and City of Los Angeles/consultant team involvement during construction.
- Capital costs to secure parcels that require easements.
- Costs for demolition and reconstruction of the viaduct
- Financing cost (to be reimbursed by Highway Bridge Program [HBP] fund).

The funding sources identified for this project include:

- Highway Bridge Program (HBP) funds – These are federal funds that are apportioned by formula to the states. Caltrans then programs these funds to the various bridge projects in the state. The City of Los Angeles has received programmed approval from Caltrans for $364.1 million in HBP funds, which includes $7.4 million in financing costs.
- Proposition 1B Local Bridge Seismic Retrofit Account (LBSRA) – These funds are part of the $20 billion Proposition 1B passed by California voters in November 2006. The LBSRA account provides $125 million for the 11.5 percent required match for the federal HBP Fund

for the Local Seismic Bridge Retrofit Program projects. The City of Los Angeles 6th Street Viaduct Seismic Improvement Project is eligible for these funds.

The California Transportation Commission (CTC) approved the Caltrans March 9, 2007 list of eligible Proposition 1B LBSRA projects, and the 6th Street project was included on that list. The Proposition 1B LBSRA funds are used to match the federal HBP matching requirement, except for the ROW phase. For the ROW phase, Caltrans has approved the use of toll credits for that match, which increases the federal HBP funds to 100 percent.

The resulting total of Proposition 1B LBSRA funds for this project is $29.7 million, which includes $0.970 million in financing costs.

- Other State Funds – Previous funding included $200,000 of state funds (primarily state gas tax funds).
- City Matching Funds – These funds, totaling $5.2 million, are composed of Proposition C 25-percent Local Return funds, which are a component of the Los Angeles County Proposition C half-cent sales tax measure allocated by formula to the cities within Los Angeles County. The other City matching fund source is Proposition G, the City of Los Angeles' seismic bond funds.
- Financing – The City of Los Angeles will issue bonds or request Caltrans to issue Grant Anticipation Revenue Vehicles bonds to cover the needed cash flow, principally because the reimbursement of HBP and/or Proposition 1B funds may be delayed. Per Section 122 of Title 23 *United States Code* (U.S.C.), the principle and financing costs would be reimbursed by the HBP funds. Until those costs are reimbursed, the City may use Measure R funds to pay the interest costs. Measure R is the ½ cent sales tax enacted in November 2008 for the Los Angeles County area. A portion of the Measure R funds are sent to each City and the County, including the City of Los Angeles, based on a formula called Local Return.

1.4 Project Purpose

The purpose of the proposed project is to:

- Preserve 6th Street as a viable east-west link between Boyle Heights and Downtown Los Angeles
- Reduce vulnerability of the 6th Street Viaduct in major earthquake events
- Resolve design deficiencies of the 6th Street Viaduct

1.5 Project Need

The 3,500–ft-long 6th Street Viaduct was constructed in 1932 using state-of-the-art concrete technology at that time. Over the last 75 years, concrete elements of the viaduct have cracked and deteriorated as a result of an internal chemical reaction called Alkali Silica Reaction (ASR), which is caused by the reactive aggregate used in the concrete. Because of this ongoing and irreversible chemical action, the 6th Street Viaduct's concrete has lost significant strength, and the structure is subject to failure under predictable seismic energy releases. The viaduct also has design deficiencies consisting of inadequate roadway width; out-of-specification bridge, approach railing, and approach rail ends; poor roadway alignment; and out-of-specification geometric and seismic design detail.

The following subsections discuss the present conditions of the existing 6th Street Viaduct that constitute the need for the proposed improvements.

1.5.1 Need to Preserve Viability of 6th Street Transportation Corridor

The 6th Street Viaduct is an important link between east Los Angeles communities, such as the Boyle Heights Community and Downtown Los Angeles. The viaduct carries more than 13,000 vehicle trips per day compared to 12,690 along the 1st Street Viaduct and 17,680 along the 4th Street Viaduct, which are two other important links between east Los Angeles and the downtown area (refer to Table 3.7-2 in Chapter 3). With known development projects currently underway and under planning within the project vicinity, the 6th Street transportation corridor will become increasingly important to local communities east and west of the viaduct and to the regional transportation network. Improvement of the 6th Street Viaduct is therefore required to preserve this important link between the Boyle Heights Community and Downtown Los Angeles.

In addition to being an important link between East Los Angeles and Downtown Los Angeles, many Boyle Heights residents view the viaduct as a community landmark and an iconic emblem of the City of Los Angeles as a whole. Residents in the Arts District also view the viaduct as an iconic symbol of the City. The 6th Street Viaduct used to be the venue for *Festival de la Gente*, which is an annual festival celebrating the traditional Latino holiday *Dia de los Muertos*, the Day of the Dead. The festival, which is a major community event celebrating Latino culture, first started in 1999. In recent years, the festival has been sponsored by the Los Angeles City Council member of the 14th Council District in conjunction with the Speaker of the California Assembly, and Los Angeles City Mayor, with additional support by private corporate sponsors. The festival is the nation's largest *Día de los Muertos* celebration and features local Hispanic artists and entertainers, and various food and crafts booths. It is held annually during the last week of October, one or two days before the Day of the Dead. In 2006, more than 70,000 people attended the celebration.

The Los Angeles River Revitalization Master Plan (LARRMP) designated the area covering the 6th Street Viaduct and its surrounding area as the "Downtown Industrial Opportunity Area," one of the five demonstration areas of the LARRMP. There are currently two alternatives for the development of the opportunity area: the DI-A and DI-B concepts. Both concepts designate 6th Street in the proposed project area as a Primary Arterial Green Street. The alternatives also propose an expanded multi-use and bicycle trail on the western bank of the Los Angeles River, and a promenade along the eastern bank of the river, each having its own underpass under the 6th Street Viaduct. In addition, both alternatives provide pedestrian bridge access ramps from the west side of 6th Street north to the proposed expanded trail. Alternative DI-A designates the area east of the river north of 6th Street as a *Neighborhood Gateway*, while Alternative DI-B establishes this area as a *Regional Gateway*. See more detailed discussion on the LARRMP in Section 3.2 of this EIR/EIS.

1.5.2 Need to Reduce Vulnerability to Seismic Collapse

The 6th Street Viaduct is classified as a Category I structure by Caltrans[3], and mandatory seismic retrofit is required. As stated earlier, the concrete elements of the viaduct have cracked and deteriorated as a result of the ASR. Because of this ongoing and irreversible chemical action, the 6th Street Viaduct's concrete has lost significant strength, and the structure is subject to failure under predictable seismic energy releases.

Damage of concrete due to ASR was first recognized in the United States during the 1940s. Alkali Silica Reaction is a chemical reaction in the concrete matrix that occurs between the alkaline pore solution of the cement paste and silica in the aggregate particles. The ASR deterioration of the mortar and concrete is due to the swelling of gel formed by the reaction of alkali in the cement with reactive silica in aggregates in the presence of moisture. The expansion of the gel generates tensile stresses in the concrete element, resulting in expansion and cracking.

[3] A Category 1 structure is a highway structure that has been classified by Caltrans to be vulnerable to collapse during a design-level earthquake. This classification of structure requires mandatory seismic retrofit.

The most common manifestations of ASR are surface cracking. In the advanced stages, a clear to milky gel (i.e., silica gel) will sometimes extrude from cracks in the concrete.

In the late 1980s, the deck of the 6th Street Viaduct was stripped of asphalt and a waterproof coating applied to the underlying concrete in an attempt to minimize moisture infiltration, which is a necessary component for ASR. In addition, the City has repeatedly patched the viaduct using epoxy injection – a process that has left stains and discoloration and necessitated the application of cementitous coatings to hide the unsightly honeycomb effect of these repairs and to further seal the surface from moisture. Cracking is evident throughout the viaduct, with large cracks and spalling evident on its outer columns. Core samples show more severe cracking within the concrete matrix than on the outer surface.

While the deteriorated surface appearance of the viaduct is an issue, its underlying structural integrity is of much greater concern. In 1989, the Whittier Narrows earthquake caused damage to shear keys and a column crack at Bent 33. The structure has since been classified by Caltrans as a Category I structure and placed on the mandatory seismic retrofit list.

In the mid 1990s, Caltrans conducted an evaluation of Bridge No. 53-0595, which is the portion of the viaduct owned by Caltrans that crosses US 101. This evaluation determined that seismic retrofit was warranted, and in 1995 Caltrans undertook a retrofit construction project for that portion of the 6th Street Viaduct. The Caltrans seismic retrofit project placed infill walls between existing columns at the bents adjacent to the mainline roadbed, from Bent 37 to the east abutment. While this improvement was consistent with the Category I seismic retrofit program by eliminating potential collapse vulnerabilities, it did not resolve the long-term ASR problem and only improved the state-owned 235-ft-long portion of the 3,500-ft-long viaduct. The City elected to not move forward with a retrofit design similar to the one employed by Caltrans because of concerns that such a strategy would not address the ongoing degradation of the viaduct concrete due to ASR. The ASR deterioration continues to weaken the concrete strength, which results in greater seismic vulnerability over time.

In late 2000, the City engaged a consultant to determine the strength of the existing concrete and the overall condition of the structure through a materials testing program. This extensive investigation, completed in January 2002, confirmed the presence of severe cracking and low concrete strength throughout the viaduct and identified its root cause to be ASR[4]. Figure 1-6 shows cracks due to ASR, and Figure 1-7 shows a concrete core sample exhibiting the damage caused by ASR. Figure 1-8 graphically summarizes findings of the materials testing program at

[4] Sixth Street Viaduct Over Los Angeles River (Bridge No. 53C-1880): Field Sampling and Testing Program Final Report, February 2002.

various elements of the 6th Street Viaduct due to ASR. As can be seen, the areas closest to the river show the most damage.

Figure 1-6 Cracks due to ASR

Figure 1-7 Concrete Core Sample Showing Damage Caused by ASR

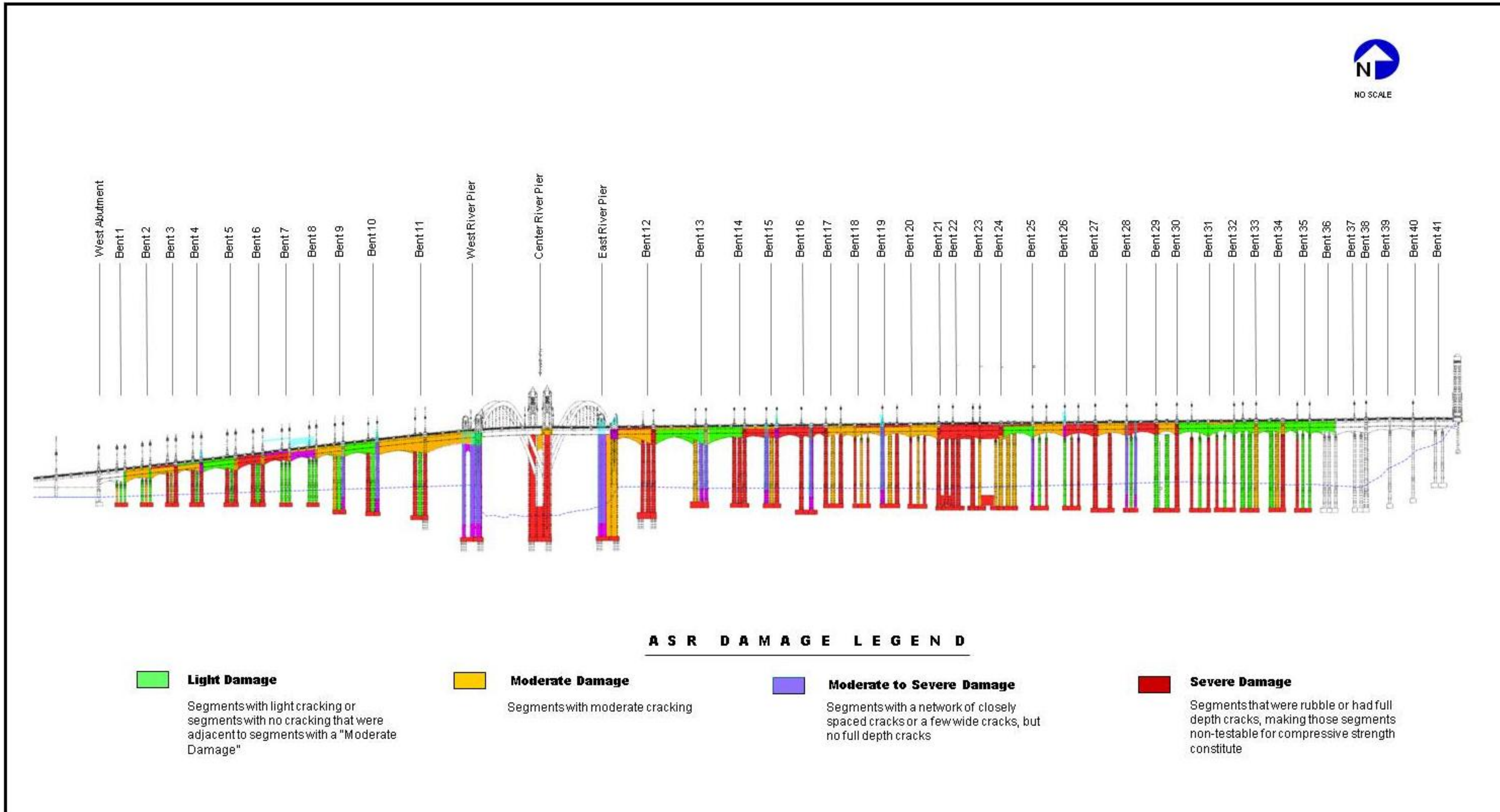

Figure 1-8 Level of Damage in Various Elements of the 6th Street Viaduct due to ASR

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The *Final Seismic Retrofit Strategy Report*, completed in 2004[5] following the extensive material testing program mentioned earlier, concluded that the viaduct, in its current state of material deterioration and lack of structural strength, is subject to collapse under loadings associated with a major earthquake. The probability that the viaduct will fail under major seismic events exceeds 70 percent in 50 years. This vulnerability level is extremely high compared to the normally accepted collapse probability of 10 percent or less over 50 years, as defined by the American Association of State Highway and Transportation Officials (AASHTO) and Caltrans. The high risk of collapse and continuing concrete deterioration indicates the need for timely corrective action to either seismically retrofit the viaduct or replace the viaduct.

1.5.3 Need to Resolve Design Deficiencies

The National Bridge Inspection Standards (23 CFR 650) apply to all structures defined as bridges located on public roads. Inspection records and bridge inventories are maintained in accordance with the standards through the Caltrans Structure Maintenance and Investigations *Bridge Inspection Records Information* report. Each bridge is to be inspected at regular intervals not to exceed 2 years.

Based upon the inspection records and bridge inventory data, a sufficiency rating is calculated for the particular bridge. The sufficiency rating is a method of evaluating highway bridge data by calculation of four separate factors to obtain a numeric value that is indicative of the adequacy of the bridge to remain in service. The result of this method is a percentage where 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient (deficient) bridge. These factors include:

1) Structural adequacy and safety, up to 55 percent
2) Serviceability and functional obsolescence, up to 30 percent
3) Essentiality for public use, up to 15 percent
4) Special reductions, up to 13 percent

The City-owned viaduct (Bridge No. 53C-1880) has a sufficiency rating of 52.4[6]. Bridges are deemed structurally deficient by the federal government if the deficiency rating is below 80, and therefore eligible for federal funding to correct the deficiency. The purpose of the rating system is to help the federal government determine which bridges need funding for repair or

[5] Sixth Street Viaduct Final Seismic Retrofit Strategy Report. 2004.

[6] Caltrans. 2006. Bridge Inspection Records Information, Structure Inventory and Appraisal Report, Bridge No. 53C-1880, California Department of Transportation, Structure Maintenance and Investigation. August.

replacement. The major factors contributing to the low sufficiency rating of the structure include:

- Cracking and condition of deck, superstructure, and substructure elements
- Inadequate roadway width
- Out of specification bridge and approach railing, and approach rail ends
- Poor roadway alignment
- Out of specification geometric and seismic detail design

While the Caltrans-owned bridge (Bridge No. 53-0595) was retrofitted in 1995, roadway width and railing deficiencies were not corrected, nor was the ASR condition resolved.

1.6 Independent Utility and Logical Termini

The 6th Street Viaduct Seismic Improvement Project demonstrates independent utility and logical termini. Independent utility means the project must be able to function on its own without further construction of an adjoining segment. Logical termini for project development considerations are generally defined as: 1.) rational end points for a transportation improvement; and 2.) rational end points for a review of the environmental impacts associated with a proposed improvement. The objective of the project is to preserve the 6th Street Viaduct as a viable east-west link between Boyle Heights and Downtown Los Angeles, to reduce vulnerability in major earthquake events, and to resolve design deficiencies to meet current codes set forth by AASHTO and LADOT. This project has independent utility because it would address the seismic vulnerability and design deficiencies associated with the viaduct without a need for additional improvements in the area. Furthermore, it would connect logical termini and is of a sufficient length to address all the environmental impacts associated with the project.

Chapter 2
Project Alternatives

Chapter 2 Project Alternatives

2.1 Introduction

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. Two Action Alternatives and a No Action Alternative are analyzed in this EIR/EIS.

2.2 Project Description

2.2.1 Proposed Action

The California Department of Transportation (Caltrans) and the City of Los Angeles (City) propose to undertake seismic improvement of the 6th Street Viaduct over the Los Angeles River (Bridge No. 53C-1880) and the 6th Street Overcrossing, which is a portion of the US 101 Hollywood Freeway (Bridge No. 53-0595), to correct structural deficiencies of this critical Los Angeles River crossing by either retrofitting the existing viaduct or replacing it entirely. Under the replacement alternative, the proposed project would also correct geometric design and structural detailing deficiencies of the existing viaduct by constructing the replacement to current standards set forth by AASHTO and the LADOT.

2.2.2 Description of Existing Viaduct

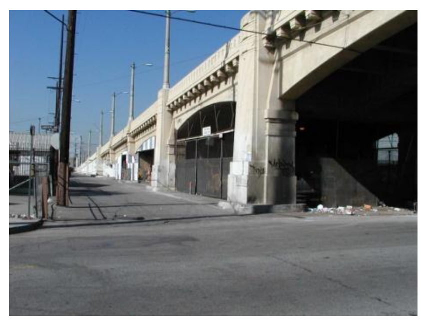
The 6th Street Viaduct is comprised of 43 concrete spans and 2 large steel through arch truss spans over the Los Angeles River. Most of the structure sits on 58-ft-high columns supported by spread footings. The 6th Street Viaduct was determined eligible for inclusion in the National Register of Historic Places (NRHP) because of its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne design rendered in steel and reinforced concrete. It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California" as part of the Caltrans Statewide Bridge Inventory in 1987. In addition, the 6th Street Viaduct is designated as City of Los Angeles Historic-Cultural Monument (HCM) #905. It also is a historical resource for purposes of CEQA, because it meets CEQA Guidelines §15064.5(a)(3)(A) and (C). Its period of significance is from 1933, when it was completed, until 1957 (50-year cutoff), and its significance is at the state level.

Most of the structure is supported by multiple column bents and spread footings. The viaduct can be divided into the following three segments: (1) approach spans west of the Los Angeles River, (2) steel through arch spans over the river (main spans), and (3) approach spans east of the river. Table 2-1 summarizes design features of the viaduct.

Table 2-1
Summary of 6th Street Viaduct Design Features

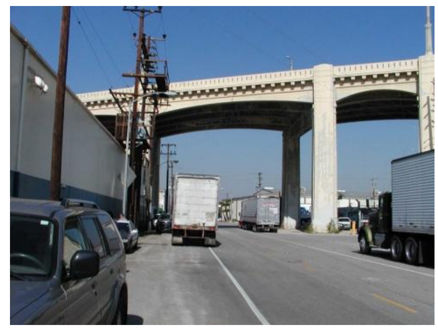
Component	Design Features
Superstructure Type	Approach spans: cast-in-place concrete T-beams
	Los Angeles River spans: half-through steel arch with suspended deck
Substructure	Tapered concrete columns on concrete pedestals
Foundation	Approach spans: spread footing, 15 ft to 20 ft plus or minus below ground
	Los Angeles River spans: pile foundations (precast concrete piles)
Total Span Length	3,178 ft (West Abutment to East Abutment)
Number of Spans	45 (43 concrete spans plus 2 steel arch spans)
Spans within Caltrans Right-of-Way (ROW)	Bent 37 to East Abutment
Length within Caltrans ROW	235 ft
Average Span Length	71 ft
River Spans	2 Spans each approximately 163 ft
Width	46 ft curb-to-curb with 5-ft-wide raised walkways on both sides
	Total outside-to-outside width = 55 ft 10 inches (River spans and East Approach)
Average Column Height	West Approach spans: 30 ft above ground
	East Approach spans: 55 ft above ground
	Los Angeles River spans: 61 ft above river

Source: 6th Street Viaduct Seismic Improvement Project Bridge Type Selection – Structure Type Screening Phase,David Evans and Associates, Inc., October 2007.



West Approach Spans: The west approach has 12 spans. The reinforced concrete deck, longitudinal T-beams, and diaphragm beams are supported on reinforced concrete bent caps. The viaduct superstructure is supported on a seat-type abutment on the west side. On the east end, the approach superstructure is supported on the west river pier. Expansion joints exist at nearly every third span of the superstructure, and the longitudinal T-beams of the superstructure are continuous between the expansion joints. All piers are supported on spread footings, except at Bent 11, where columns are supported on pile foundations.

River Spans: The middle segment of the viaduct consists of a dual, two-span continuous asymmetrical steel tied arch. The arch ribs consist of built-up sections with varying depth that form a compression arch that rises above the deck from the east and west river piers and then dives below the concrete deck just before reaching the center river pier, with the base of the arches supported at the center pier. Thus, the arch ribs are fixed to the center river pier while supported on segmental rockers on the west and east river piers.



East Approach Spans: The east approach is similar in construction to the west approach. It has 31 spans between the east river pier and the east abutment. The span lengths and skew angles to the bents vary to allow several local streets to pass underneath the viaduct. Columns of Bent 12 are supported on pile foundations, whereas columns in all other bents are supported on spread footings.

2.3 Description of Evaluated Project Alternatives

Several project alternatives were developed during the project development stage. Screening exercises were conducted to identify the most viable alternatives for evaluation in this EIR/EIS. Identification of a preferred alternative was based on consideration of the results of the environmental impact evaluation and public hearing comments on the Draft EIR/EIS. Based on the Draft EIR/EIS and public comments, Caltrans and the City have recommended replacement of the 6th Street Viaduct, and specifically Alignment 3B with the principle of Bridge Concept 4 as the preferred alternative (see Section 2.4 for details).

2.3.1 Alternative 1 – No Action

This alternative provides neither retrofit nor replacement of the seismically and functionally deficient 6th Street Viaduct. The alkali silica reaction (ASR)-induced deterioration of the structure would continue, and the seismic vulnerabilities would worsen as the concrete strength continued to deteriorate. The City would provide ongoing inspection and maintenance on the viaduct to keep it open to traffic as long as possible, given the ongoing ASR deterioration and seismic vulnerabilities. The 6th Street Viaduct would remain at its existing roadway width of 46 ft, which accommodates two travel lanes in each direction with no outside shoulders or safety median. None of the design deficiencies would be corrected under this alternative. Implementation of Alternative 1 would not meet the project purpose and need, as described in Sections 1.4 and 1.5.

Under this alternative, the viaduct may be determined to be unserviceable by the City of Los Angeles Bureau of Engineering and Caltrans due to advanced ASR deterioration or a major seismic event in the future, neither of which can be predicted. Under such an event, the City would take the viaduct out of service and seek emergency funding sources to replace it.

2.3.2 Alternative 2 – Viaduct Retrofit

Researches on various retrofit schemes were performed based on state-of-the-art design criteria including Caltrans "Seismic Design Criteria" and "Guidelines for Historic Bridge Rehabilitation and Replacement" by AASHTO. The AASHTO guidelines placed the 6th Street Viaduct geometrics and structural rating into Group VI (*Superstructure/Substructure Condition, Geometry, and Load-Carrying Capacity Are Inadequate)* - "Bridges in this group are severely deteriorated and severely deficient. When a bridge is deficient in all categories and those deficiencies cannot be corrected in a feasible and prudent manner, it is very unlikely to have rehabilitation potential." Notwithstanding the AASHTO guidelines, structural retrofit alternatives used the Caltrans "Seismic Design Criteria" to develop designs so that environmental impacts and cost estimates could be determined.

Two retrofit schemes were initially identified for detailed study and evaluation in this EIR/EIS, including Infill Wall and Heavy Steel Casing, and Substructure Replacement; however, the Substructure Replacement scheme was later withdrawn from further evaluation as discussed in Section 2.5. This section provides a detailed description of the Infill Wall and Heavy Steel Casing Alternative.

Under this alternative, the viaduct's columns would be retrofitted by encasing them with steel, and infill walls would be constructed between selected columns. In addition, new foundations, grade beams, retrofitting of bent caps, and closure of some expansion joints in the superstructure would be constructed in combination with the column retrofits. The structure would be retrofitted to the minimal standard of "no collapse" for a major earthquake (a magnitude 7.3 on the Richter Scale).

Column Retrofit

Under this retrofit alternative, 76 columns (out of a total of 114) would be encased, of which 26 would utilize 7/8-inch steel plates and 50 would utilize 5/8-inch steel plates. A 6-inch layer of architectural mortar would conceal the exposed plates, channels, and bars (Figure 2-1). All exterior columns with "Light" or "Moderate" damage ratings would also be encased to account for future concrete degradation due to ASR expansion. Encasing all exterior columns would also maintain visual balance and consistency for the retrofitted structure. The interior columns in Bents 1, 4, and 5 would be encased to enhance their shear strength. Bent 12 would be excluded from retrofitting because of the lack of space available for construction of the column encasement due to proximity of railroad tracks.

Infill Walls, New Foundations, Grade Beams, and Closure of Expansion Joints

Infill shear walls would be constructed between the columns to reduce transverse seismic movements of the structure. Grade beams would be constructed below ground between the existing pile caps to reduce longitudinal seismic movement of the structure. Along the viaduct (non-river piers), new foundations would be constructed with the placement of new piles around the existing column foundations. To improve stability of the footings, uplift tie-downs (soil anchors) might be required at some columns where there are large uplift demands on the foundations that could result in rocking response and excessive displacements of the superstructure. Expansion joints in the superstructure would be reconstructed at Bents 27 and 33, connecting adjacent spans to reduce seismic longitudinal displacement demands for the East Approach Spans. Figure 2-2 presents a conceptual sketch of the proposed infill walls and column casings.

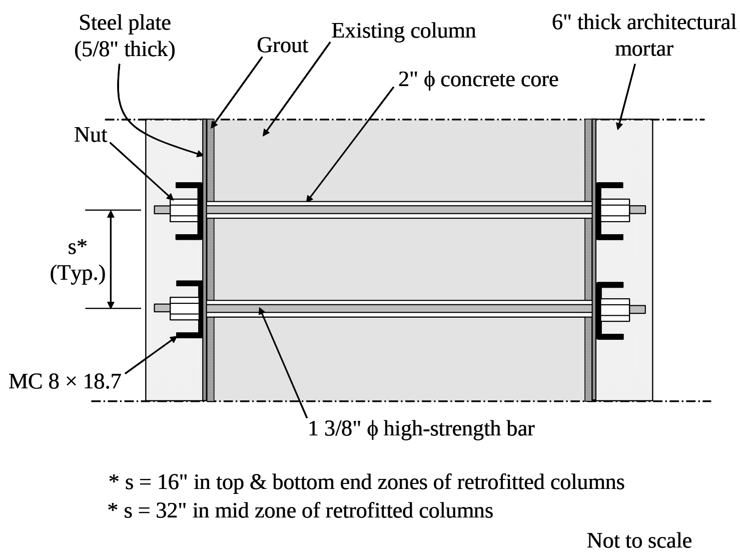


Figure 2-1 Steel Encasement of Columns

Bent Caps Retrofit

Retrofitting of bent caps would ensure that the expected seismic damage would take place in a controlled fashion. Retrofitting of bent caps for flexural strength enhancement is proposed at 16 bents (excluding Bents 27 and 33 where expansion joints would be closed). Bent cap retrofit would be achieved by means of concrete bolsters, which would be bonded to the bent caps by dowels that run through pre-drilled cores in the existing bent cap. Continuity of the concrete bolsters along the length of the bent cap would be achieved by post-tensioning of high-strength bars that would run through pre-drilled cores in the superstructure girders (see Figure 2-3). The post-tensioning bars would be anchored at their ends by exterior steel plates; these exposed plates and the bars would also be concealed by mortar.

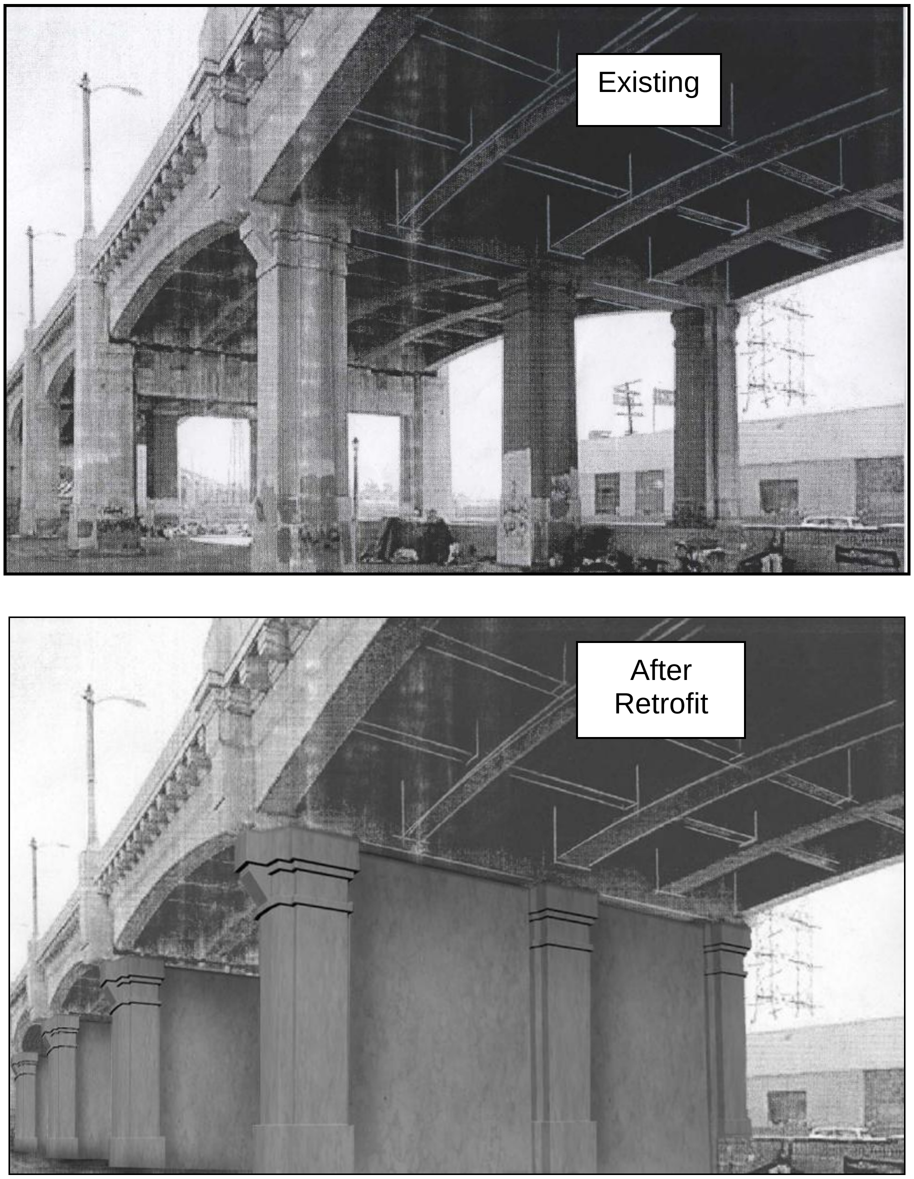


Figure 2-2 Conceptual Drawing Alternative 2 – Retrofit

Bent caps at locations of expansion joints would be retrofitted as shown schematically in Figures 2-4 and 2-5. The positive flexural moment capacity would be enhanced by adding drop caps at the soffit of the existing bent caps. The new drop caps would be bonded to the existing bent cap by dowels. Steel plates would be placed along the sides of the bent caps and bonded to the concrete by means of high-strength bars inside core holes. The steel plates would enhance flexural capacity and resistance to horizontal shear.

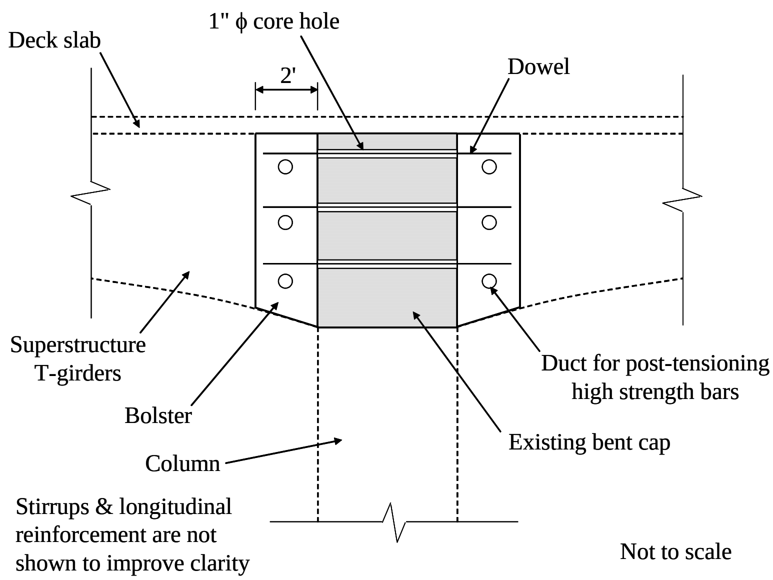


Figure 2-3 Retrofitting of Bent Caps by Concrete Bolsters

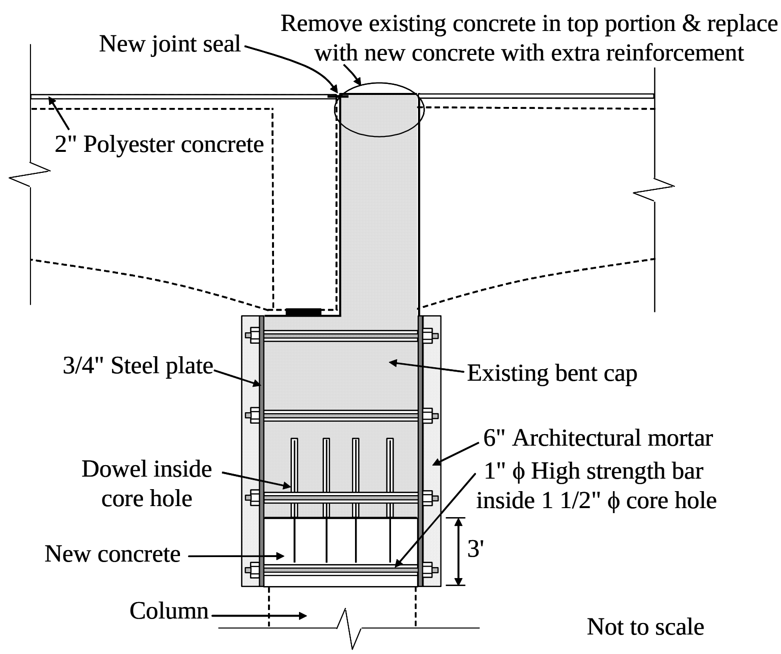


Figure 2-4 Bent Cap Retrofit at Expansion Joints
(one simply supported span)

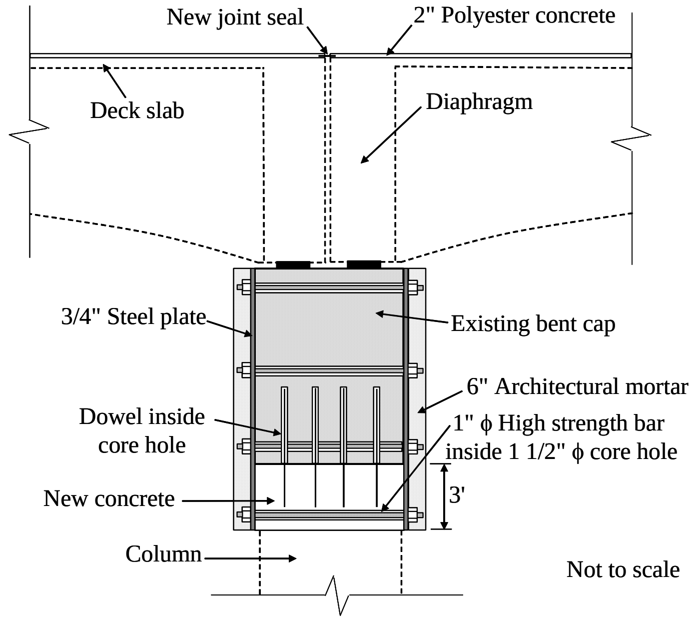


Figure 2-5 Bent Cap Retrofit at Expansion Joints (two simply supported spans)

River Piers Retrofit

The river piers would be retrofitted by placing infill walls between columns at the West and East River Piers. In addition, new pile foundations would be constructed around the existing foundations at the West and East River Piers to confine the poor lap-splices of the longitudinal column reinforcement and to allow column bases to develop their full plastic moment capacities.

New Expansion Joint Seals

Installation of new expansion joint seals is essential for long-term efficiency of the retrofit design because it helps protect the substructure from direct water flow onto concrete members. Additional moisture at the concrete surface can accelerate the ASR and subsequent concrete damage. Figures 2-4 and 2-5 show the proposed new expansion joint seals.

Design Life

The current design standard for seismic retrofit is to prevent failure (collapse) of the structure when it is subject to the maximum credible earthquake (MCE). The retrofit design life expectancy to prevent seismic collapse under the MCE event and loss of structural strength due to ASR deterioration is approximately 30 years. Based on AASHTO guidelines, design life is the period of time that a bridge is expected to be in operation. New bridge structures are designed to have a structural design life of 75 years. The actual life will depend on several factors, including exposed conditions of the structure to the environment, quality of materials, design and construction, and level of maintenance performed.

Design Standards

The viaduct's roadway does not meet the City's design standards for a Secondary Highway, and substantial physical changes to the superstructure would not be part of this alternative. Existing nonstandard viaduct features would continue to exist (i.e., inadequate sidewalk width, absence of safety median and shoulders; and inadequate stopping sight distances). The retrofit alternative would also not replace the existing barrier rails, which do not meet current crash-test standards. Consistent with Caltrans requirements, the retrofit design would only be for the prevention of collapse under the design seismic event, and the damaged bridge would have to be replaced after a major earthquake.

Estimated Alternative Cost

The cost of Alternative 2 – Viaduct Retrofit using the infill wall and heavy steel casing method is estimated at $199 million (as of 4th quarter of 2010), as shown below. Note that the construction cost and ROW cost are used to compare the alternatives escalated to midyear of construction. The construction costs are those necessary to construct the project, whereas ROW costs are the costs to acquire land and for easements for the purpose of project construction. The design, administrative, and financial costs are not included in this cost estimate.

Item	Cost
Construction cost	$154,665,000
ROW	$44,146,000
TOTAL	$198,811,000*

Note: Estimate as of 4th quarter, 2010

Construction Duration and Phasing

Construction of the retrofit alternative would be divided into the following phases:

1. Retrofit Foundations
2. Retrofit Columns
3. Retrofit River Piers
4. Construct In-fill Walls
5. Retrofit Bent Caps
6. Retrofit Expansion Joints

The 2.5-year construction period is assumed to start in 2014. At each bent location, the foundation excavation and reconstruction would take place first, followed by the column, in-fill wall, and bent cap reconstruction.

Traffic Staging

The general traffic staging to maintain circulation during construction of this retrofit scheme is presented below. If this alternative were selected, a detailed traffic staging plan would be developed during final design.

6th Street Viaduct between Mateo Street and Boyle Avenue

During retrofit of the deck expansion joints and possibly during bent cap retrofit, traffic lanes would be reduced to one lane in each direction.

Surface Streets under the 6th Street Viaduct

During retrofit of the bridge foundations and columns, temporary street closure and traffic detours would be necessary along the street network east and west of the river. It is anticipated that access to local businesses would be maintained. Construction activity would be sequenced by column bent number to minimize impacts to traffic, parking, and local business access. Parking under the viaduct would be prohibited and restricted in the immediate vicinity of the viaduct on the north and south sides during construction. It is anticipated that only foundation retrofit work would require frontage road closure. Anticipated traffic restrictions and management are summarized below (see Figure 1-8 for referenced bent locations).

- Bent 3: Construction would require temporary closure of the north and south frontage roads to through traffic between Mateo Street and Santa Fe Avenue to allow foundation modifications. Local business access would be maintained by allowing one-way traffic under the viaduct between Bents 1 and 2. Through traffic east of Bent 3 would be detoured through Santa Fe Avenue via Jesse Street and Willow Street. No parking would be allowed on frontage roads between Bents 1 and 4.
- Bents 4 and 5: Temporary closure of both curbside lanes on Santa Fe Avenue would be required under the viaduct. Parking would be restricted under the viaduct and on frontage roads between Bents 3 and 6. Frontage roads may be partially blocked.
- Bents 7 and 9: Temporary closure of the north and south frontage roads to through traffic would be required between Santa Fe Avenue and Mesquit Street to allow foundation modifications. Local business access would be maintained through Mesquit Street using alternate entrances to the businesses north and south of the viaduct. Through traffic would be detoured through Mesquit Street via Jesse Street and Santa Fe Avenue. Parking would be restricted on frontage roads and under the viaduct between Bents 6 and 10.
- Bents 1 and 2: Parking would be restricted under the viaduct and frontage roads between the west abutment and Bent 3. Frontage roads may be partially blocked.
- Bents 6 and 8: Parking would be prohibited under the bridge and restricted on the frontage roads between Bents 5 and 9. Frontage roads may be partially blocked.

- Bent 10: Parking would be restricted under the bridge and frontage roads between Bent 9 and the MTA right-of-way (ROW). No traffic restriction is expected east of Mesquit Street in this area. The east curb lane of Mesquit Street would be blocked under the viaduct.
- Bent 11: Temporary closure of the MTA electrified yard track would be required west of Bent 11 and Amtrak track east of Bent 11. Track closure may require alternate shoo-fly tracks for each closed track.
- River West Pier: Temporary closure of the SCRRA (Metrolink) track would be required adjacent to the river west bank. Track closure may require alternate shoo-fly track for closed track.
- River East Pier: Temporary closure of the SCRRA (Metrolink) track would be required adjacent to the river east bank. Track closure may require alternate shoo-fly track for closed track.
- Bent 13: Temporary closure of the Union Pacific Railroad (UPRR) industry track connection adjacent to the commercial building located west of Mission Road (Ventura Foods, Inc.) would be required.
- Bents 15 and 16: Both east and west curbside segments of Mission Road under the viaduct would be partially blocked. Parking would be prohibited under and restricted adjacent to the bridge at Mission Road.
- Bents 17 through 36: Both east and west curbside segments of Anderson Street (Bents 30 and 31) and Clarence Street (Bent 36) under the viaduct would be partially blocked. Parking would be prohibited under and restricted adjacent to the bridge between Mission Road and Clarence Street. Alleys under the viaduct would be closed to both traffic and parking.

Proposed Laydown Areas

A laydown area is an area where the contractor can store equipment and materials needed for the project. The laydown area for this retrofit scheme would likely be the area underneath the viaduct or adjacent vacant parcels. The precise location for the final laydown area would be identified by the construction contractor with close coordination with the City.

2.3.3 Alternative 3 – Viaduct Replacement

This alternative would construct a new viaduct along one of the three alignments with the selected bridge concept. The design life expectancy of Alternative 3 is 75 years.

2.3.3.1 Viaduct Alignments

Three viaduct replacement alignments (i.e., 3A, 3B, and 3C) out of ten that were evaluated (refer to Section 2.5 for information on all alternatives evaluated) were selected for design consideration, as shown in Figure 2-6. Further refinement of the preferred alignment (3B) to minimize ROW impacts will be undertaken during the final design.

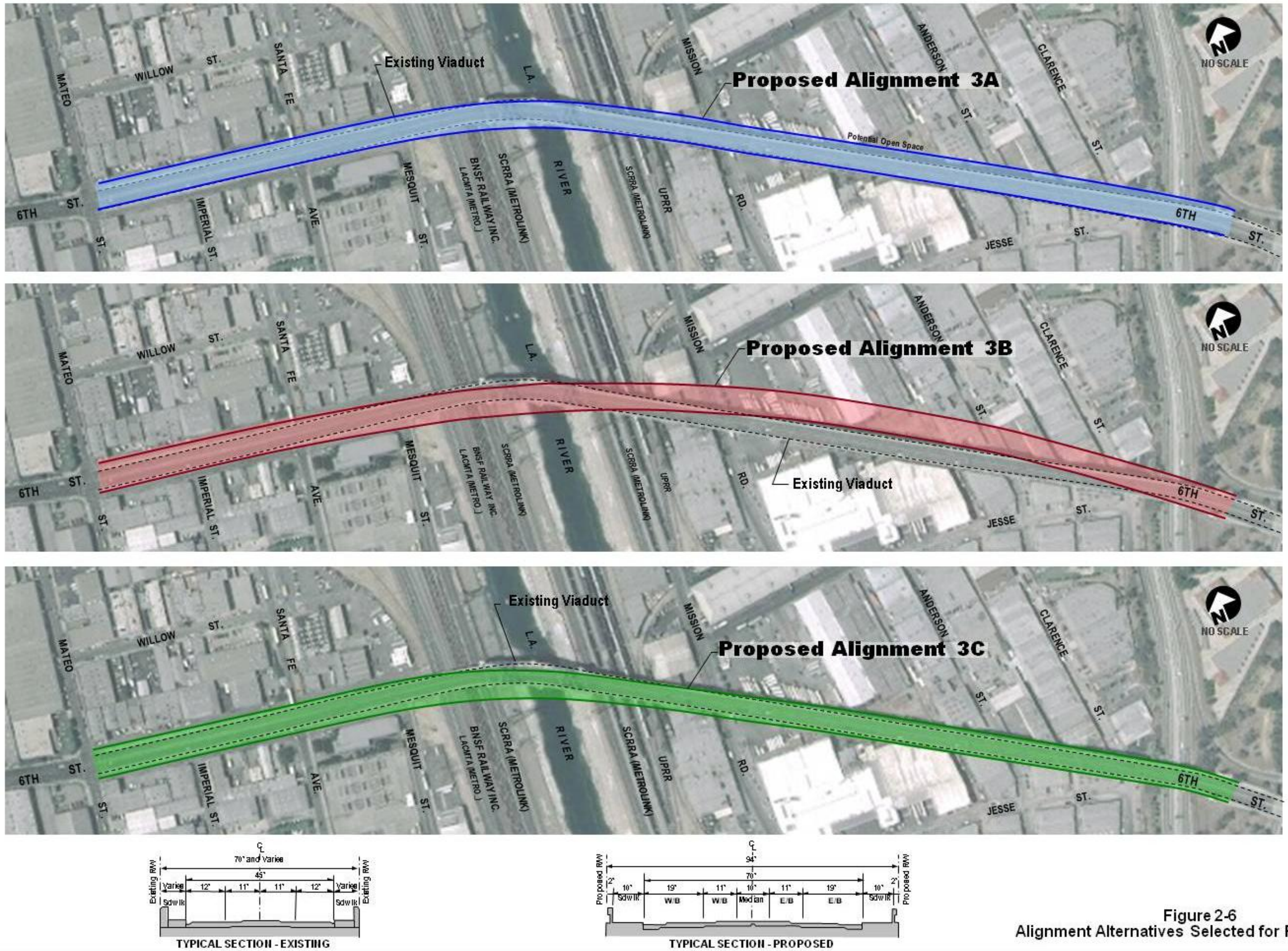


Figure 2-6
Alignment Alternatives Selected for Further Study

Figure 2-6 Alignment Alternatives Selected for Further Study

<u>Alignment 3A:</u> The replacement structure would be built along a new horizontal alignment. The new structure within the City's ROW would have a cross section that meets secondary highway standards as required by the City of Los Angeles Department of Transportation (LADOT). The new roadway would have a maximum width of 70 ft (curb-to-curb) and would consist of two 11-ft-wide lanes in each direction, a median with a maximum width of 10 ft, and outside shoulders with a maximum width of 8 ft, which would incorporate future bicycle lanes. The proposed cross section would also allow for sidewalks with a maximum width of 10 ft. Bridge rails located on the outside edges of the structure would have a width of 2 ft. The typical width to the outside of the bridge rails would therefore be 94 ft maximum.

The cross section within Caltrans' ROW (over US 101) would be slightly different. In this section, the viaduct roadway would be 74 ft, curb-to-curb, consisting of two 12-ft-wide lanes in each direction, a 10-ft-wide median, and 8-ft-wide shoulders. The proposed cross section also allows for 8-ft-wide sidewalks on both sides of the structure.

The new viaduct structure would extend east from Mateo Street to just east of US 101. The new roadway design has a transition on the west side of the river from the existing street width at Mill Street to the ultimate width of the proposed 6th Street Viaduct Replacement Alternative at Mateo Street. Because of the wider viaduct replacement structure, the north side of the viaduct footprint would extend farther to the north, while the south side of the footprint would remain essentially at the same location except for the segment of the alignment over the Los Angeles River, which would be shifted slightly to the south to improve the horizontal curve radius and provide improved safety with better stopping sight distances.

<u>Alignment 3B (Preferred Alternative):</u> The new viaduct would be designed with the same cross section as Alignment 3A. This option proposes a horizontally curved alignment from Santa Fe Avenue to west of US 101. The curve in the alignment is more gradual than Alignment 3A. This alignment, similar to Alignment 3A, maintains its present location on the south side of the existing bridge from Mateo Street to Santa Fe Avenue, and the alignment shifts to the north from Santa Fe Avenue to the east as it crosses over the river. This alignment would swing to the north approximately 85 ft farther than the existing alignment on the east side of the river, which would upgrade the existing non-standard curve radius at the east end.

A modification to Alignment 3B was evaluated in an effort to reduce ROW impacts in response to the public input; however, the 3B modified design option uses smaller radius curves and is geometrically inferior to Alignment 3B. In addition, cost savings would be less than 1 percent of Alignment 3B, which is considered negligible. Therefore, the design option 3B modified was not carried forward for further consideration as a full alignment alternative for the purpose of environmental analysis in this EIR/EIS.

<u>Alignment 3C:</u> The new viaduct would be designed with the same cross section as Alignment 3A. To accommodate the wider viaduct, the footprint of the viaduct would be extended on the north and south sides, except for the area between Mateo Street and Mesquit Street, which would be wider to the north only. The segment that extends from the river to the east would be constructed so that the columns and foundations lie within existing ROW and the viaduct roadway deck extends beyond the existing ROW over adjacent private properties.

2.3.3.2 Bridge Concepts

Fifteen (15) bridge concepts (types) were developed during the initial phase of project studies (summer 2007), as described in Appendix N. Based on the Community Advisory Committee (CAC) and technical staff input, these were screened down to five bridge concepts (i.e., Concepts 1, 2, 3, 4, and 5) as viable designs for further consideration. In spring 2009, refinement of Bridge Concepts 1 and 4 were added as a result of public and agency input. Bridge Concepts 1A and 4A were developed for consideration during the public review period of the Draft EIR/EIS, and they were introduced at the CAC meeting in April 2009 and during the public hearings for the Draft EIR/EIS held in July 2009. Each bridge, including refined Concepts 1A and 4A, could be constructed on any of the viaduct replacement alignments (i.e., 3A, 3B, or 3C). The entire viaduct structure (including Bridge Nos. 53C-1880 and 53-0595) would be constructed using a Cast-in-Place Multiple Cell Post-Tensioned Box Girder. The City will refine final design of the bridge replacement as a means to ensure the selection of an architecturally distinctive and cost-effective design.

<u>Bridge Concept 1 – Main Span Replication</u>

The new replica bridge could capture the essence of the old landmark bridge with its decorative off-set corner elements, steel arches, “deco” detailing and off-set of planes at the pier walls, as well as the corners with decorative dentil detailing below the concrete barrier along the entire length of the viaduct. The structure could mimic the original design with complimentary dual arches. The new main center pylon with its belvederes would maintain the pedestrian viewing areas of the original 1932-designed belvederes. Also, the pylons, which historically extended above the bridge deck until being removed in the 1950s, could be replicated as original in the replacement structure of Concept 1 (Figure 2-7).

The lateral framing at the top of the center span’s new arches would be different than the steel lattice truss framing of the existing bridge. The new lateral steel tube framing is the result of current design standards that are required for new bridges. This new system of steel square tubes could resemble the forms of the steel arch members, thereby tying together the whole structure above the roadway as one cohesive aesthetic unit.

The new bridge handrails, projectile barriers, deck sections, and barrier railing could pick up the open-spaced vertical elements of the original 1932 barriers and handrails. New crash-tested barriers and handrails would comply with current Caltrans specifications. A solids and voids ratio, somewhat similar to the existing edge of deck forms, visually relates to the openings on the original details of the viaduct.

Along the viaduct, the handrails, projectile barriers, barrier railing, and light standards could maintain the proportions and vocabulary of the original design. The embankment piers at each end of the main span could keep a sectional profile and details that would be similar to the architectural vocabulary[7] of the original piers. The new span's steel deck profile matches the profile of the viaduct's concrete girder, allowing a smooth transition and continuity throughout the roadway structure. The details of the new piers along the viaduct would also be consistent with the detailed surface indentations of the new center pier.

Figure 2-7 Computer Model of Bridge Concept 1

The spacing of the arch's vertical suspenders (hangers) could set a modular dimension that the main sidewalk pattern follows along the whole bridge length. The vertical concrete members of the new auto barrier also follow this same modular dimension.

The abutment walls at each end of the viaduct would feature detailed surfaces that could pick up the vocabulary of the main pier's decorative indentations.

[7] Vocabulary in this context means to use the same shapes, materials, and mass sizing between different structural and architectural elements, using the same repeating patterns, to distinguish this from other structures within the area.

Bridge Concept 1A would be identical to Concept 1 between the riverbanks, mimicking the original design with complimentary dual arches and main center pylon with its belvederes maintaining the pedestrian viewing areas of the original 1932-designed belvederes. Unlike Concept 1, which employs long-span box girders with fewer columns east and west of the river similar to the other replacement concepts, refinement Concept 1A would replicate the short-span haunched girders with numerous support columns of the original structure from the riverbanks to the ends of the viaduct. However, the total project cost for Concept 1A was found to be significantly higher than other bridge concepts and was not considered a reasonable expenditure of public funds; therefore, Bridge Concept 1A was eliminated from further consideration.

Bridge Concept 2 – Cast-in-place Box Girder with Steel Tied Arch Pedestrian Ways

The bridge design of Concept 2 could employ a combination of some of the structural elements proposed for Concept 1 (Figure 2-8). The main span of the bridge would be a concrete box girder, with gateway monuments at each end. In addition, the pedestrian path would be separated from the bridge deck at the main span, allowing pedestrians to enjoy a different experience while crossing the bridge.

Figure 2-8 Computer Model of Bridge Concept 2

The main-span piers could act as entrance monuments and become an integral component in the massing and scale of the bridge. The arches on the main span would anchor themselves to these vertical piers, allowing them to act as a main-span gateway to the flow of traffic on the bridge. The pedestrian and driver could take a visual cue as to where the river edges begin and end.

The viewing belvederes could extend horizontally from the voids within the gateway pier monuments. They could act as an extension to the pedestrian's experience, allowing them to distance themselves from the traffic on the bridge. Each belvedere could be held in place by vertical columns that mimic the structural member section of the arch.

The new bridge handrails, projectile barriers, deck sections, and barrier railing could pick up the open-spaced vertical elements of the original 1932 barriers and handrails. New crash-tested barriers and handrails would comply with current Caltrans specifications. A solids and voids ratio, somewhat similar to the existing edge of deck forms, would visually relate to the openings on the original details of the viaduct.

Along the viaduct, the handrails, projectile barriers, barrier railing, and light standards would maintain the proportions and vocabulary of the original design. The embankment piers at each end of the main span would keep a sectional profile and details that are similar to the architectural vocabulary of the original piers. The new span's steel deck profile would match the profile of the viaduct's concrete girder, allowing a smooth transition and continuity throughout the roadway structure. The details of the new piers along the viaduct could also be consistent with the detailed surface indentations of the new pier.

The spacing of the arch's vertical suspenders (hangers) could set a modular dimension for the main sidewalk pattern along the whole bridge length. The vertical concrete members of the new auto barrier could also follow this same modular dimension.

Along each end of the viaduct, for design consistency, the abutment walls could have a detailed surface that could pick up the vocabulary of the main pier's decorative indentations.

Also, along the surface of the new abutments, multiple spaces could be provided for a green landscaped wall. The vertical wall configurations at the Bent 2 location could use the same vocabulary to match the adjacent end abutment wall pattern.

Bridge Concept 3 – Steel Half-Through Arch with CIP Box Girder Approaches

The design of Concept 3 would pick up structural elements found on the original half-through arch of the landmark main span (Figure 2-9). Reaching over the Los Angeles River, the new half-through arches would intersect the bridge deck and nestle into the embankment piers. The lateral tie beams between the arches above the deck could be similar in cross section to that of the arch and vertical structural members of the original bridge.

The geometry of the arch structures in plan view is skewed to follow the path of the river. This could affect the shape of the viewing platforms (belvederes) at the piers, yet it could solve the design problem of the bridge and river channel not intersecting at a 90-degree angle.

Figure 2-9 Computer Model of Bridge Concept 3

The structural support on the underside of each belvedere could be a wide flange section member. This member could be shaped in elevation to match that of the bottom part of the main half-through arch intersecting the deck at the embankment pier. The piers on either side of the river's edge could be marked with vertical elements of solids and voids that coincide with the original bridge's indentation of planes and corners. The embankment piers that tower above the bridge deck would act as a demarcation of the river below.

The new bridge handrails, projectile barriers, deck sections, and barrier railing could pick up the open-spaced vertical elements of the original 1932 barriers and handrails. New crash-tested barriers and handrails would comply with current Caltrans specifications. A solids and voids ratio, somewhat similar to the existing edge of deck forms, would visually relate to the openings on the original details of the viaduct.

Along the viaduct, the handrails, projectile barriers, barrier railing, and light standards could maintain the proportions and vocabulary of the original design. The embankment piers at each end of the main span would keep a sectional profile and details that are similar to the original architectural vocabulary of the piers. The new span's steel deck profile could match the profile of the viaduct's concrete girder, allowing for a smooth transition and continuity throughout the roadway structure. The details of the new piers along the viaduct could also be consistent with the detailed surface indentations of the pier.

The spacing of the arch's vertical suspenders (hangers) could set a modular dimension that the main sidewalk pattern follows along the whole bridge length. The vertical concrete members of the new auto barrier could also follow this same modular dimension.

Along each end of the viaduct, for design consistency, the abutment walls could have a detailed surface that picks up the vocabulary of the main pier's decorative indentations.

Also, along the surface of the new abutments, the designers could allow multiple spaces for a green landscape wall. The vertical wall configurations at the Bent 2 location could use the same vocabulary that matches the adjacent end abutment wall pattern.

<u>Bridge Concept 4 –Extradosed Concrete Box Girder (Preferred Alternative)</u>

Bridge Concept 4, a contemporary cable-supported structure, would present a 21st century structural principle that introduces a relatively new technology to the United States (Figure 2-10). This extradosed concept bridge could invoke a uniquely modern statement over the river.

Figure 2-10 Computer Model of Bridge Concept 4

Because of the vertical constraint of the 230-kV transmission lines crossing over the 6th Street Viaduct, the extradosed bridge type was considered as a cost effective cable-supported design principal for this location. In an extradosed bridge, the cables emanate from a relatively low tower intersecting with the deck further out and at a lower angle than a cable-stay bridge, so that their tension acts more to compress the bridge deck horizontally than to support it vertically. Compared to an extradosed bridge, a typical cable-stay bridge has a substantially taller tower with a height above the deck at least half the span to the next support, since the cables are the vertical support and must come at a relatively high angle.

In Bridge Concept 4, the bridge's main span could be composed of a series of dual towers on the outside of the roadway that rise above the bridge deck. The top of each tower could be illuminated to enhance the nighttime effect of this distinctive structure. The main viewing platforms could sit above the center of the river, and they could be detailed with shapes that are similar in scale to the existing viaduct’s belvederes, yet be in concert with the extradosed bridge pylons and piers.

The new bridge barrier railing, projectile barriers, and light standards could pick up the open-spaced vertical elements, proportions and vocabulary of the original 1932 design. New crash-tested barrier and handrails would comply with current Caltrans specifications. A solids and voids ratio, somewhat similar to the existing edge of deck forms, could visually relate to the openings on the original details of the viaduct.

Along each end of the viaduct, for design consistency, the abutment walls could have a detailed surface that picks up the vocabulary of the main pier’s decorative indentations

Also, along the surface of the new abutments, the designers could allow multiple spaces for a green landscape wall. The vertical wall configurations at the Bent 2 location could use the same vocabulary that matches the adjacent end abutment wall pattern.

The PDT recommended the design principle of Bridge Concept 4, cable supported river spans with one central pier that clear the railroad tracks and avoids the overhead 230 kV power lines, be the preferred alternative. A range of design expressions of this principle, including Concept 4A with six towers representing Sixth Street as one example (see Figure 2-11), could be considered during final design.

Figure 2-11 Computer Model of Bridge Concept 4A

Bridge Concept 5 – Extradosed Concrete Box Girder with Single Pylon

Concept 5 is another potential design expression of the extradosed bridge principle. This expression features extradosed structures with towers and cables aligned along the center of the bridge and viaduct approaches (Figure 2-12). This particular expression utilizes six bridge towers as symbolically representative of 6th Street. The top of each tower could be illuminated to enhance the nighttime effect.

Figure 2-12 Computer Model of Bridge Concept 5

This bridge concept would not incorporate outboard belvederes. Belvederes would interrupt the flow of the roadway deck and, with the structure supporting the deck running along the center of the bridge, there would not be a natural space to place belvederes. On the preceding schemes, outside elements would be at the roadway deck to shape these protrusions and thereby enhance the natural rhythm of forms along the deck.

The viaduct cross section could be shaped to match and reinforce the design vocabulary of the cable angles. These angular elements could also be seen in the handrails.

The new bridge handrails, projectile barriers, deck sections, and barrier railing could pick up the open-spaced vertical elements of the original 1932 barriers and handrails. New crash-tested barrier and handrails would comply with current Caltrans specifications. A solids and voids ratio, somewhat similar to the existing bridge, could visually relate to the openings on the original details of the viaduct.

Along the viaduct, the handrails, projectile barriers, barrier railing, and light standards could maintain the proportions and vocabulary of the original design. The embankment piers at each end of the main span keep a sectional profile and details that are similar to the architectural vocabulary of the original piers. The details of the new bents along the viaduct could also be consistent with the detailed surface indentations of the new center pier.

Along each end of the viaduct, for design consistency, the abutment walls could have a detailed surface that picks up the vocabulary of the main pier's decorative indentations.

2.3.3.3 Street Design

In addition to improving the geometry of the 6th Street Viaduct, other areas of consideration for roadway design include the transitions from the viaduct to both the west and east ends of the project limits (see Figures 2-13 and 2-14), as well as impacts to the local streets under the viaduct.

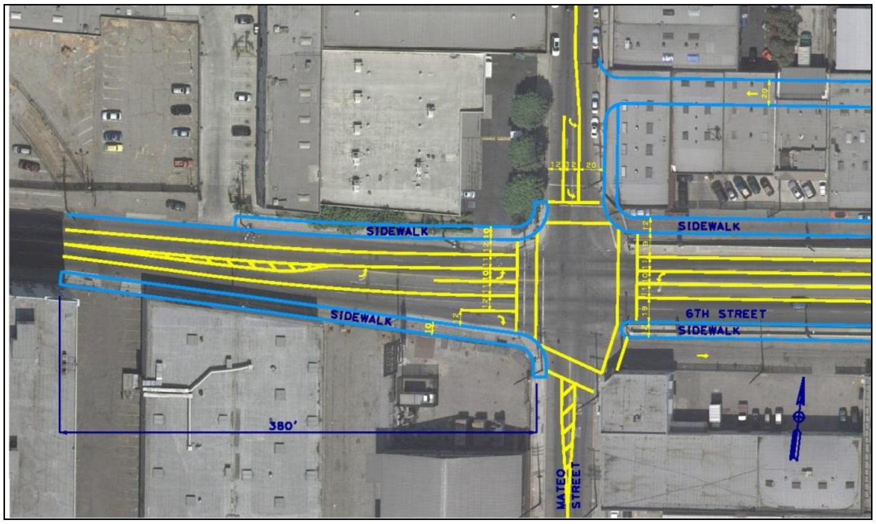


Figure 2-13 West End Transition Configuration

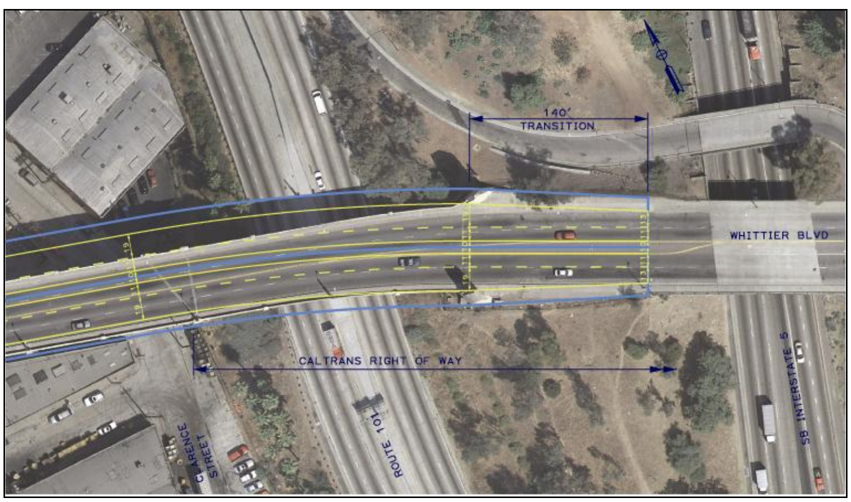


Figure 2-14 East End Transition Configuration

On Mateo Street at the west end of the viaduct, the proposed section would be aligned with the existing lane configuration by using a 380-ft transition that would consist of striping and minor modifications to the existing sidewalk and curb and gutter. The existing traffic signal masts would be modified to match the proposed transitions. A left-turn lane along Mateo Street would be provided to allow the southbound (SB) traffic to access the eastbound (EB) direction on 6th Street. This improvement would provide a safer lane configuration and better vehicular traffic movement. Note that under the replacement alternative, existing buildings on the north side of the viaduct east of Mateo Street would need to be removed. New access road and a sidewalk would likely be constructed to provide local circulation within the area.

On the east end of the viaduct, the proposed 94-ft section would taper to match the existing 58-ft section through a 165-ft transition. No additional lanes would be added, and no modifications to the existing sidewalk would be made.

Portions of the existing street crossings under the viaduct may need to be reconstructed for an approximate length of 200 ft on both sides of the viaduct. These improvements may be done in a way that creates opportunities for landscaping.

2.3.3.4 Other Roadway Improvements

As part of the construction of any alignment and bridge concept under Alternative 3, several roadway improvements at nearby intersections would be undertaken to maintain traffic operation during the construction period when the viaduct would have to be closed.

- 6th Street/Boyle Avenue Intersection: The proposed operational improvements at this intersection would: (a) modify signal phasing for the east-west direction to run as opposed phasing, (b) convert number 1 westbound (WB) through lane to a left-turn lane, (c) modify signal phasing to add a SB left-turn phase, and (d) extend the SB left-turn lane by approximately 75 ft.
- 7th Street/Boyle Avenue Intersection: Signal phasing would be modified to add an EB left-turn phase.
- 3rd Street/Central Avenue Intersection: Signal phasing would be modified to add a NB left-turn phase.
- 3rd Street/Alameda Street Intersection: Signal phasing would be modified to add a NB left-turn phase.
- 6th Street/Alameda Street Intersection: Signal phasing would be modified to add a NB left-turn phase.
- 6th Street/Central Avenue Intersection: Signal phasing would be modified to add a SB left-turn phase.
- 5th Street/Central Avenue Intersection: New traffic signals would be installed at this location.

In addition to modifying the signal phasing of traffic signals at nearby intersections, several other intersections will be impacted by the traffic detours. Mitigation measures have been proposed to mitigate these impacts (see Chapter 3 - Section 3.7.4) as follows:

- 4th Street and US-101 SB Off-Ramp: Install new traffic signals and connect to Los Angeles City ATSAC system.
- 4th Street and US-101 SB On-Ramp: Install new traffic signal and connect to Los Angeles City ATSAC system.
- 4th Street and Soto Street: Restripe to add an EB right-turn lane.

Design Standards

The proposed replacement alternative would be designed to meet the City's current street and street lighting design standards. The structural design for the replacement alternatives would meet AASHTO bridge design standards and Caltrans seismic design criteria.

Debris Management

Demolition of the viaduct would produce several kinds of debris, including crushed concrete, rebar, steel, and other existing appurtenances. Table 2-2 presents the estimated quantity of debris from viaduct demolition and reuse/disposal methods.

Table 2-2
Debris Quantity and Management Method

Type of Debris	Quantity	Reuse Method	Disposal Method
Concrete	43,882 cubic yards	Fill material, landscaping	Truck to landfill or reprocessing facility offsite
Rebar	2,700 tons	Salvage as scrap metal	Truck to metal salvage facility
Light Poles	90	Salvage as scrap metal and concrete as fill material	Truck to metal salvage facility
Steel from Main Span and Handrails	2,692 tons	Salvage as scrap metal	Truck to metal salvage facility

Estimated Cost for Replacement Alternatives

Table 2-3 presents estimated costs of each replacement bridge concept constructed on the three alignment evaluated. As can be seen, the construction and ROW costs for bridge concepts 1 through 5 vary from a low of $308 million to a high of $367 million (with the eliminated Concept 1A estimated at $409 million) for Alignment 3A, from a low of $306 million to a high of $369 million for Alignment 3B (with the eliminated Concept 1A estimated at $405 million); and from a low of $320 million to a high of $372 million for Alignment 3C. All estimates are based on 4th quarter 2010 costs.

Table 2-3
Viaduct Replacement Estimated Costs

Cost Item	Cost Estimate (midyear of construction dollars 2014/2015)		
	Alignment 3A	Alignment 3B	Alignment 3C
Bridge Concept 1			
Construction cost	240,735,000	237,542,000	254,505,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	337,146,000	335,349,000	348,880,000
Bridge Concept 1A			
Construction cost	306,150,000	302,635,000	NC
ROW	102,421,000	102,421,000	NC
TOTAL	408,571,000	405,056,000	NC
Bridge Concept 2			
Construction cost	211,280,000	208,156,000	225,263,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	307,691,000	305,963,000	319,638,000
Bridge Concept 3			
Construction cost	222,007,000	218,916,000	235,971,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	318,418,000	316,723,000	330,346,000
Bridge Concept 4			
Construction cost	210,408,000	207,330,000	224,608,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	308,154,000	305,935,000	319,869,000
Bridge Concept 4A			
Construction cost	223,523,000	220,008,000	237,723,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	321,269,000	318,613,000	332,984,000
Bridge Concept 5			
Construction cost	269,165,000	270,095,000	276,265,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	366,911,000	368,700,000	371,526,000

Cost Estimates as of 4th quarter 2010.
NC Bridge Concept 1A is not econonically possible on Alignment 3C because columns of the approaches would require taking ROW along the south and north edges of the viaduct.

Construction Duration and Phasing

Demolition and construction of the proposed improvements would be accomplished in a multi-phase manner with concurrent subphases. Demolition/construction is assumed to begin in 2013 and be completed over a 4-year timeframe. Anticipated construction activities for each year are summarized below.

Year 1

- Demolition of Adjacent Buildings – including several buildings east and west of the Los Angeles River
- Demolition/Replacement of Viaduct – including west approach, east approach, and river and railroad crossings
- Utility Relocation and replacement of sewer siphons.

Year 2

- Demolition and Replacement of the ramp access to the tunnel.
- Foundation Construction – for west approach, east approach, and river crossing
- Column/Pier Construction – for west approach, east approach, river, and railroad crossing
- Construction of west approach retaining walls and roadway section
- Construction of approach spans

Year 3

- Completion of foundations construction
- Completion of column/pier table construction
- Completion of west approach roadway and retaining walls construction
- Continuing approach spans construction phases
- Abutment construction and main spans construction
- Surface road demolition and reconstruction

Year 4

- Completion of approach spans construction
- Completion of main spans construction
- Completion of surface roads construction
- Sidewalks and barrier railings construction, bridge deck surface grinding
- Landscaping

Traffic Staging

Traffic detours would occur along the street network east and west of the river due to the closure of the 6th Street Viaduct. In addition, the 6th Street frontage roads on both sides of the viaduct would need to be closed, causing obstruction to the operations of adjacent businesses not subject to relocation that depend on the frontage roadways.

In addition to the detours resulting from the 6th Street Viaduct closures described above, it is anticipated that traffic staging along the viaduct vicinity during construction could include the following closures and detours:

East End of proposed project to Clarence Street

- Provide alternate closures of the SB and NB lanes of US 101 to allow nighttime bridge demolition.

Clarence Street to East of Anderson Street

- Close Clarence Street and the alley west of Clarence Street.
- Divert Clarence Street NB traffic to Jesse Street, then to Anderson Street, then to East 6th Street, and back to Clarence Street.
- Use the same route in the opposite direction for SB traffic.

Anderson Street to West of Alley

- South Clarence Street would be open for traffic.
- Close Anderson Street and the alley west of Anderson Street.
- Divert Anderson Street NB traffic to Jesse Street, then to Clarence Street, then to East 6th Street, and back to Anderson Street.
- Use the same route in the opposite direction for SB traffic.

West of Alley (above) to Easterly UPRR Railroad Tracks ROW

- Close Mission Road.
- Divert Mission Road NB traffic, except for local business traffic south of the viaduct, to Jesse Street, then to Anderson Street, then to East 6th Street, and then to Mission Road.
- Use the same route in the opposite direction for SB traffic.

Over UPRR/SCRRA ROW Tracks between the Los Angeles River and Ventura Foods, Inc.

- Build platforms spanning bents over railroad tracks. These activities are to be performed during work windows authorized by the railroads.
- Temporarily close the tracks adjacent to the bents to demolish the columns and footings.

Over BNSF/SCRRA/MTA ROW Tracks between the Los Angeles River and Mesquit Street

- Build platforms spanning bents over railroad tracks. These activities are to be performed during work windows authorized by the railroads.
- Temporarily close the tracks adjacent to the bents to demolish the columns and footings.

East of Mesquit Street to East of Santa Fe Avenue

- Close North and South frontage roads between Santa Fe Avenue and Mesquit Street.
- Close Mesquit Street under the 6th Street Viaduct to all traffic.
- Access to Lumary's Tire Co. would be open on the south side from Mesquit Street only through Jesse Street via South Santa Fe Avenue or Imperial Street.

- Access to the film studio located on the north side of the bridge would be through South Santa Fe Avenue from Willow Street at the north side of the property.

East of Santa Fe Avenue to the West Abutment

- Close North and South frontage roads between Santa Fe Avenue and Mateo Street for through traffic.
- Close South Santa Fe Avenue under the 6th Street Viaduct to all traffic.
- Allow only local business traffic with main entrances at frontage roads. Use flaggers at both ends to control traffic.
- Divert all through traffic on South Santa Fe Avenue to Mateo Street via Jesse Street on the south side and via Willow Street on the north side.
- South frontage road local traffic diverted to SB Santa Fe Avenue or Mesquit Street.
- Access for the north frontage road local traffic via Mateo Street, then Willow Street, then SB South Santa Fe Avenue to the frontage road.
- City Maintenance Facility is to be relocated before commencing bridge demolition operations.

West Abutment to Mateo Street

- Remove paving on the 6th Street Viaduct.
- Close through traffic at North and South frontage roads between Mateo Street and Santa Fe Avenue.
- Allow only local business traffic with main entrances at frontage roads. Use flaggers at both ends to control traffic.
- On the South frontage road, local business access east of South Santa Fe Avenue would be provided via Jesse Street and then South Santa Fe Avenue to the South frontage road.
- On the North frontage road, local business access west of South Santa Fe Avenue would be provided via Mateo Street, then Willow Street, then South Santa Fe Avenue to the North frontage road.

US 101

During the construction of a new viaduct structure, a portion of the US 101 underpassing the 6th Street Viaduct would require temporary closure for bridge demolition and falsework installation. This construction activity would be conducted at night time during none peak working hours. The freeway closure would be done in close coordination with the City, Caltrans, and the California Highway Patrol (CHP), during which time, traffic along US 101 would be detoured to surface streets. The detours will be directed with lighted signage, changeable message signs, CHP patrols, Caltrans personnel and other measures required for the safe movement of vehicular and pedestrian traffic around the construction site. Temporary detours and construction equipment and debris would be removed prior to the next morning's rush hour commute.

Proposed Laydown Areas

Two locations have been identified as candidate areas that can be used by contractors to store equipment and materials during construction activities. These sites were identified for purposes of the environmental analysis based on the fact that they are either currently vacant parcels with no known development plans or parcels owned by the City. One of the parcels is located on the northwest side of the viaduct at Santa Fe Avenue. This is a triangular-shaped property of approximately 40,605 square feet. The other parcel, owned by the City, is located at the southwest corner of Mission Road and Jesse Street. This is a triangular-shaped property of approximately 79,650 square feet.

The actual laydown areas may vary and would be identified by the Contractor, subject to the approval of the City's construction manager. It is the contractor's responsibility to acquire permits prior to using any selected site.

2.3.3.5 Transportation System Management and Transportation Demand Management Alternative

Caltrans requires consideration of Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies in EIS/EIR documents (Caltrans SER EIS/EIR Annotated Outline, Volume 1, July 2011). TSM strategies consist of actions that increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Some TSM strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. TSM also encourages transit, bicycle, and pedestrian improvements on transportation facilities.

Although TSM measures alone could not satisfy the purpose and need of the project, because they cannot correct the seismic deficiencies of the viaduct, the following TSM measures have been incorporated into the Replacement Alternative for this project: 10-ft-wide sidewalks; 19-ft-wide outside lanes, including 8-ft-wide shoulders for bicycles; left-turn lane at Mateo Street to improve through traffic flow; and traffic signal improvements at both ends of the project. The City of Los Angeles' signal network system, referred to as the Automated Traffic Surveillance and Control (ATSAC) system, coordinates signals for optimal operations (referred to as signal priority). The ATSAC system is currently in place in East Los Angeles.

TDM focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding travelers' transportation choices in terms of travel methods, time, route, costs, and the quality and convenience of the travel experience. Implementation of the TDM measures will not correct the design and seismic deficiencies of the 6th Street Viaduct; therefore, they do not meet the purpose and need of the project.

2.4 Preferred Alternative Identification

The Draft EIR/EIS was circulated for public review between June 16, 2009 and August 24, 2009. Three public hearings were held. All comments from the public hearings and those received during the public review period were considered.

After comparing and weighing the benefits and impacts of all of the feasible alternatives, as summarized in Summary Table ES-1 and described in detail in Chapter 3, the Project Development Team (PDT) has identified the Replacement Alternative (Alternative 3) with Alignment 3B and the principle of Bridge Concept 4 as the Preferred Alternative for the 6th Street Viaduct Seismic Improvement Project. The City and Caltrans have made the final determination of the project's impact on the environment based on the comments and concerns expressed during the public review period and the results of the engineering and environmental technical analysis. The Preferred Alternative would attain the purpose and need of the project because it would replace the ASR-damaged 6th Street Viaduct with a new structure that would be designed to meet current seismic and geometric standards set forth by AASHTO and LADOT.

Although the Retrofit Alternative (Alternative 2) would have lower construction costs and would preserve some historic elements of the viaduct compared to the Replacement Alternative, it would not be able to stop, reverse, or mitigate the ASR deterioration and, consequently, would have the highest life-cycle cost. The Retrofit Alternative would only meet a "no collapse" standard; significant damage could occur in a major earthquake. In addition, it would not correct the geometric deficiencies of the existing viaduct and would still adversely affect this historic resource. The Retrofit Alternative would partly achieve the project's purpose; however, due to the deficiencies described above, it is inferior to the Replacement Alternative. The PDT held a workshop on October 8, 2008, to determine feasibility of the retrofit concepts and recommended the Replacement Alternative over the Retrofit Alternative (see Appendix N, Section 3.3.1). The PDT determination was presented in the Draft EIR/EIS, and after consideration of public comments on the Draft EIR/EIS, the Retrofit Alternative remains not recommended.

As described in detail in Appendix N, the PDT held a second workshop on September 29, 2009, after the close of the Draft EIR/EIS public comment period, to identify a preferred alternative based on the highest ranked replacement alignment and bridge concept. Specific criteria were used to evaluate the different bridge structures and alignment alternatives. Seismic performance, geometric flexibility, roadway and pedestrian safety, historical compatibility, public support, environmental impacts, construction cost, and constructability were among the set of criteria used for the evaluation of the bridge concepts. The criteria for the evaluation of alignments consisted of, but were not limited to, such factors as operational safety, ROW impacts to properties, construction schedule, and industrial preservation. Alignment 3B and Bridge Concept 4A received the highest score. As a result, after careful consideration of all the aforementioned concerns, and in further consideration of all other environmental analyses contained in the EIR/EIS, the Replacement Alternative with Alignment 3B and the principle of Bridge Concept 4 was selected as the Preferred Alternative.

The City, as the CEQA Lead Agency, has prepared a Final EIR. In accordance with CEQA, the City will certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations (SOC) for impacts that could not be mitigated below a level of significance, and certify that the findings and SOC have been considered prior to project approval. The City will then file a Notice of Determination (NOD) with the State Clearinghouse that will identify whether the project will have significant impacts, mitigation measures included as conditions of project approval, findings made, and that a SOC was adopted.

Similarly, Caltrans, as assigned by FHWA, has issued a Final EIS in accordance with NEPA, and will document and explain its decision regarding the selected alternative, project impacts, and mitigation measures in a Record of Decision in accordance with NEPA.

2.5 Alternatives Considered but Eliminated from Further Discussion

During the 6th Street Viaduct alternative analysis, a wide range of alternatives was considered to address alignment deficiencies. An alternative development process was conducted for the project, as summarized in Appendix N of this EIR/EIS. The alternatives below were considered, but they were later withdrawn because of the lack of features to meet the purpose and need, extraordinary cost, substantial environmental impacts, and/or engineering infeasibility.

Retrofit using Infill Wall Construction

This retrofit alternative was evaluated in the *Final Seismic Retrofit Strategy Report.*[8] It consists of construction of infill walls between columns at 17 bents, and construction of 6 grade beams and 2 footings. The retrofit design also includes restrainers at the West and East River Piers and concrete-filled steel pipes at the west abutment to enhance the capacity of shear keys under

[8] Sixth Street Viaduct Final Seismic Retrofit Strategy Report. 2004.

seismic forces. The alternative was designed by the City of Los Angeles Bureau of Engineering (LABOE) in 1995 and approved by the County of Los Angeles and Caltrans in 1998. The City requested, and subsequently received, an authorization for construction from Caltrans in 2000 in the amount of $18.2 million. however, because this alternative would not correct the ASR damage, geometric deficiencies, and related seismic deficiencies of the viaduct, the City did not proceed with construction.

Retrofit using Infill Wall with Steel Casing Construction

This alternative is an enhancement to the Infill Wall Construction Alternative by adding steel casings to columns in the bents with infill shear walls, in addition to other columns at some of the bents with no infill walls. The steel casings would enhance confinement, ductility, and shear strength of the existing columns. The steel casings would also improve shear force transfer capacity between the infill walls and the deteriorated columns. This alternative would construct infill shear walls at 14 bents in addition to the use of steel plates to provide encasement to 29 columns. Since ductility and displacement capacity of the retrofitted columns would be enhanced, it would be necessary to increase flexural strength of some of the bent caps to assure that plastic hinges would not form in the bent caps after retrofitting of the columns, but that plastic hinges would rather form in the columns. This is because of limited ductility capacity of the bent caps due to the lack of continuous bottom reinforcement and inadequate top reinforcement in the cap beams at locations of the columns.

The infill shear walls would reduce seismic transverse displacements in the existing structure. Under this alternative, two expansion joints in the superstructure would be closed, and new grade beams would be constructed to reduce seismic longitudinal displacements. The as-built analyses showed that stability problems may be encountered in the existing structure because of the small-size footings. Thus, new footings are also proposed to reduce displacements and enhance stability of the structure since the existing footings were, according to literature, sized to resist gravity plus 0.10g lateral loads. Also, retrofitting of the existing footings would be necessary because of degradation due to ASR.

Despite the confinement proposed under this alternative, ASR would continue. In addition, the seismic risk would still remain and would require a significant subsequent retrofit in approximately 10 years to maintain the seismic and operational safety of the structure. This alternative was withdrawn from further evaluation in the EIR/EIS based on the fact that it does not meet the purpose and need of the project because it would not correct the ASR damage, geometric deficiencies, and related seismic deficiencies of the viaduct, nor would it remove the viaduct from the Eligible Bridge List (EBL) due to functionally deficient geometrics that would remain.

Retrofit using Catcher Wall Construction

The objective of this retrofit design would increase seismic safety by preventing the collapse of the viaduct during an earthquake. The design would consist of constructing catcher walls at locations of all bents, except Bent 12. This bent would be excluded because of the restricted room available for construction imposed by the proximity of active railroad tracks. These catcher walls would provide a secondary support system to the viaduct to supplement the existing columns and foundations in the event of column collapse.

This alternative would increase seismic safety by preventing structural collapse, but it would not improve seismic performance of the existing structure, resulting in a high likelihood of destructive damage with few, if any, repair options available following a large seismic event. Life expectancy of the structure under this alternative would be approximately 10 years. This alternative was withdrawn from further evaluation in the EIR/EIS based on the fact that it does not meet the purpose and need of the project because it would not correct the ASR damage, geometric deficiencies, and related seismic deficiencies of the viaduct, nor would it remove the viaduct from the EBL list due to functionally deficient geometrics that would remain.

Retrofit using Concrete Casing Construction

This alternative would utilize concrete column casings to increase the ductility and stiffness of the existing structure. It is similar to the Infill Wall with Steel Casing Construction retrofit scheme in that the existing columns would be encased to provide additional confinement to resist lateral dilation of the core. This scheme proposes to retrofit all columns and bent caps and construct new foundations at bents with “Moderate-Severe” to “Severe” concrete column degradation based on results of the material sampling and testing study. No infill shear walls are proposed with this alternative because the concrete column casings and the bent cap retrofit would increase the stiffness of the structure and consequently reduce seismic displacements. The new foundations would also be designed to reduce seismic displacements. Bent 12 would be excluded from retrofitting because of the restricted room available for retrofit construction to take place at this location.

This retrofit scheme has similar shortcomings to the Infill Wall with Steel Casing Construction scheme. Design of the concrete encasement would not provide sufficient strength to withstand the high internal pressure from continuing ASR activity. Construction of the concrete encasement would take place with rigorous water and moisture control of the existing concrete to prevent trapped moisture inside the encased sections of columns. Life expectancy of the structure under this alternative would be approximately 20 years before the next major retrofit would be required. This alternative was withdrawn from further evaluation in the EIR/EIS based on the fact that it does not meet the purpose and need of the project because it would not correct the

ASR damage, geometric deficiencies, and related seismic deficiencies of the viaduct, nor would it remove the viaduct from the EBL list due to functionally deficient geometrics that would remain.

Retrofit using Substructure Replacement

This retrofit scheme would be designed to meet current seismic demands by replacing all ASR-affected concrete in the substructure elements with new concrete. By replacing the substructure elements rather than using traditional strengthening retrofit solutions, the viaduct's aesthetics and historic nature could be preserved by utilizing architectural features similar to the existing members. Columns would be designed according to current seismic design criteria, including displacement and ductility capacity requirements.[9]

This retrofit scheme would replace all substructure elements, including piles, footings, grade beams, columns, and bent caps, to provide additional strength required to accommodate the anticipated seismic demands (see Figure 2-15). The design would include substructure replacement for the length of the entire structure, including the west approach spans, main spans, and east approach spans. In addition, this retrofit scheme would replace the existing substandard concrete barrier with a crash-tested Type 80 modified barrier consistent with current Caltrans specifications. The new barrier would mimic the aesthetics of the existing barrier. As part of the barrier replacement, all existing cobra-head luminaires and arms would be replaced with new fabricated ornamental lanterns and pendants replicating the original 1930s design.[10]

The existing concrete approach spans are supported primarily on multi-column bents with spread footing foundations. Existing spread footings lack top mat reinforcement, which is required to resist seismic damage. This retrofit scheme would replace all foundations with combined pile-supported footings featuring increased footing thickness and current seismic detailing to provide the necessary strength to resist anticipated seismic demands.[11] The increased strength in the foundations would provide a fixed connection to the columns, which would reduce the seismic displacement demands.

Columns would be designed to provide sufficient displacement capacity to ensure that a ductile plastic hinge forms in the column elements. Aesthetically, the retrofit design would match the geometric features of the existing concrete columns.

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9 Retrofit Analysis Technical Memorandum for Substructure Replacement. June 2008.

10 The City of Los Angeles Bureau of Street Lighting (BSL) is not required to meet current City-adopted lighting standards because the 6th Street Viaduct is protected by the State Historical Building Code. BSL will, however, provide the best feasible illumination levels and uniformity ratios for both roadway and sidewalks.

11 Retrofit Analysis Technical Memorandum for Substructure Replacement. June 2008.

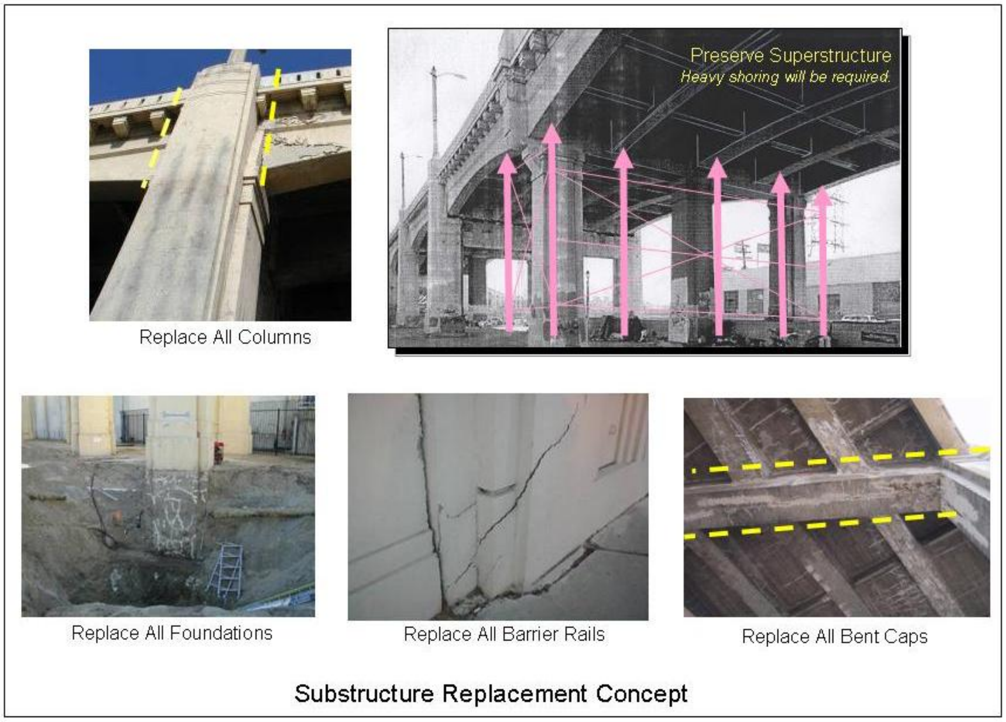


Figure 2-15 Substructure Replacement Concept

The piers supporting the main span have also been determined to be seismically deficient. As part of this alternative, the River Bank Piers and the Center River Pier would be replaced. The new main-span supports would attempt to aesthetically match the existing supports. Due to the size of the main-span supports, the piers would be comprised of hollow reinforced concrete elements.

As previously discussed, bent caps would be designed to provide sufficient capacity to ensure that plastic hinging is limited to the column members. A review of as-built drawings indicated that the existing bent caps lack sufficient strength to form plastic hinges in the column members; therefore, all bent caps would be removed and replaced. Existing superstructure reinforcement that is continuous through the bent cap would need to be maintained and integrated with the new bent cap reinforcement to provide the required continuity of the superstructure.

This retrofit scheme would specifically address the ASR in the substructure by removing ASR-compromised material and replacing it with new materials, but it would not address the ASR in the superstructure; therefore, the design life of the substructure would be 75 years, while the superstructure would continue to be vulnerable to earthquakes. Closure of the viaduct after a design earthquake event would likely be required due to superstructure damage.

Construction of this retrofit scheme would be difficult due to the following constraints:

- Limited access to the site from the sides and limited vertical clearances for placement of shoring
- Proximity of bridge to existing operational railroad
- Proximity of bridge to existing building foundations
- Size and weight of superstructure elements to be supported during removal and replacement of substructure
- Difficult concrete removal work at the bent caps
- Questionable force transfer between the new bent caps and existing superstructure may require large-scale proof testing
- Substandard horizontal clearances between columns and railroad facilities would cause difficulty in obtaining approval from railroad companies

This retrofit scheme was withdrawn from further evaluation it would not completely correct the seismic deficiencies of the viaduct; thus, it does not meet the purpose and need of the project. In addition, it would involve much higher costs compared to the Infill Wall and Steel Casing scheme to obtain similar results for the same design life.

Replace ASR-Damaged Concrete within the Existing Viaduct Structure

This scheme was evaluated in response to suggestions from the public to consider preserving the general appearance of the existing viaduct by replacing the concrete elements that have deteriorated due to the ASR effect. Results of the evaluation indicated that there is no practical method to differentiate and isolate the ASR-compromised concrete from sound material. Many of the cores, which were extracted as part of the previously discussed materials testing program, exhibited a healthy surface appearance but highly distressed interiors (see Figure 1-7); therefore, it was determined that there was no practical way to replace bad concrete with new material without replacing all of the concrete. Implementation of this scheme would essentially require replacement of the entire viaduct.

Another suboption was to replace the foundations, columns, bent caps, and guardrails, along with strengthening the existing arch ribs. The superstructure between bent caps would not be replaced. After approximately 30 years, the superstructure would have to be replaced. (See Substructure Replacement alternative).

This alternative was withdrawn from further evaluation in the EIR/EIS based on the fact that it does not meet the purpose and need of the project because it would not correct the seismic deficiencies of the viaduct, nor would it remove the viaduct from the EBL list due to functionally deficient geometrics that would remain.

Retrofit using Lithium Treatment

In March 2007, FHWA published the report *The Use of Lithium to Prevent or Mitigate Alkali-Silica Reaction in Concrete Pavements and Structures*. Lithium treatment for the 6th Street Viaduct was thoroughly evaluated and was withdrawn from further evaluation in this EIR/EIS for the following reasons:

1. The FHWA report states "Lithium treatment will not repair any damage that has already occurred." Significant ASR damage has already occurred within the 6th Street Viaduct concrete elements; thus, lithium treatment would not be effective.
2. Data from the FHWA report indicate that application of lithium to existing structures can only penetrate approximately an inch below the surface of the concrete member. The structural elements of the 6th Street Viaduct are many feet thick. The most severe ASR damage is within the core of the thick concrete members.
3. In regards to usage of lithium to treat existing ASR-affected structures, the report states "Typically, such studies have used laboratory-sized specimens with relatively small cross-sections and it has not yet been demonstrated that lithium treatment is effective with larger specimens that are more representative of elements of concrete structures." In addition, if the large members of the viaduct could be treated, the treatment still would not correct the damages that have occurred.

Retrofit using Carbon Fiber Wrap Technology

Similar to steel casings, carbon and fiberglass-reinforced polymer rehabilitation schemes do not reverse or stop the ASR deterioration throughout the structural elements. The *Final Seismic Retrofit Strategy Report* did not evaluate this option in depth because of its cost being much higher relative to steel casing and its unknown long-term durability beyond approximately 20 years. This retrofit scheme was withdrawn from further evaluation in this EIR/EIS based on the fact that it does not meet the purpose and need of the project because it would not correct the seismic deficiencies of the viaduct.

Replacement with Historic Replica (Modified Retrofit)

This retrofit scheme was developed and evaluated in response to suggestions from the public to consider partial retrofit and partial replacement. It is essentially a replacement of the existing viaduct structure with a new structure that maintains the historic appearance of the existing 6th Street Viaduct with a reuse of some existing viaduct components

Under this scheme, the new structure would be constructed to meet current code requirements. All of the viaduct features would be replicated to the maximum extent feasible consistent with arriving at a roadway design that meets current AASHTO and City standards. The alignment and roadway width would be changed to meet these standards.

Based on the preliminary design concept, the new replacement structure would have 7 spans on the west approach between the west abutment and the west river pier. The east approach would consist of 14 spans between the east river pier and Bent 37. Span length would vary between 80 ft and 156 ft, with an average span length of 130 ft to 140 ft. The superstructure would be constructed with cast-in-place (CIP) concrete multi-cell box girder. The box girder would have a parabolic soffit with a variable girder depth between 4.5 ft and 6.5 ft in a typical span. Depth of the box girder may reach up to 8 ft at some of the bents. The parabolic soffit of the superstructure would simulate the visual appearance of the existing structure. The bent cap overhang would be constructed with similar details to those of the existing structure. Concrete barrier rails Type T-80 would be used to replace the existing railing and sidewalk. The steel arches over the Los Angeles River would be preserved in the new replacement structure. The superstructure over the Los Angeles River would consist of a CIP box girder, as described above; however, the steel arches would be moved and reset on the exterior sides of the new superstructure to maintain the visual appearance of the existing viaduct. The steel arches would not participate in load-carrying capacity of the new viaduct portion over the Los Angeles River. With this scheme, the steel arches would carry only their self weight, as well as self weights of the vertical hangers and bracing members.

The new structure would be constructed with circular columns with diameters ranging from 6 ft to 7 ft. The circular columns would be covered by 6-inch-thick architectural precast concrete casings that have a similar exterior shape as that of the existing columns. The objective of the architectural concrete casing would be to maintain the visual appearance of the existing columns, and it would not carry any load of the columns. The columns and the architectural casings would be supported on pile foundations.

This retrofit scheme would eliminate the ASR problem. The life expectancy of the new structure would be an estimated 75 years. This scheme would provide a wider roadway width and alignment that meets the goal of removing the structure from the FHWA Eligible Bridge List. Although the existing viaduct elements would be replicated to the extent practicable, the new structure would not have exactly the same visual appearance (effects on the feeling and association) along the entire length of the viaduct. This alternative was further developed as Bridge Concept 1 (replication of the main span) and Concept 1A (replication along the entire length of the viaduct). Although this alternative would meet the project purpose and need by correcting the seismic and geometric deficiencies, the historic integrity of the viaduct would be lost. Furthermore, due to the substantially higher cost of Bridge Concept 1A compared to Concept 1 (approximately $100 million more), only Bridge Concept 1 was carried forward for evaluation in the EIR/EIS (see Section 2.3.3.2).

Replacement Alignments Withdrawn (1, 3, 4, 6, 7, 8, 9)

A screening process was conducted to evaluate and select viable alignments for further design consideration. Based on preliminary engineering investigation and public input, the PDT initially identified more than 20 alignment scenarios for consideration. These alignment scenarios were then refined and integrated into 10 alignment alternatives (Figure 2-16). A workshop was conducted to screen down the proposed alignment alternatives. This workshop resulted in the alternatives being reduced to three alignments (2, 5, and 10), and later renamed as Alignments 3A, 3B, and 3C, as shown in Figure 2-6, for the purpose of evaluation in the environmental document. A summary of the screening exercise is presented in Appendix N.

A modification to Alignment 3B was later evaluated in an effort to reduce ROW impacts in response to the public input during the Draft EIR/EIS public review process; however, the 3B modified design option uses smaller radius curves, being inferior geometry to Alignment 3B. In addition, cost savings would be less than 1 percent of Alignment 3B, which is considered negligible. Therefore the design option 3B modified was not carried forward for further consideration as a full alignment alternative for the purpose of environmental analysis in this EIR/EIS.

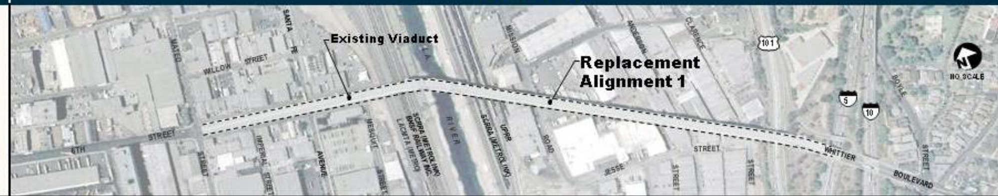
Two of the replacement alternatives eliminated deserve special mention because they are the only alternatives that would allow the existing 6th Street Viaduct to remain standing and still meet the project purpose and need. These are Replacement Alignment 8 and Replacement Alignment 9, as described below:

- **Replacement Alignment 8:** Alignment 8 proposes to preserve the existing viaduct by constructing a new viaduct to the north of the existing viaduct. Under this alternative, the existing viaduct would be retrofitted for preservation purposes and used only for pedestrian and bicycle traffic. One of the main drawbacks of this approach is that by constructing a new alignment to the north and extending its limits to the east and west, it would result in substantially greater ROW impacts than any of all the other proposed alternatives. This alternative would be far more expensive because both the new viaduct construction and the existing viaduct retrofit to the same non-collapse standards would be required. Construction of the viaduct under Alignment 8 would create major impacts to the sewer siphon across the Los Angeles River and the sewers located on the east bank of the river. This alignment would also create potential impacts to the LADWP transmission towers located along the east bank of the river. This alignment would require construction of a new US 101 northbound (NB) on-ramp. Two new bridges would also be required over I-5 for the NB and southbound (SB) sections of the freeway. There would be greater impacts to the railroads by adding a new bridge to the north of the existing viaduct, plus the additional space required for retrofitting the existing columns that are located within the railroad ROW.

Screening Replacement Alignment Description	Plan View

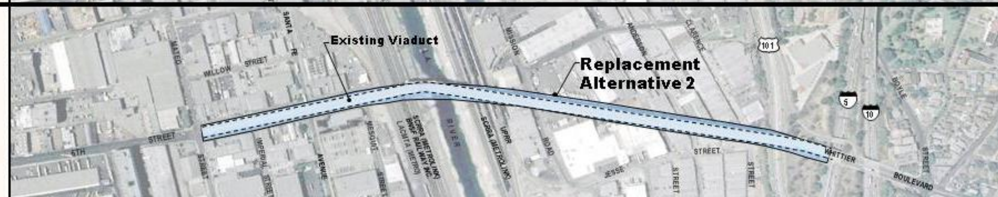
Alternative 1

Remove existing viaduct and construct a new viaduct that replicates existing viaduct on existing alignment. The new viaduct width and profile would be the same as the existing structure. No median or shoulders would be provided.



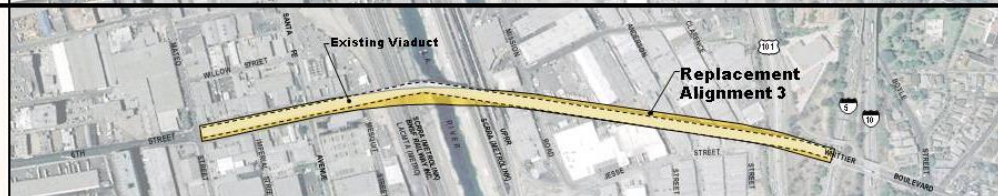
Alternative 2 (Alignment 3A in this EIR/EIS)

Remove existing viaduct and construct a new viaduct on a new horizontal alignment. The new viaduct would be designed to have wider traffic lanes, median, shoulders, and sidewalks. To accommodate the widened viaduct, the north side of the viaduct footprint would extend to the north, while the south side of the footprint would remain at the same location except for the segment of the alignment that spans over the Los Angeles River, which would be shifted slightly south to improve the existing horizontal curve radius (2,300 ft) and provide better design speeds and stopping sight distance.



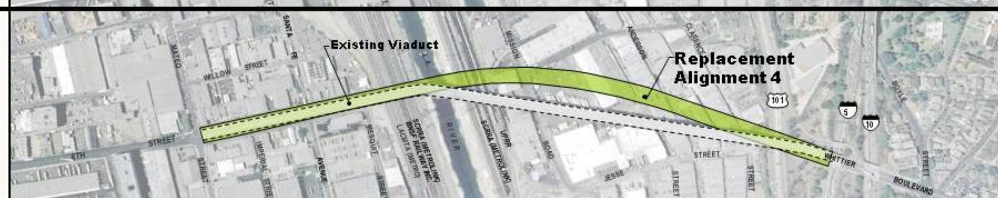
Alternative 3

Remove existing viaduct and construct a new viaduct. It would have a wider cross section as in Alternative 2. The new structure would be built along a new horizontal alignment similar to that described in Replacement Alternative 2, with the exception of a larger radius (4,000 ft) span over the Los Angeles River to allow better design speeds and sight distances and structural layout.



Alternative 4

Remove existing viaduct and construct a new viaduct. It would have a wider cross section as in Alternative 2. The new viaduct would be built on a horizontal straight line alignment for the segment from Mateo Street to the west bank of the Los Angeles River, allowing more bridge type options. The alignment under this option would swing to the north approximately 182 ft from the existing alignment, eliminating the existing radius at the east end and providing the best design speeds compared to the other alignment options under consideration.



Alternative 5 (Alignment 3B in this EIR/EIS)

Remove existing viaduct and construct a new viaduct. It would have a wider cross section as in Alternative 2. The alignment under this option is similar to that described under Alternative 4, except that the radius (5,000 ft) east of the river is much larger, resulting in less extension of the viaduct footprint to the north. The alignment under this option would swing to the north approximately 85 ft from the existing alignment, eliminating the existing radius at the east end.

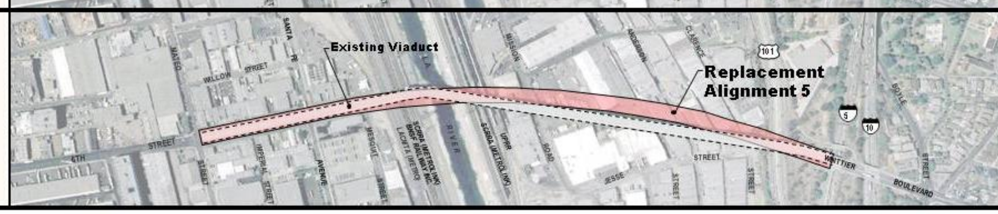
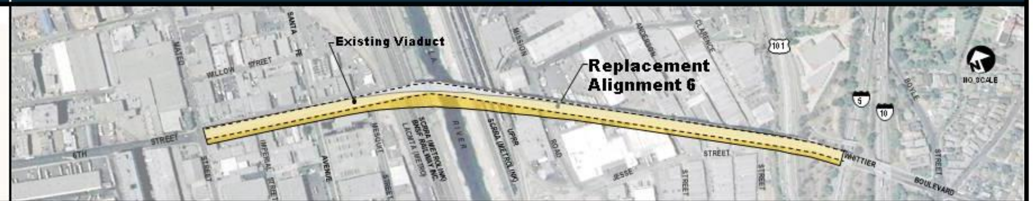


Figure 2-16 Replacement Alternative Alignment, Sheet 1

<table>
<tr><th>Screening Replacement Alignment Description</th><th>Plan View</th></tr>
<tr><td>

Alternative 6

Remove existing viaduct and construct a new viaduct on a new horizontal alignment. It would have a wider cross section as in Alternative 2. The south side of the viaduct footprint would extend to the south, while the north side of the footprint would remain at the same location.

</td><td>


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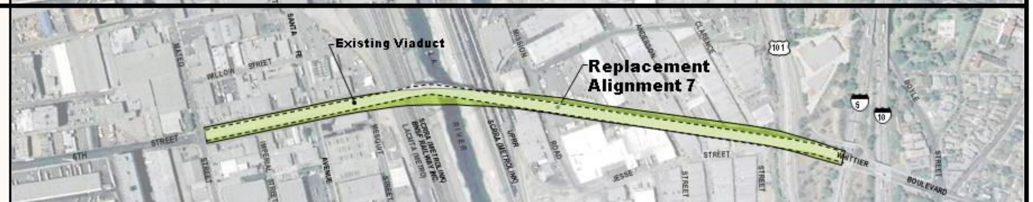
Alternative 7

Remove existing viaduct and construct a new viaduct on a new horizontal alignment. It would have a wider cross section as in Alternative 2. To accommodate the widened viaduct, the footprint of the viaduct would be widened on both the north and south sides.

</td><td>


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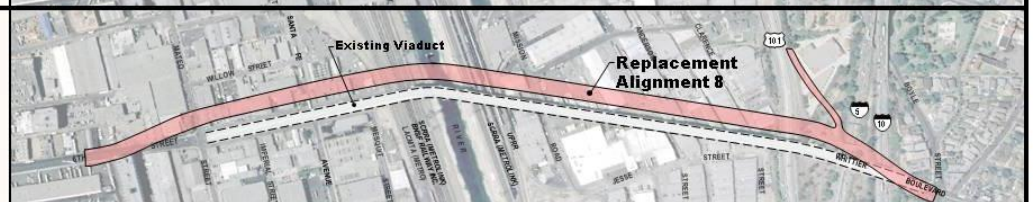
<tr><td>

Alternative 8

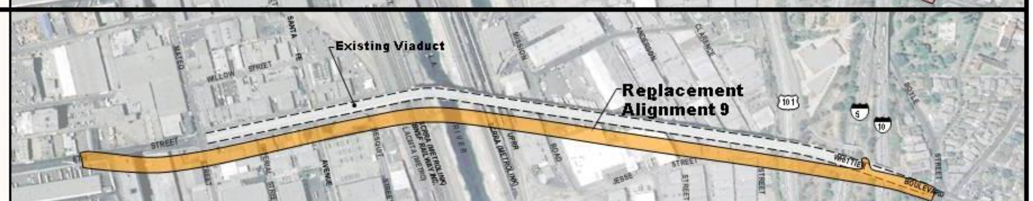
Construct a new viaduct parallel to the existing viaduct on the north side adjacent to the existing viaduct. It would have a wider cross section as in Alternative 2. Retrofit the existing viaduct for public safety.

</td><td>


</td></tr>
<tr><td>

Alternative 9

Construct a new viaduct parallel to the existing viaduct on the south side of the existing viaduct. It would have a wider cross section as in Alternative 2. Retrofit the existing viaduct for public safety.

</td><td>


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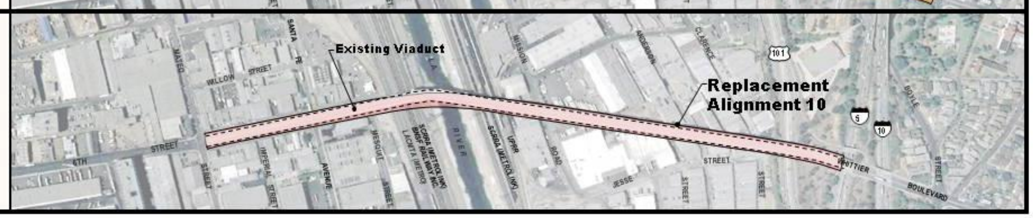
<tr><td>

Alternative 10 (Alignment 3C in this EIR/EIS)

Remove existing viaduct and construct a new viaduct on a new horizontal alignment. It would have a wider cross section as in Alternative 2. To accommodate the widened viaduct, the footprint of the viaduct would be wider on the north and south sides, except for the area between Mateo Street and Mesquit Street, which would only be wider to the north. The segment that extends from the river to the east would be constructed as a cantilever structure to minimize right-of-way impacts.

</td><td>


</td></tr>
</table>

Figure 2-16 Replacement Alternative Alignment, Sheet 2

- **Replacement Alignment 9:** Alignment 9 proposes to preserve the existing viaduct by constructing a new viaduct to the south of the existing viaduct. Under this alternative, the existing viaduct would be retrofitted for preservation purposes and used only for pedestrian and bicycle traffic. One of the main drawbacks of this approach is that by constructing a new alignment to the south and extending its limits to the east and west, it would create substantially greater ROW impacts similar to Alignment 8. This alternative would be far more expensive because both the new viaduct construction and the existing viaduct retrofit the same non-collapse standards would be required. This alignment would impact three LADWP transmission towers (two on the west bank of the river and one on the east bank). In addition, LADWP's electrical substation between Santa Fe Avenue and Mesquit Street would be impacted. A new NB on-ramp connection to US 101 would be required. Two new bridges would also be required over I-5 for the NB and SB sections of the freeway. There would be greater impacts to the railroads by adding a new bridge to the north of the existing viaduct, plus the additional space required for retrofitting the existing columns that are located within the railroad ROW.

Bridge Concepts Withdrawn

Screening of potential replacement bridge concepts was conducted for various beam, arch, and cable-supported bridge systems using steel and concrete materials. The purpose of this screening was to identify which bridge concepts would be developed further during the advanced planning phase of project development leading to bridge concept selection, thus narrowing the number of potential bridge concepts for staff's recommendations during the bridge concept selection phase.

Fifteen (15) bridge concepts (types) were developed during the initial phase of project studies (summer 2007), as shown in Figure 2-17, and described in Appendix N. Based on the CAC and technical staff input, 10 of them were eliminated from further study. The remaining five bridge concepts (i.e., Concepts 1, 2, 3, 4, and 5) were carried forward for conceptual designed development, as described in Section 2.3.3.2. In spring 2009, design expression Concept 1 and Concept 4 were added as a result of public and agency input, called Concepts 1A and 4A. Due to the high cost of Concept 1A, it was not carried forward for further evaluation in the EIR/EIS.

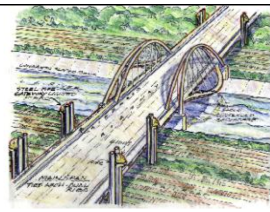
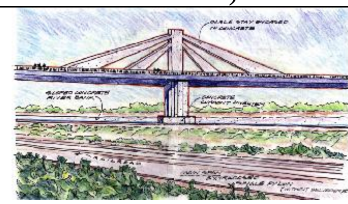
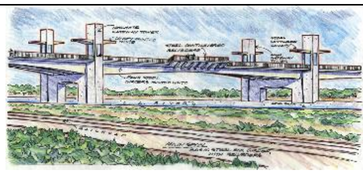
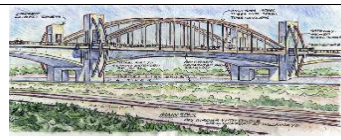
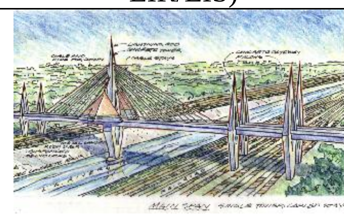
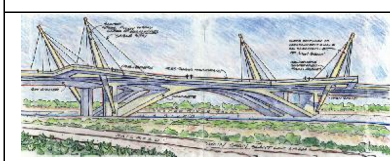
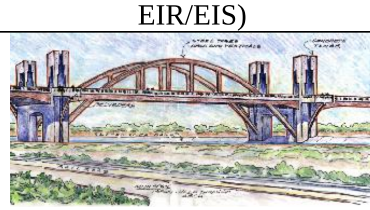
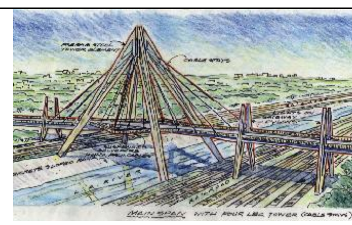
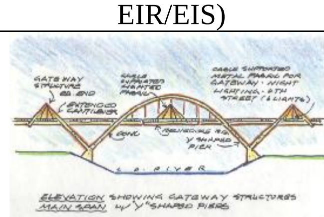
 Replacement in kind (Bridge Concept 1 in this EIR/EIS)	 Steel tied arch with top lateral bracing	 Extradosed concrete box girder with dual pylons (Bridge Concept 4 in this EIR/EIS)
 Haunched cast-in-place prestressed concrete box girder	 Steel tied arch without top lateral bracing	 Extradosed concrete box girder with single pylons (Bridge Concept 5 in this EIR/EIS)
 Haunched steel box girder	 Haunched cast-in-place prestressed concrete box girder with steel tied arch pedestrian bridge (Bridge Concept 2 in this EIR/EIS)	 Cable stay with single pylon
 Concrete slant leg frame	 Steel half-through arch (Bridge Concept 3 in this EIR/EIS)	 Cable stay with 4-leg pylon
 Concrete deck arch	 Concrete half-through arch with “Y” piers	 Self anchored suspension

Figure 2-17 Bridge Concepts Developed at the Initial Phase of Project

2.6 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Agency	Permit/Approval
U.S. Army Corps of Engineers (USACE)	Section 404 Nationwide Permit for possible discharge of dredged or fill material into the Los Angeles River
State Historic Preservation Officer (SHPO)	Section 106 consultation and agreement for the work that would impact the historic 6th Street Viaduct
Los Angeles Regional Water Quality Control Board (RWQCB)	Construction General Permit and Project Registration Documents
RWQCB	National Pollutant Discharge Elimination System (NPDES) Permit
RWQCB	Groundwater Dewatering Permit for discharges of groundwater from construction and project dewatering to surface waters in the watersheds of Los Angeles
California Department of Fish and Game (CDFG)	Section 1602 Agreement for Streambed Alteration
California Public Utilities Commission (PUC) Rail Crossing Engineering Section (RCES)	Rail crossing construction or alteration authorization
Caltrans	Encroachment permits
Los Angeles County Metropolitan Transportation Authority (MTA)/Southern California Regional Rail Authority (SCRRA)/ BNSF Railway (BNSF)/Union Pacific Railroad (UPRR)/ AMTRAK	Railroad Maintenance Agreement for work within railroad ROW

Chapter 3
Affected Environment,
Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Chapter 3 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

3.1 Introduction

The proposed project is a joint undertaking by Caltrans and the City of Los Angeles (City), and it is subject to both state and federal environmental review requirements. Project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Federal responsibility for environmental review, consultation, and any other actions required in accordance with NEPA and other applicable federal laws for this project that used to be administered by the Federal Highway Administration (FHWA) is being carried out by Caltrans under its assumption of responsibility pursuant to 23 *United States Code* (U.S.C.) 327. Caltrans is the lead agency under NEPA, and the City of Los Angeles is the lead agency under CEQA for the proposed project.

Analysis of each environmental factor in this EIR/EIS includes discussion of the affected environment, environmental consequences (including construction impacts, permanent impacts, cumulative impacts, and indirect impacts) and avoidance, minimization, and mitigation measures for each project alternative, including No Action Alternative, Retrofit Alternative, and Replacement Alternative. The environmental conditions existing in 2007, when the Notice of Preparation (NOP) was issued and when the traffic counts were conducted, served as the baseline for impact analysis for each alternative evaluated in this EIR/EIS.

Under the Retrofit Alternative, impacts were analyzed based on the assumption that project construction would commence in 2014 and would last for 2.5 years (as outlined in Section 2.3.2 of this EIR/EIS). Impacts for the Replacement Alternative were analyzed based on the assumption that construction would commence in 2014 and would last for 4 years (as outlined in Section 2.3.3), during which time all traffic would be detoured to alternative routes as a result of the viaduct closure. Under the Replacement Alternative, three viaduct alignments and five bridge concepts were considered. Unless otherwise indicated, impacts would be the same for each alignment. Since impacts to most resources are independent of bridge concepts, impact from bridge concepts were analyzed only for the resources which would be impacted by bridge concepts, including Hydrology/Floodplain and Visual/Aesthetics. When the impacts were found to be potentially significant, as determined under CEQA, then mitigation measures were developed to reduce the impacts to a less than significant level. CEQA requires that each significant effect on the environment resulting from the project be identified and, to the extent feasible, mitigated.

Under the No Action Alternative, the viaduct may be determined to be unserviceable by the City of Los Angeles and Caltrans due to advanced ASR deterioration or a major seismic event in the future, the timing of which cannot be predicted. Under such an event, the City would take the viaduct out of service and seek emergency funding sources to replace it. If this were to occur, it is estimated that the time to secure funding, complete design, acquire right-of-way (ROW), and construct a new viaduct could range between 5 and 7 years from the time it was placed out of service. Since, under those circumstances, the project would be considered an emergency, it would be Exempt by Statute under CEQA (PRC 21080[b]; 14 CCR 15260 et seq.) and a Categorical Exclusion under NEPA (23 U.S.C. 125). No environmental document would be required. It is estimated, based on similar projects, that securing full funding would take up to 1 year, design and right-of-way acquisition would take 1 to 2 years (could be done concurrently with funding), and construction would take approximately 4 years.

Under CEQA, thresholds are used to determine if project-related changes to the environment are significant (CEQA Guidelines Section 15064.7). Per NEPA regulations (40 Code of Federal Regulations [CFR] 1508.27), significance is based on context and intensity. The magnitude of the impact is evaluated, and no judgment of its significance is made in the document. Usage of the term "significance" in this document is made pursuant to CEQA only, and the evaluation of environmental factors pursuant to CEQA significance thresholds is confined to Chapter 4 and Appendix A, CEQA Checklist. Each section in Chapter 3 discusses the context and intensity of environmental impacts and mitigation measures, as required by NEPA.

In analyzing cumulative and indirect effects of the proposed project, the Council on Environmental Quality (CEQ) handbook entitled *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ, 1997) and the FHWA position paper entitled *Secondary and Cumulative Impact Assessment in the Highway Project Development Process* (FHWA, 1992) were followed. Three major steps, which are parallel with the environmental impact assessment process, were used in analyzing cumulative effects. These consist of (1) scoping, (2) defining the affected environment, and (3) determining the environmental consequences.

3.1.1 Technical Studies

Environmental analyses presented in this chapter are primarily based on the following technical studies prepared for the 6th Street Viaduct Seismic Improvement Project.

Air Quality Technical Report, 2008 and updated 2011.
Archaeological Survey Report, 2008 and validated 2011.

Community Impact Assessment, 2008 and updated 2011.
Final Relocation Impact Report, 2010 and updated 2011.
Final Project Report/Environmental Document Phase Foundation Report, May 2011
Historic Property Survey Report, 2008 and validated 2011.
Historical Resources Evaluation Report, 2007 and validated 2011.
Hydrology and Hydraulics Report, 2008 and updated 2011.
Initial Site Assessment, 2008 and validated 2011.
Natural Environment Study, 2011.
Noise Study Report, 2009 and validated 2011.
Paleontological Study, 2009 and validated 2011.
Site Investigation Report, 2008 and validated 2011.
Asbestos and Lead-Based Paint Survey, May 2009.
Traffic Analysis Report, 2008.
Traffic Analysis Report Validation Findings Technical Memorandum, February 2011.
Visual Impact Assessment, 2008 and updated 2011.

The above technical studies are incorporated by reference and are available for review at the LABOE office and Caltrans District 7 office.

3.1.2 Governing Laws, Regulations, and Standards

The analysis in this document assumes that, unless otherwise stated, the project would be designed, constructed, and operated following all applicable federal and state laws, regulations, ordinances, and formally adopted City standards (e.g., Los Angeles Municipal Code and Bureau of Engineering Standard Plans). Also, this analysis assumes that construction would follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works Additions and Amendments to the Standard Specifications for Public Works Construction [also known as “The Brown Book,”] formerly Standard Plan S-610).

3.1.3 Resources Considered but Determined to not be Relevant

The following environmental resources were considered but determined to not be relevant due to their absence from the project area. Consequently, there is no further discussion regarding these resources in this document.

Farmland/Timberland. The project site is located in a highly developed, urban area of Los Angeles with no farmland or agricultural resources within the project area and vicinity.

Coastal Zone. The project site is not located within the designated coastal zone area.

Wild and Scenic Rivers. Where the project site is located, the Los Angeles River is concrete-lined and is in an industrial development area. It is not designated a wild and scenic river.

3.1.4 Resources Resulting in No Impacts

As part of the scoping and environmental analysis conducted for the project, the following environmental factors and resources were considered, but no potential for adverse impacts was identified. Consequently, there is no further discussion regarding these environmental factors in this document (see Appendix A, CEQA Checklist, for more information).

Growth. Growth within the project area and vicinity is controlled by the City of Los Angeles General Plan. The proposed project would retrofit or replace a seismically vulnerable viaduct, but it would not add traffic lanes/capacity; therefore, it is not considered growth inducing and would not directly or indirectly contribute to population growth.

Land use designations in the project area west of the Los Angeles River include *heavy industrial* (zoned M3), *open space* (zoned OS), and *public facilities* (zoned PF); land use designations in the project study area east of the river include *heavy industrial* (zoned M3), *light industrial* (zoned MR2), *residential multi-family* (zoned RD2), *open space* (zoned OS), *public facilities* (zoned PF), and *highway oriented commercial* (zoned C1). No residential dwellings are located in or adjacent to the 6th Street Viaduct footprint. The proposed project would not require the acquisition or displacement of residential housing. Under the replacement alternative, some manufacturing/commercial buildings located immediately adjacent to the viaduct footprint would need to be relocated, leaving some vacant land that might be available for redevelopment. Since this land is zoned for heavy industrial, redevelopment of the land for residential and/or mixed-use residential is not allowed unless it is rezoned by the City Planning Department. Future development decisions would be made through the planning process/protocols set forth by the City of Los Angeles Planning Department and are beyond the scope of this project.

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PART I – HUMAN ENVIRONMENT

3.2 Land Use and Planning

This section addresses potential impacts to existing and planned land uses within the project area that could result from implementation of the proposed project alternatives. The information presented in this section is excerpted from the Community Impact Assessment[12] prepared for this project.

3.2.1 Existing and Future Land Use

3.2.1.1 Affected Environment

Existing Land Use

The project is located within a fully developed, mixed-use urban setting surrounding a portion of the Los Angeles River (refer to Figure 1-2 in Chapter 1). The project is located at the boundary of the City of Los Angeles General Plan's Central City North and Boyle Heights Community Planning areas. Land uses along the north and south sides of the viaduct are predominantly industrial and commercial. Railroad corridors exist along the east and west banks of the river. On the west bank of the river, the two tracks closest to the river are owned by the Los Angeles County Metropolitan Transportation Authority (MTA) and used by the Southern California Regional Rail Authority (SCRRA) to operate Metrolink trains. The five tracks west of the MTA tracks are owned by Burlington Northern Santa Fe (BNSF), and the rest of the tracks are owned by MTA and used for the Metro Red Line. Amtrak and BNSF also operate trains on MTA's two tracks on the west bank. On the east bank, the two tracks closest to the river are owned by MTA, and the Union Pacific Railroad (UPRR) owns the rest of the tracks. UPRR also operates trains on MTA's tracks on the east side of the river.

The Los Angeles River, which extends beneath the viaduct in a north-south direction, is confined to a trapezoidal concrete-lined channel. Within the proposed project vicinity, four 230-kilovolt (kV) high-voltage transmission towers, owned by the Los Angeles Department of Water and Power (LADWP), are located on each bank of the river on the north and south sides of the viaduct.

Existing buildings/structures located within the viaduct footprint include the City Department of Public Works Maintenance Facility office (located beneath the viaduct on the west side of the Los Angeles River between Santa Fe Avenue and Imperial Street); a river access tunnel (located beneath the viaduct on the west side of the Los Angeles River between Santa Fe Avenue and the

[12] Community Impact Assessment for 6th Street Viaduct Seismic Improvement Project. July 2008; updated May 2011.

river), and buildings formerly owned by Ventura Foods, Inc. (located underneath the viaduct on the east side of the Los Angeles River west of Mission Road).

Development Trend

The project site is situated within the fully developed area of Downtown Los Angeles and the Boyle Heights community. Rehabilitation, reuse, and redevelopment activities in the downtown area are progressing very rapidly, while such activities in the Boyle Heights community are less apparent, which is evident from current property conditions in the vicinity. The area near the proposed project site west of the Los Angeles River, in the Arts District of downtown, has seen several adaptive reuse renovations of abandoned industrial buildings, which introduces residential uses to the primarily industrial district by converting the spaces into live/work units. Based on a review of ongoing and future foreseeable proposed projects within the area, many rehabilitation/reuse/redevelopment projects are proposed near the project study area, as summarized in Section 3.26.4 of this EIR/EIS.

Land Use Designation and Zoning

Land use designations in the project study area west of the Los Angeles River include *heavy industrial* (zoned M3)[13], *open space* (zoned OS)[14], and *public facilities* (zoned PF)[15] (see Figure 3.2-1 for land use designations and Figure 3.2-2 for zoning designations). Land use designations in the project study area east of the river include *heavy industrial* (zoned M3), *light industrial* (zoned MR2)[16], *residential multi-family* (zoned RD2)[17], *open space* (zoned OS), *public facilities* (zoned PF), and *highway oriented commercial* (zoned C1)[18]. Existing land uses on both sides of the river reflect the land use and zoning designations.

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[13] Heavy Industrial (M3): This zone allows for Light Industrial use (M2), any industrial l uses, nuisance type uses 500 ft from any other zone, No multiple residential uses.

[14] Open Space (OS): This zone allows for parks and recreation facilities, nature reserves, closed sanitary landfill sites, public water supply reservoirs, and water conservation area.

[15] Public Facilities (PF): This zone allows for agricultural uses, parking under freeways, fire and police stations, government buildings, public libraries, post offices, public health facilities, and public elementary and secondary schools.

[16] Restricted Light Industrial (MR2): This zone allows for restricted industrial use (zoned MR1), additional industrial uses, mortuaries, and animal keeping.

[17] Restricted Density Multiple Dwelling (RD2): This zone allows for two-family dwellings.

[18] Limited Commercial (C1): This zone allows for local retail stores greater than 100,000 square ft, offices or businesses, hotels, hospitals and/or clinics, parking areas, limited commercial uses (CR) except for churches, schools, museums, and multiple dwelling uses (R3).

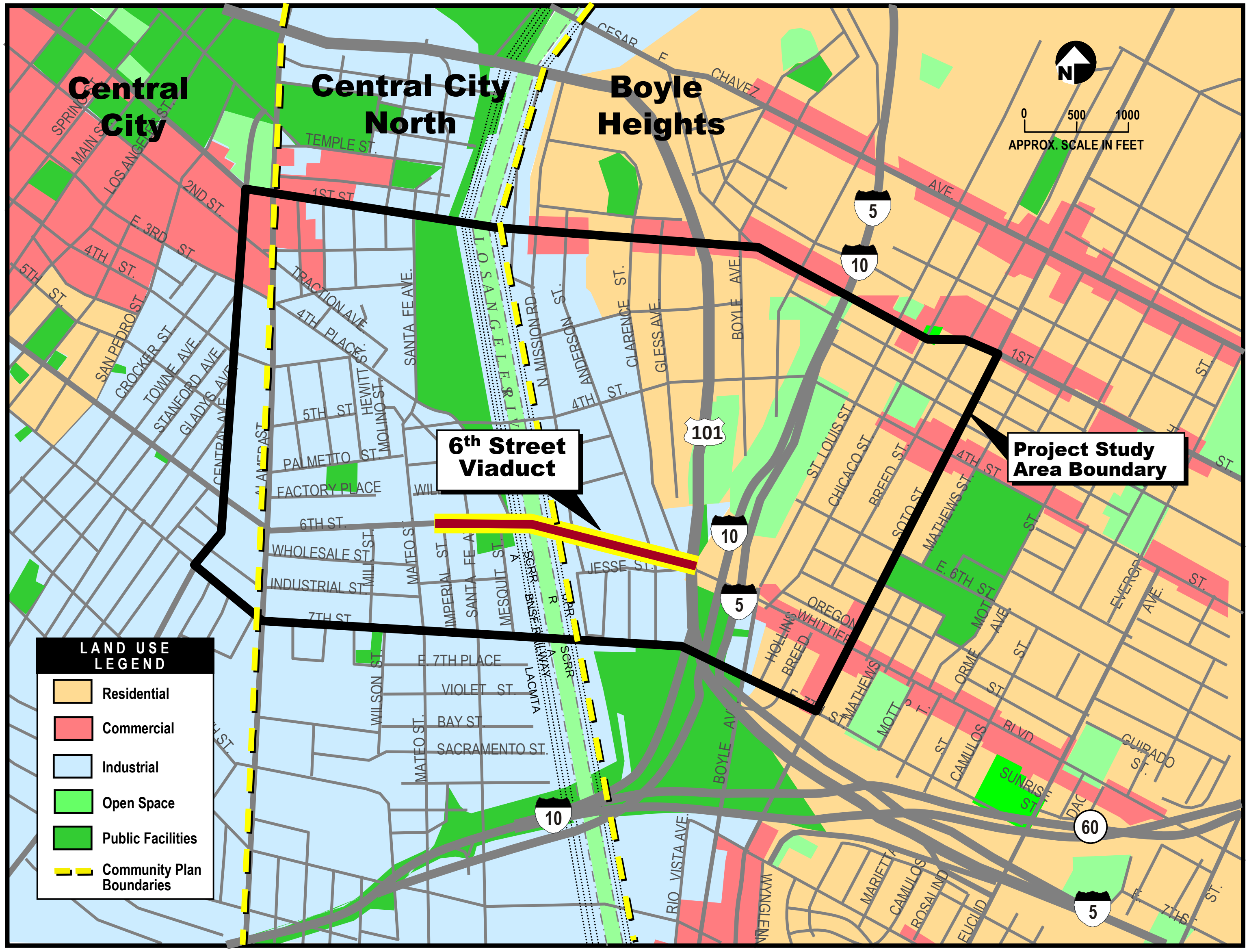

Figure 3.2-1 Community Planning Area Land Use Map

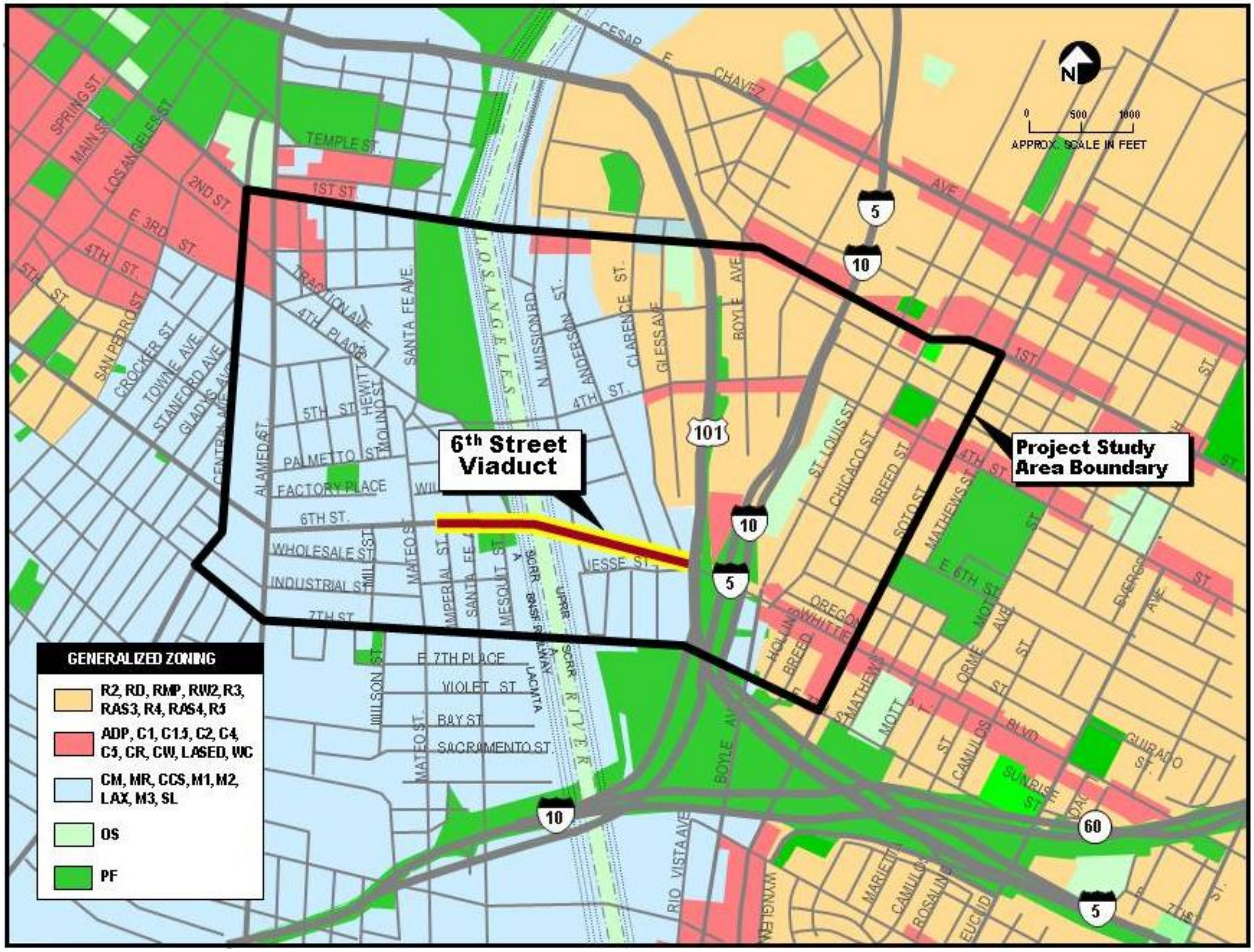

Figure 3.2-2 Zoning Designation Map

3.2.1.2 Environmental Conseqences

This section describes potential construction, permanent, and indirect impacts of the three alternatives carried forward in this EIR/EIS, including No Action Alternative, Retrofit Alternative, and Replacement Alternative. Under the Replacement Alternative, there are three alignments and five bridge concepts being considered. Unless otherwise indicated, impacts would be the same to each alignment and bridge concept.

Construction Impacts

Alternative 1 – No Action

Under this alternative, the viaduct may be determined to be unserviceable due to advanced ASR deterioration or a major seismic event in the future, neither of which can be predicted. Under such an event, the City would take the viaduct out of service and seek emergency funding sources to replace it. If this were to occur, it is estimated that a period of up to 7 years may be required to have the new viaduct constructed. During this time, the viaduct would not be available to provide a link between the Boyle Heights community and the Downtown area. A traffic detour route via the 4th Street and 7th Street viaducts, and designated connecting north/south streets, would have to be used (see Section 3.7.3.1). Construction of a new viaduct would require removal of several commercial and industrial buildings along the viaduct alignment like that described under Alternative 3 – Replacement. Roadway obstruction from construction activities may limit the use of some properties located within the project vicinity. This impact would be localized and temporary for the period required to secure funding, complete design, and construct the new viaduct.

Alternative 2 – Retrofit

Implementation of Alternative 2 would not require full closure of the viaduct or adjacent streets; however, temporary lane closures on the viaduct are likely to occur, and adjacent streets could experience episodes of increased congestion as a result of construction. Moreover, access to businesses situated adjacent to the viaduct could be restricted. Any such effects would be localized, temporary, and of short duration.

Alternative 3 – Replacement

Construction of the Replacement Alternative would require removal of the existing 6th Street Viaduct and several commercial and industrial buildings along the viaduct alignment. Roadway obstruction from construction activities may limit the use of some properties located within the project vicinity. This impact would be localized and temporary.

Permanent Impacts

Alternative 1 – No Action

No impacts to land use and planning would occur under the No Action Alternative if the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards, similar to that outlined under Alternative 3 – Replacement. Property acquisitions along the replacement alignment would be required to accommodate a new, wider viaduct. No zoning changes would be required as a result of the property acquisition. The impact to land use and zoning would not be substantial.

Alternative 2 – Viaduct Retrofit

The purpose of the proposed seismic improvement project is to preserve the 6th Street Viaduct as a viable east-west link between Downtown Los Angeles and the Boyle Heights community. Implementation of Alternative 2 would require removal of two existing properties, including the City of Los Angeles Maintenance Facility, which is located in the area beneath the viaduct on the west side of the river, and the Ventura Foods, Inc. buildings located on the east side of the river. These acquisitions would not require a revision to any of the adopted plans or policies at the local and regional levels. No zoning change would be required as a result of the proposed project. Therefore, there would be no impacts to land use and zoning.

Alternative 3 – Viaduct Replacement

Property acquisitions along the proposed alignment would be required to accommodate the new, wider viaduct. No zoning change would be required as a result of the property acquisition. The impact to land use and zoning would not be substantial.

Indirect Impacts

The Council on Environmental Quality (CEQ) defines secondary effects as those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Generally, these impacts are induced by the initial action. They comprise a wide variety of indirect effects, such as changes in land use, water quality, economic vitality, and population density.

Alternative 1 – No Action

No indirect impacts on land use and planning would occur as a result of the No Action Alternative implementation if the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. If this were to occur, it is estimated that a period of up to 7 years may be required to have the new viaduct constructed. Several businesses located in close proximity to the viaduct may experience access restrictions during the closure period of the viaduct or may be subject to relocation. Potential indirect impacts associated with business relocations would consist of hazardous materials from building demolition, noise, air quality, traffic and circulation, and parking.

Since the viaduct closure would be temporary, there would be no permanent impacts to land use and planning.

<u>Alternative 2 – Retrofit</u>

Implementation of Alternative 2 would require relocation of the City of Los Angeles Street Maintenance Facility, which is currently located west of the river beneath the viaduct. The maintenance facility could be relocated to the nearby area zoned as *Industrial* or *Commercial*. Application for a land use or zoning amendment or a conditional use permit may be required. Potential indirect impacts associated with the Maintenance Facility relocation would consist of noise, air quality, traffic and circulation, and parking. The level of impacts cannot be determined because a specific site has not been identified.

<u>Alternative 3 – Replacement</u>

Implementation of Alternative 3 would also require permanent relocation of the City of Los Angeles Maintenance Facility, as well as several businesses located adjacent to the viaduct on both sides of the river. Application for a land use or zoning amendment or a conditional use permit may be required. Potential indirect impacts associated with the business relocations would consist of hazardous materials from building demolition, noise, air quality, traffic and circulation, and parking.

3.2.1.3 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service.

In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. Prior to construction, the City would develop a Traffic Management Plan (TMP) for implementation to assist the local businesses and residents during construction. The TMP would identify and provide alternate traffic detour routes, pedestrian and bicycle routes, and residential and commercial access routes to be used during the viaduct closure period.

Alternative 2 – Retrofit

A Traffic Management Plan (TMP) would be developed to assist the remaining local businesses in continuing operation during the construction period. The TMP would identify and provide alternate traffic detour routes, pedestrian routes, and residential and commercial access routes to be used during the construction period. In addition, the City mandated Work Area Traffic Control Plan (WATCP) would be strictly implemented by the contractor during project construction.

Refer also to Section 3.4.4 for measures to minimize impacts to businesses subject to relocation.

Alternative 3 – Replacement

Minimization measures would be the same as Alternative 2.

3.2.2 Consistency with State, Regional, and Local Plans and Programs

3.2.2.1 Affected Environment

There are various types of plans that guide development within the project study area. These include General Plans, Redevelopment Plans, Specific Plans, and Master Plans. A General Plan is a comprehensive policy document that defines the type, amount, and location of future growth within a community. It must address the following seven State-prescribed elements: land use, circulation, housing, conservation, open space, noise, and safety. The Land Use Element of a General Plan identifies the proposed distribution and intensity of housing, business, industry, open space, natural resources, public facilities, waste disposal, and other categories of public and private land uses. Each local jurisdiction is required to have an adopted General Plan.

The following discussion describes the adopted plans within the project study area and applicable goals, policies, or objectives for this project.

A. City of Los Angeles General Plan

The City of Los Angeles' Citywide General Plan Framework Element establishes the broad overall policy and direction for the entire General Plan. It provides a citywide context and comprehensive long-range strategy to guide the update of the General Plan's other elements.

The City's 35 community plans collectively comprise the Land Use Element of the General Plan. The Department of City Planning has established the New Community Plan Program (NCPP) to study the land use plans for the 35 community plans to ensure that they are kept up-to-date to effectively guide growth. The aim of this update is to encourage sustainable growth patterns while balancing the unique character of individual communities. Infrastructure, design, transportation, and mobility issues are also being addressed in the update.

The proposed project's study area includes portions of the Central City North and Boyle Heights Community Plans (see Figure 3.2-1). The Los Angeles River forms the boundary between these two community plan areas.

Central City North Community Plan

The Central City North Community Plan Area is adjacent to Downtown Los Angeles and is bound by the Los Angeles River to the east; the city of Vernon to the south; Alameda Street, Cesar Chavez Avenue, Sunset Boulevard, and Marview Avenue to the west; and Stadium Way, Lilac Terrace, and North Broadway to the north. It includes symbolic cultural centers for three prominent ethnic groups in the City of Los Angeles, encompassing Chinatown, parts of Little Tokyo, and the original Mexican pueblo.

The project area is located in one of the city's major industrial districts – the South Industrial Area. The South Industrial Area is located between Alameda Street and the Los Angeles River, and between 3rd Street and US 101. Preservation of industrial land use designations is a primary objective of the Central City North Community Plan.

The project area is also located in the Artists-in-Residence (AIR) District, which is commonly referred to as the Arts District. The AIR District is located between I-5 and Interstate 10 (I-10) and between Alameda Street and the Los Angeles River. Although the largest concentration of artists is located outside of the project area between 1st Street and Palmetto Street and Alameda Street and the Los Angeles River, artists' residences and businesses may be encountered in the project area.

The Central City North Community Plan was amended in December 2000.[19] The Plan was developed in the context of promoting a vision of the Central City North area as a community that:

- Preserves and enhances the positive characteristics of existing residential neighborhoods while providing a variety of housing opportunities with compatible new housing.
- Improves the function, design, and economic vitality of the commercial corridors.
- Preserves and enhances the positive characteristics of existing uses that provide the foundation for community identity, such as scale, height, bulk, setbacks, and appearance.
- Maximizes the development opportunities of future transit systems while minimizing any adverse impacts.
- Plans the remaining commercial and industrial development opportunity sites for needed job-producing uses that will improve the economic and physical condition of the Central City North area.

[19] City of Los Angeles, 2000. Central City North Community Plan. December.

Boyle Heights Community Plan

The Boyle Heights community, which is situated at the eastern boundary of the city, is surrounded by the city of Vernon to the south, the unincorporated community of East Los Angeles to the east, the communities of Lincoln Heights and El Sereno to the north, and the Los Angeles River to the west. Boyle Heights was developed as one of the first residential suburbs in Los Angeles when rail and rail-related uses began to expand and dominate the Los Angeles River corridor. Immigrants and residents employed by the railroads and related industrial sectors settled in the Boyle Heights area. Moreover, some of the first public housing projects were constructed in Boyle Heights.

The Boyle Heights Community Plan was amended in 1998.[20] The plan was developed with similar purposes as described above for the Central City North Community Plan.

City of Los Angeles Industrial Land Use Policy

In January 2008, the City of Los Angeles Planning Department released the findings of the Industrial Land Use Policy project (ILUP).[21] The ILUP, which is made up of Planning Department staff and City of Los Angeles Redevelopment Agency staff, gathered and analyzed information regarding the viability of the City's industrial districts, particularly those areas currently experiencing pressure to be converted to other uses. The ILUP includes the industrial districts within the project study area, including the Central City North-Alameda (west of the Los Angeles River) and Boyle Heights (east of the Los Angeles River) industrial areas, respectively. The west side of the proposed project is located within the ILUP-designated Industrial Mixed Use District, areas that should remain predominantly industrial/employment use but that may support a limited amount of residential use according to the ILUP, and an Employment Protection District, where industrial zoning should be maintained and residential uses are inappropriate. Similarly, the east side of the proposed project falls within the area designated by the ILUP as Employment Protection District.

The recommendations of the ILUP establish guidance and short- and long-term direction, and identify needs for new land use and zoning code categories. The ILUP does not establish new land use plans or policies; current land use plans and policies contained in the General Plan and Redevelopment Plans for these areas are still valid.

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[20] City of Los Angeles, 1998. Boyle Heights Community Plan. November.
[21] http://cityplanning.lacity.org/code_studies. Web site accessed by Pika Rosario on March 4, 2008.

B. Community Redevelopment Agency

The Community Redevelopment Agency of the City of Los Angeles (CRA/LA) has been Los Angeles' public partner in housing, commercial, neighborhood, and economic development for more than half a century. The CRA/LA is dedicated to revitalizing, refurbishing, and renewing economically underserved areas of Los Angeles. Since its creation in 1948, CRA/LA's main task is to lend a hand to investors willing to take risks for a more vibrant city, to neighborhood residents with renewed aspirations for their communities, and to those in need who strive to take part in the city's growing prosperity.

The CRA/LA adopts comprehensive plans for redevelopment areas. These plans provide guidelines and strategies for removing physical and economic blight and provide a vision, goals, and timetables for generating growth and new opportunities. Redevelopment plans are created with political, business, and community participation. The plans are the roadmap for spurring growth, creating new housing, and improving the quality of life and general welfare of the people who live and work in and around redevelopment areas.

CRA/LA has two redevelopment projects in the project study area, consisting of the Central Industrial Redevelopment Project and the Adelante Eastside Redevelopment Project. The two redevelopment projects conform to the corresponding community plans described above and are in accordance with local codes and ordinances.

The Central Industrial Redevelopment Project, which is located in Downtown Los Angeles just east of the commercial center, covers approximately 738 acres and is generally bound by 3rd Street on the north, the Los Angeles River on the east, San Pedro Street on the west, and Washington Boulevard and I-10 on the south (Figure 3.2-3).[22] The Redevelopment Plan was adopted by the Los Angeles City Council on November 15, 2002. The redevelopment project aims for the revitalization and redevelopment of land to eliminate blight and remedy the conditions that caused it. The present priority project for the Central Industrial Redevelopment Project is the proposed Downtown Women's Center, which is located in the Renaissance Building at 434 S. San Pedro Street. The proposed project intends to provide public services and facilities necessary to address the needs of various social, medical, and economic problems of Central City residents, especially the Skid Row population.

[22] Community Redevelopment Agency of Los Angeles. 2002. Redevelopment Plan for the Central Industrial Redevelopment Project. November.

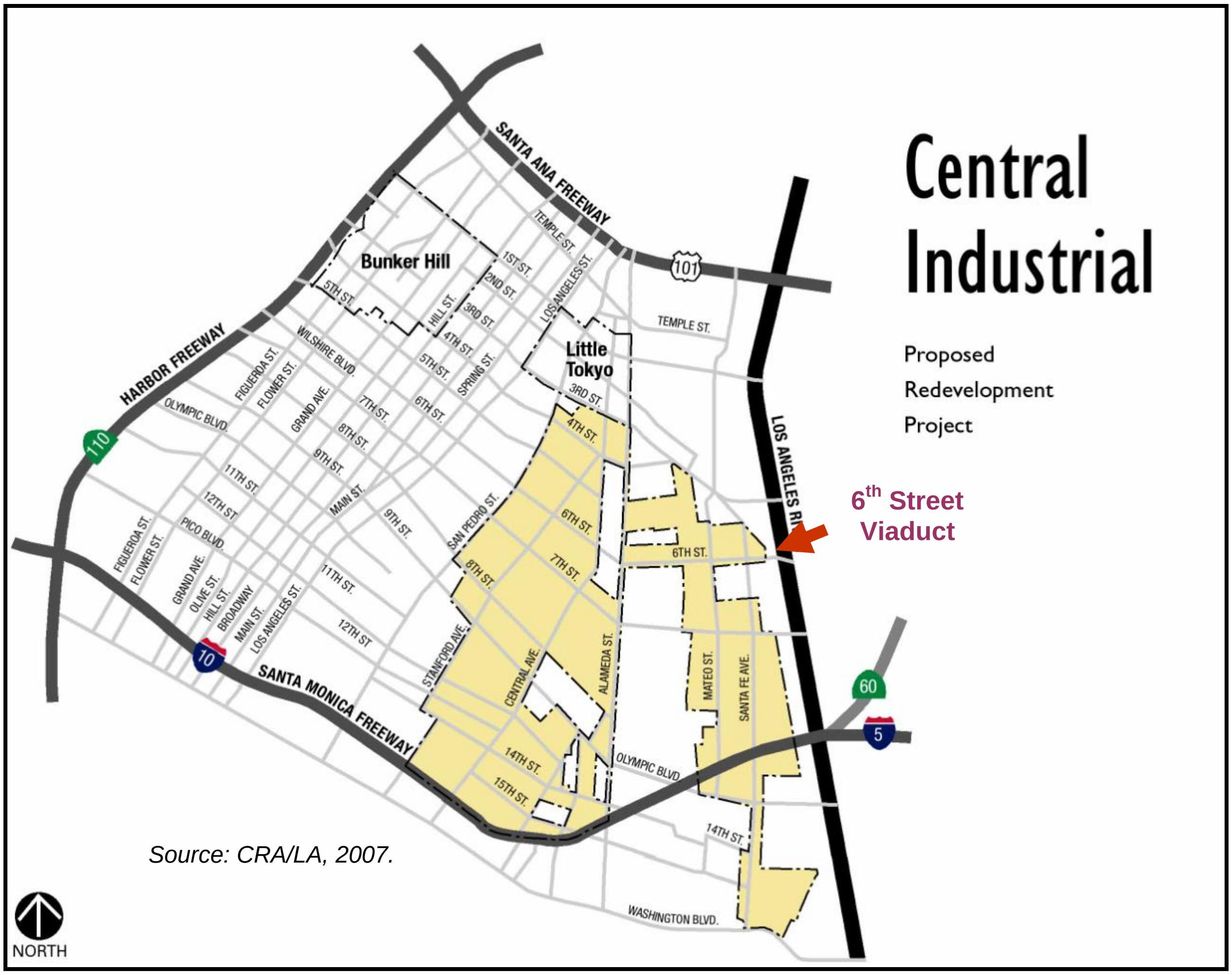


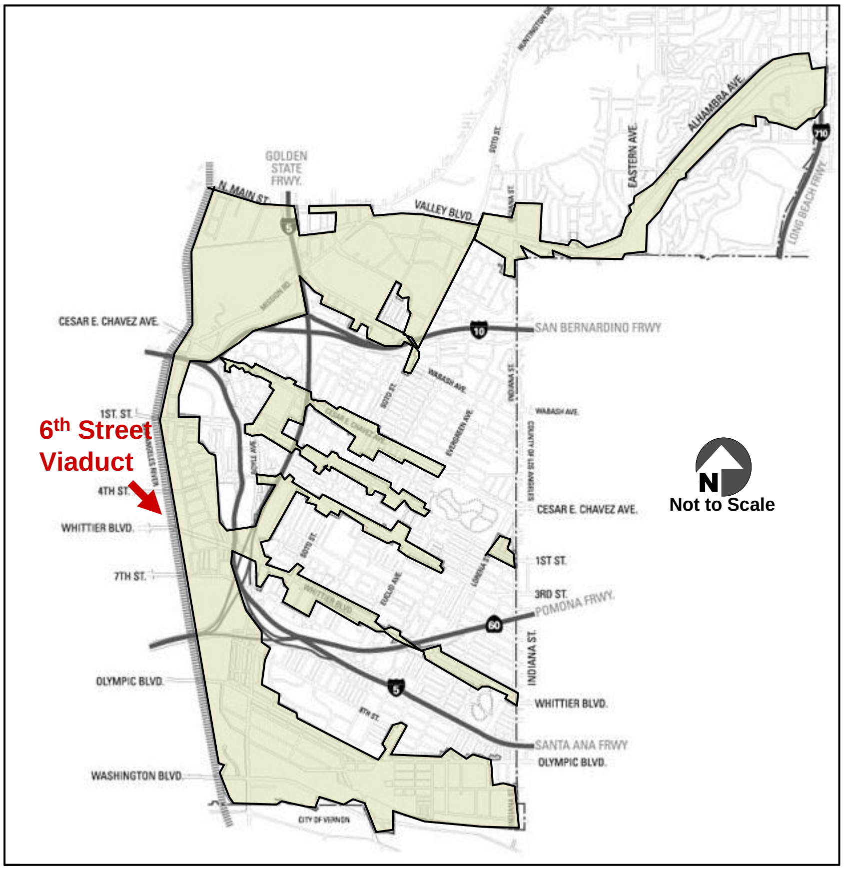
Figure 3.2-3 Central Industrial Redevelopment Project Area

The Adelante Eastside Redevelopment Project, which was adopted March 30, 1999, is located approximately 2 miles east of the downtown Central Business District. The approximately 2,200-acre industrial and commercial redevelopment project contains the areas south of Olympic Boulevard to the city limits of Vernon from the Los Angeles River to Indiana Street; North Main Street east to Valley Boulevard and Alhambra Avenue to the city limits of Alhambra; and all east-west commercial streets in Boyle Heights, such as Cesar Chavez Avenue, 1st Street, 4th Street, and Whittier Boulevard from the Los Angeles River to Indiana Street (Figure 3.2-4).[23]

The principal thrust of the proposed project is the preservation of industrial and commercial uses within the community to promote a stable industrial base to provide jobs for the community, as well as enhancing the existing shopping areas to provide alternative commercial choices for

[23] Community Redevelopment Agency of Los Angeles. 1999. Redevelopment Plan for the Adelante Eastside Redevelopment Project. March.

residents. Currently, four priority proposed projects are within the Adelante Eastside Redevelopment Area: Sears Olympic Adaptive Reuse (southwest corner of Olympic Boulevard and Soto Street), Biomedical Tech Park (San Pablo and Zonal Streets, near the USC Health Sciences Campus Adelante Eastside), Metro Gold Line Eastside Extension (area bound by 6th Street, the Los Angeles River, and Cesar Chavez Avenue and Indiana Street), and Olympic Industrial Park Demonstration Project (bound by Olympic Boulevard on the north and Pico Boulevard on the south).



Source: CRA/LA, 2007.

Figure 3.2-4 Adelante Eastside Redevelopment Project Area

C. City of Los Angeles Bicycle Plan

The City of Los Angeles General Plan Transportation Element contains the Bicycle Plan for the City, which was first adopted in 1996 and re-adopted by the City Council in 2002 and 2007. The 2007 Bicycle Plan does not designate 6th Street or the Los Angeles River within the project area as a bikeway.

The Bicycle Plan was revised by the Planning Department and the mayor-appointed Bicycle Advisory Committee, and the Draft Bicycle Plan was released for public review in September

2009. The Plan designates 1,633 miles of bikeway facilities and proposes two new bicycle networks (Citywide and Neighborhood). The Revised Draft 2010 Bicycle Plan was made available for public review in July 2010. The City Planning Commission approved the 2010 Bicycle Plan on December 16, 2010. The plan was adopted by the City Council on March 1, 2011.

The 2010 Bicycle Plan is guided by the following three major citywide goals:

- Increase the number and types of bycyclists who bicycle in the City.
- Make every street a safe place to ride a bicycle.
- Make the City of Los Angeles a bicycle-friendly community.

The 2010 Bicycle Plan designates 6th Street and Whittier Boulevard within the project limits as a bicycle lane. The roadway of the existing viaduct, having 12-ft outside lanes with no shoulders, cannot accommodate a bicycle lane.

D. Los Angeles River Revitalization Master Plan (LARRMP)

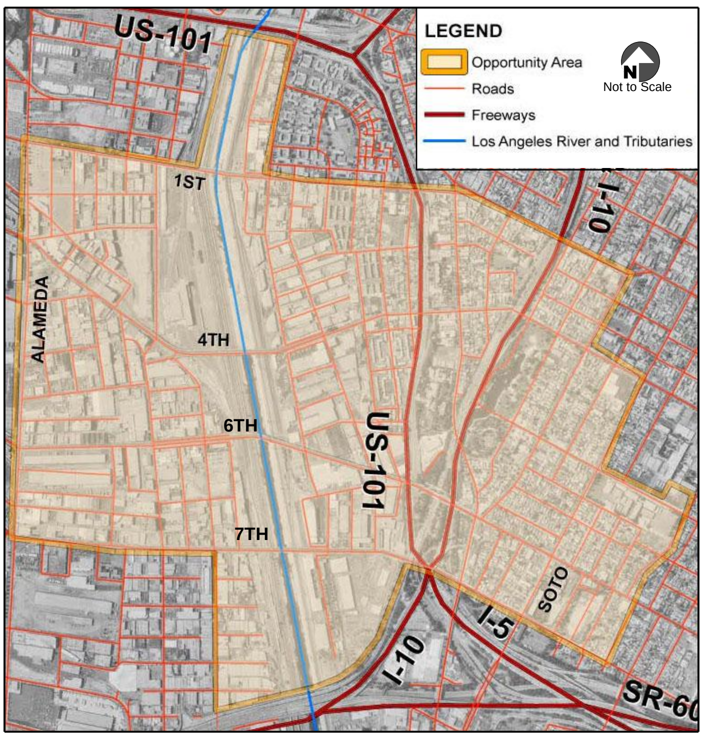
The LARRMP is the conceptual framework to guide the revitalization of the Los Angeles River. The 32-mile-long, 1-mile-wide river planning area extends from Topanga Canyon east to River Glen and south to approximately Washington Boulevard. The plan was approved by the City Council in May 2007. The LARRMP has not been integrated into the City of Los Angeles General Plan, nor have zoning or land use designations been revised to reflect the proposed elements of the plan. Implementation of LARRMP elements within the 6th Street project geographic area is not in the foreseeable future. For any elements of the plan to be implemented, they would have to undergo environmental review at the project level..

The LARRMP has specific goals for the revitalization of the river corridor, including:

- Establish guidelines for environmentally sensitive urban design, land use, and development for the Los Angeles River that will create economic development opportunities to enhance and improve river-adjacent communities; policies would include the provision of open space, housing, retail spaces, educational facilities, and places for other public institutions.
- Improve the environment, enhance water quality, and improve water resources and the ecological functioning of the river.
- Improve and restore natural native habitats, eradicate invasive non-native habitats, and provide links and connections to existing habitats.
- Provide and improve public access to the river.
- Provide significant recreation space and open space and new trails.
- Preserve and enhance the flood control features of the river.

- Foster a growth in community awareness and pride in a revitalized Los Angeles River.

The 6th Street Viaduct Seismic Improvement project area lies within the "Downtown Industrial Opportunity Area," which is one of the five demonstration areas of the LARRMP (Figure 3.2-5).[24] There are currently two alternatives for development of the opportunity area: the DI-A and DI-B concepts. Both concepts designate 6th Street in the proposed project area as a Primary Arterial Green Street.[25] The alternatives also propose an expanded multi-use and bicycle trail on the western bank of the Los Angeles River, and a promenade along the eastern bank of the river, each having its own underpass beneath the 6th Street Viaduct. In addition, both alternatives provide pedestrian bridge access ramps from the west side of 6th Street north to the proposed expanded trail. Alternative DI-A designates the area east of the river north of 6th Street as a *Neighborhood Gateway*, while Alternative DI-B establishes this area as a *Regional Gateway*.



Source: Los Angeles River Revitalization Master Plan PEIR/EIS

Figure 3.2-5 Proposed Downtown Industrial Opportunity Area

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24 Tetra Tech, Inc., 2007. Programmatic EIR/Programmatic EIS for the Los Angeles River Revitalization Master Plan, Figures 2-24 and 2-25. January.

25 Ibid.

E. Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the Metropolitan Planning Organization (MPO) for six southern California counties, including Imperial, Orange, Riverside, San Bernardino, Ventura, and Los Angeles. As such, it is responsible for preparing the Regional Transportation Plan (RTP), which provides the framework for all transportation system improvements planned for its jurisdiction. The RTP is one of several inputs used to develop the Regional Transportation Improvement Plan (RTIP) and State Transportation Improvement Program (STIP). The 6th Street Viaduct Seismic Improvement Project is included in the 2008 RTIP, in which the project is programmed for $245 million over a 6-year period, Fiscal Years 2008/9 to 2013/14. The RTIP is currently being amended to include the total project cost of $401.2 million.

3.2.2.1 Environmental Consequences

Alternative 1 – No Action

Under this alternative, the existing 6th Street Viaduct would not be compatible with the 2010 Bicycle Plan if the viaduct remains in service because it cannot accommodate a bicycle lane. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it, but it is estimated to take up to 7 years before the new viaduct could be completed. Bicycle travel between Boyle Heights and Downtown Los Angeles would have to be detoured for the period the viaduct is closed.

Once construction was complete, the consistency of the new viaduct with various plans and policies would be similar to that described under Alternative 3 – Replacement.

Alternative 2 – Viaduct Retrofit

City of Los Angeles General Plan

The purpose of the proposed seismic improvement project is to preserve the 6th Street Viaduct as a viable east-west link between Downtown Los Angeles and the Boyle Heights community. Implementation of Alternative 2 would require removal of two existing properties within the viaduct's footprint. These acquisitions would not require a revision to any of the adopted plans or policies at the local and regional levels. The unused portion of the acquired land, if any, could continue to be used per the Community Plan's objective.

The proposed seismic retrofit project would not be in conflict with the Central City North Community Plan or Boyle Heights Community Plan since the two community plans outline development objectives based on the assumption that the 6th Street Viaduct is in place.

Southern California Association of Governments

The proposed project is included in SCAG's adopted RTIP for fiscal year 2008/2009 - 2013/14 under the Los Angeles County State Highway section, Lump Sum category for bridge projects. All projects incorporated into the 2008 RTIP are consistent with current RTP policies, programs, and projects; therefore, no conformity issues would arise.

Community Redevelopment Agency

Implementation of Alternative 2 would benefit the two redevelopment projects in the long term by maintaining a seismically sound transportation link between the east and west sides of the river to support the surrounding communities and businesses.

City of Los Angeles Bicycle Plan

Implementation of Alternative 2 would not be compatible with the 2010 Bicycle Plan because the retrofitted viaduct could not accommodate a bicycle lane.

Los Angeles River Revitalization Master Plan

The LARRMP provides a conceptual framework for future Los Angeles River planning. Construction of Alternative 2 would be confined within the existing viaduct "footprint." No change to land use adjacent to the viaduct would occur. Therefore, this alternative would not support the conceptual goals of the LARRMP.

Alternative 3 – Viaduct Replacement

City of Los Angeles General Plan

Alternative 3 would preserve the 6th Street Viaduct as a viable east-west link between Downtown Los Angeles and the Boyle Heights community. Property acquisitions along the proposed alignment would be required to accommodate the new, wider viaduct. These acquisitions would not require revision of adopted plans or policies at the local or regional level. Property acquisitions would result in the loss of industrial buildings located adjacent to the viaduct (see Table 3.4.2 in Section 3.4 for more detailed information on ROW impacts). Among the three alignments considered, Alignment 3C would preserve the highest number of existing buildings on the east side of the river. The project area is within the designated Industrial Mixed Use District and Employment Protection District, as described in Section 3.2.1; therefore, removal of the industrial buildings would be in conflict with the Central City North Community Plan's objective; however, the unused portions of the acquired properties could continue to be used according to the objectives of the Community Plan.

City of Los Angeles Industrial Land Use Policy

The proposed project is located within the ILUP designated Industrial Mixed Use District, areas that should remain predominantly industrial/employment use but that may support a limited amount of residential use according to the ILUP, and an Employment Protection District, where industrial zoning should be maintained and residential uses are inappropriate. Similarly, the east side of the proposed project falls within the area designated by the ILUP as Employment Protection District. The loss of industrial and commercial uses would be inconsistent with the City of Los Angeles ILUP.

Southern California Association of Governments

As with Alternative 2, no conformity issues would arise since the proposed project is included in the 2008 RTIP.

Community Redevelopment Agency

Similar to Alternative 2, implementation of Alternative 3 would benefit the two redevelopment projects in the long term by maintaining the transportation link between the east and west sides of the river to support the surrounding communities and businesses. Depending on the alternative alignment selected, additional land acquisition along the proposed alignments would be required to accommodate the wider viaduct. These acquisitions would result in a loss of industrial buildings located adjacent to the viaduct (see Section 3.4 for more detailed information on ROW impacts). The loss of industrial and commercial uses would be inconsistent with the two redevelopment projects administered by CRA/LA; however, any unused portion of the acquired land to accommodate viaduct construction could be redeveloped for industrial uses.

City of Los Angeles Bicycle Plan

Implementation of any of the Alternative 3 alignments and bridge concepts would be consistent with the 2010 Bicycle Plan goals described in Section 3.2.2.1 C because the proposed viaduct would provide adequate space for a bike lane.

Los Angeles River Revitalization Master Plan

The LARRMP provides a conceptual framework for future Los Angeles River planning; however, the LARRMP has not been integrated into the General Plan, nor have zoning or land use designations been revised to reflect the proposed river revitalization elements, including those in the proposed project area. The viaduct design for the preferred alternative (Alternative 3) would be carried out taking into consideration future compatibility with revitalization plan elements in the immediate area to ensure that the project supports the conceptual goals of the LARRMP. The new bridge design could include stairways to allow pedestrians to access the local roadway around the viaduct footprint and the Los Angeles River.

3.2.3 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service.

In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. Loss of industrial buildings along the viaduct footprint to accommodate the new viaduct would be unavoidable; however, the unused portions of the acquired properties could continue to be used according to the objectives of the Community Plan and the Redevelopment Plan.

Alternative 2 – Retrofit

The existing viaduct would not be compatible with the 2010 Bicycle Plan. No mitigation is available to add the bicycle lane onto the existing viaduct.

Alternative 3 – Replacement

Loss of industrial buildings along the viaduct footprint is unavoidable; however, the unused portions of the acquired properties could continue to be used according to the objectives of the Community Plan and the Redevelopment Plan. In the same token, the unused portion of the acquired properties could be redeveloped to integrate into the LARRMP, any such use would have to go through the planning procedures set forth by the City of Los Angeles Planning Department.

3.2.4 Parks and Recreational Facilities

3.2.4.1 Affected Environment

No parks and recreational facilities exist within 0.5-mile of the proposed project site. The closest park to the project site is Hollenbeck Park, which is located approximately 0.6-mile east of the 6th Street Viaduct. Based on the LARRMP, which guides revitalization of the 32-mile-long and 1-mile-wide river corridor within the city, recreational amenities are envisioned near the 6th Street Viaduct (see LARRMP description in Section 3.2.2.1 D). These LARRMP amenities are on private land; therefore, since the envisioned recreational amenities do not include publicly owned land, Section 4(f) of the U.S. Department of Transportation Act of 1966 (protecting public parks and recreation areas) does not apply.

3.2.4.2 Environmental Consequences

There would be no impacts to parks and recreational facilities with implementation of any alternative.

3.2.4.3 Avoidance, Minimization, and Mitigation Measures

None is required under any of the alternative implementation.

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3.3 Community Impacts – Community Character and Cohesion

Community cohesion is the degree to which residents have a "sense of belonging" to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually because of continued association over time. The information presented in this section is excerpted from the Community Impact Assessment prepared for this project.[26]

3.3.1 Regulatory Setting

The National Environmental Policy Act (NEPA) established that the federal government should use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). In its implementation of NEPA (23 U.S.C. 109[h]), FHWA directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not considered a significant effect on the environment; however, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

3.3.2 Affected Environment

3.3.2.1 Study Area Definition

The project study area is located east of Downtown Los Angeles and is highly developed and urban/industrial in character. The geographical area identified for community impact assessment covers the area that would potentially be either directly or indirectly affected by the proposed project activities. The primary impact area consists of the area in the immediate vicinity of the 6th Street Viaduct, which includes business and commercial buildings along the front row next to the viaduct footprint. These properties would be subject to direct effects, such as property acquisition or disruption from construction activities. Indirect impact areas would be dispersed and include areas likely to experience increased vehicle movements associated with construction-driven detour traffic. The indirect impact zone would be bound by 1st Street and 7th

[26] Community Impact Assessment for 6th Street Viaduct Seismic Improvement Project. July 2008, updated May 2011.

Street to the north and south, respectively, and Soto Street and Central Avenue to the east and west, respectively.

3.3.2.2 Community Characteristics

There are two neighborhoods within the project area – the Downtown Arts District on the western side of the proposed project and the community of Boyle Heights on the eastern side – with both exhibiting strong community cohesion and a strong sense of historical connection to the development of the City.

The Downtown Arts District

The Downtown Arts District, which is located within the South Industrial Area, is roughly bound by 1st Street and 7th Street, the Los Angeles River, and Alameda Street. The district has its roots in the mid 1970s, and it has the oldest and largest contiguous neighborhood of Artists-in-Residence (AIR) lofts in southern California. Several AIR loft buildings are in the area, including the Factory Place Lofts at 1308 Factory Place just northwest of the project site, Lofts 726 at 726 S. Santa Fe Avenue, and 2121 Lofts at 2121 E. 7th Place located south of the project site. All of the AIR lofts in the area were once industrial buildings that have been converted into live/work spaces through the Adaptive Reuse Ordinance of 1999. The largest concentration of AIR lofts is located in the northern portion of the district between 1st Street and 4th Street; however, there has been a recent surge of AIR projects in the southern portion of the district near the proposed project, as is evident by the five proposed adaptive-reuse projects currently in various stages of development.[27] Many of the AIR loft buildings offer residents amenities that foster community cohesion, including open galleries and rooftop spaces. The Arts District Business Improvement District (BID) plays a prominent role in encouraging and promoting community cohesion by organizing monthly art walks, weekly neighborhood walks, and a neighborhood watch program.

On April 27, 2002, the Downtown Los Angeles Neighborhood Council (DLANC) was certified as an approved City Neighborhood Council. Its mission is to unite the diverse communities of Downtown Los Angeles and to provide an innovative forum for all community stakeholders to contribute to a healthy, vibrant, and inclusive downtown. The DLANC is composed of three groups, including residents (i.e., renters and owners), business owners, and others (e.g., social service groups, artists, and laborers). It is served by 27 internal board members, and general board meetings are held monthly. The DLANC is very involved in issues that affect the downtown area.

[27] Downtown Center Business Improvement District Web site (accessed November 2007).

The Boyle Heights Community

The Boyle Heights community is located east of the Los Angeles River. Boyle Heights was developed as one of the first residential suburbs in Los Angeles when the railroads were constructed along the Los Angeles River. It was initially settled by European immigrants and later by Mexican laborers employed by the railroads and related industrial sector. Some of the first City public housing projects were constructed in Boyle Heights, and much of the existing housing stock is in poor condition.[28] The community was segmented into four smaller areas and one larger area by the construction of four major freeways between 1940 and 1960. In addition, the Los Angeles River divides Boyle Heights from the downtown area. The bridges over the Los Angeles River, including the 6th Street Viaduct, have long served as a means of connecting Boyle Heights residents to downtown. Today, Boyle Heights is a predominantly Hispanic community.

Strong community cohesion in Boyle Heights is exemplified by the active citizen-participatory Boyle Heights Neighborhood Council (BHNC), which is divided into four quadrants – Quadrants 1, 2, 3, and 4 – covering the northeast, northwest, southeast, and southwest areas of Boyle Heights, respectively. Each quadrant has its own citizen members who meet monthly to discuss issues, proposed projects, and events in their respective communities. The 6th Street Viaduct lies within BHNC Quadrant 4, which is the largest quadrant. The sense of community cohesion in Boyle Heights is strengthened by the history shared by successive generations of residents living in the community where they were raised.

In addition to being an important link between the Boyle Heights Community and Downtown Los Angeles, many Boyle Heights residents view the viaduct as a community landmark and an iconic emblem of the City of Los Angeles as a whole. The 6th Street Viaduct used to be the venue for *Festival de la Gente*, which is an annual festival celebrating the traditional Latino holiday *Dia de los Muertos*, the Day of the Dead. The festival, which is a major community event celebrating Latino culture, first started in 1999. In recent years, the festival has been sponsored by the Los Angeles City Council member of the 14th Council District in conjunction with the Speaker of the California Assembly, and Los Angeles City Mayor, with additional support by private corporate sponsors. The festival is the nation's largest *Día de los Muertos* celebration and features local Hispanic artists and entertainers, and various food and crafts booths. It is held annually during the last week of October, one or two days before the Day of the Dead. In 2006, more than 70,000 people attended the celebration.

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[28] City of Los Angeles, 1998. Boyle Heights Community Plan. November.

3.3.2.3 Socioeconomic Characteristics

Socioeconomic and demographic data for the study area were drawn from the year 2000 census, supplemented by a business survey conducted for the proposed project (note that at the time this Final EIR/EIS was prepared, 2010 census data were not available). The three census tracts under study cover the proposed project site, its immediate surrounding area, and the area in the vicinity that could be potentially affected by traffic detour routes during proposed project construction, consisting of tracts 2060.40, 2060.50, and 2046 (Figure 3.3-1).

Population Demographics

Year 2000 U.S. Census data from the three study census tracts were used to characterize population demographic characteristics of the proposed project area. The population of these census tracts is approximately 10,000 residents, which is approximately 0.3 percent of the population of the City of Los Angeles (Table 3.3-1). The percentages of working age (19 to 64) population within the study census tracts range from a low of 54 percent (Tract 2046) to a high of 66 percent (Tract 2060.50), which is similar to both the City and County of Los Angeles.

Table 3.3-2 presents the racial composition of the population in the study census tracts and the larger region. The study census tracts contain a higher percentage of Hispanic or Latino population (ranging from 61 to 97 percent) compared to the City and County of Los Angeles, which have approximately 45 percent Hispanic or Latino population. The percentage of white population within the census tracts under study is much lower than the City and County of Los Angeles. Based on this statistic, the study area is considered a predominantly minority community compared to the larger population within the County of Los Angeles.

Socioeconomic Demographics

According to Year 2000 U.S. Census data, 2,954 households are located within the study census tracts (see Table 3.3-3). The average household sizes in the three study census tracts (i.e., 2060.40, 2060.50, and 2046) of 2.8, 2.6, and 3.9 persons are essentially in the same range as the City and County of Los Angeles with 2.8 and 3.0 persons, respectively. The average family size in Tracts 2060.40 and 2060.50 of 3.8 persons and Tract 2046 of 4.2 persons is slightly higher than that of the City and County of Los Angeles at 3.6 persons.

As shown in Table 3.3-3, median annual household incomes within the three study census tracts range from $22,000 to $29,000. These numbers are much lower than the City and County of Los Angeles incomes of $36,000 and $42,000, respectively. The median annual family incomes for the study census tracts follow the same pattern as the household annual incomes.

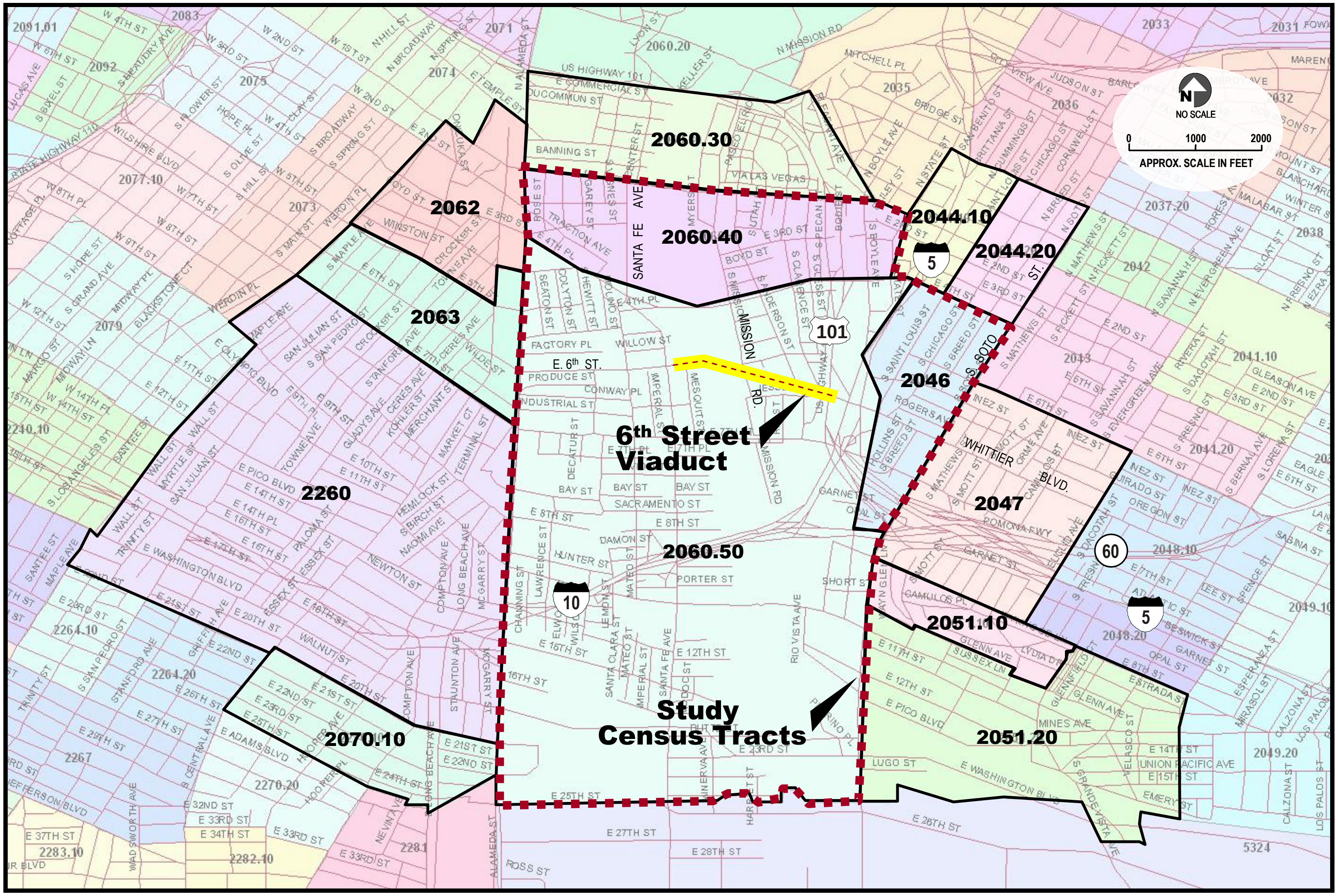

Figure 3.3-1 Census Tracts in the Vicinity of the 6th Street Viaduct Seismic Improvement Project

Table 3.3-1
Study Census Tract Population Demographics

Demographic	Tract 2060.40		Tract 2060.50		Tract 2046		City of Los Angeles		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population	3,391		2,552		4,083		3,694,834		9,519,338	
Population 19 or younger	1,050	31	588	23	1,494	37	1,087,223	29	2,936,713	31
Population 19 to 64	1,897	56	1,681	66	2,206	54	2,250,501	61	5,655,655	59
Population 65+	444	13	283	11	383	9	357,110	10	926,970	10

Source: U.S. Census, 2000.

Table 3.3-2
Racial Composition of Population in the Study Census Tracts

Demographic	Tract 2060.40		Tract 2060.50		Tract 2046		City of Los Angeles		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population	3,445		2,488		4,083		3,694,820		9,519,338	
White	267	8	527	21	53	1	1,099,188	30	2,959,614	31
Black or African American	120	3	242	10	10	0	401,986	11	901,472	9
American Indian and Alaska Native	13	0	3	0	5	0	8,897	0	25,609	0
Asian	441	13	170	7	40	1	364,850	10	1,124,569	12
Native Hawaiian and Other Pacific Islander	4	0	1	0	0	0	4,484	0	23,265	0
Some other race	4	0	2	0	5	0	9,065	0	19,935	0
Two or more races	32	1	29	1	18	0	87,277	2	222,661	2
Hispanic or Latino	2,564	74	1,514	61	3,952	97	1,719,073	47	4,242,213	45

Source: U.S. Census, 2000.

Table 3.3-3
Study Area Socioeconomic Characteristics

Demographic	Tract 2060.40		Tract 2060.50		Tract 2046		City of Los Angeles		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population	3,445		2,488		4,083		3,694,820		9,519,338	
In Labor Force over 16	1,451	42	1,176	47	1,277	31	1,690,316	46	4,312,264	45
Per Capita Income	$10,662		$15,941		$8,343		$20,671		$20,683	
Individual Earnings below Poverty Level	1,144	33	853	34	1,511	37	801,050	22	1,674,599	18
Total Families	622		336		865		807,039		2,154,311	
Average Family Size	3.8		3.8		4.2		3.6		3.6	
Median Family Income	$27,750		$27,083		$22,182		$39,942		$46,452	
Families below Poverty Level	202	32	111	33	284	33	147,516	18	311,226	14
Total Households	1,124		801		1,029		1,276,609		3,136,279	
Average Household Size	2.81		2.57		3.91		2.83		2.98	
Median Household Income	$22,143		$29,145		$21,875		$36,687		$42,189	

Source: U.S. Census, 2000.

Individual earnings in 1999 below the poverty level, which is defined as a minimum income level below which a person is officially considered to lack adequate subsistence and to be living in poverty, within the study census tracts were reported to be 33 to 37 percent, which is higher than that of the City of Los Angeles (22 percent) and the County of Los Angeles (18 percent).

Family incomes below the poverty level within the study census tracts are reported at 32 percent (Tract 2060.40) and 33 percent (Tracts 2060.50, and 2046), which is higher than that of the City of Los Angeles (18 percent) and the County of Los Angeles (14 percent).

The U.S. Department of Health and Human Services (HHS) establishes the poverty threshold on an annual basis. A family is considered “low-income” if its income is at or below the HHS poverty guidelines. The Year 1999 poverty threshold for an average family size of four was $16,700 (note that 1999 is used to be consistent with the 2000 census data). Based on the HHS thresholds for poverty, the study area is not at the poverty level; however, considering the “needs-based” poverty threshold developed by the Los Angeles Alliance for a New Economy (LAANE), the working poor (i.e., a working poor family must have at least one member who reported income from work in the last year) in Los Angeles County is defined as individuals with a total family income below 200 percent of the federal poverty level.[29] The “need-based” poverty threshold was determined based on two criteria: the income levels at which families are still eligible for government anti-poverty programs, and the actual cost of living in Los Angeles County. Based on this study, the poverty threshold of the working population in Los Angeles County was $33,300 for a family of four in 1998. The study pointed out that during the 1990s, the number of poor families rose from 36 percent to 43 percent of the population in Los Angeles County, and accounted for 4.1 million residents according to the needs-based poverty threshold. Since the median annual household incomes within the three study census tracts range from $22,000 to $29,000, the study area population is considered low-income based on the “need-based” poverty threshold for Los Angeles County.

Unemployment Rate

Based on Year 2000 U.S. Census data, 12 percent of the population in the labor force within the study census tracts was unemployed at the time of the survey, which is higher than the City and County of Los Angeles unemployment of 8 to 9 percent (Table 3.3-4). Data in Table 3.3-4 also reveal that the workforce in the study census tracts use public transportation, walk, or bike to work at higher percentages than those in the City and County of Los Angeles as a whole.

[29] Moore, Paul, et al., 2000. *The Other Los Angeles: The Working Poor in the City of the 21st Century.* Los Angeles for A New Economy. August.

Table 3.3-4
Study Area Employment Data, Location of Work, and Means of Transportation to Work

Demographic	Tract 2060.40		Tract 2060.50		Tract 2046		City of Los Angeles		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population in the Labor Force	1,451		1,176		1,277		1,690,316		4,312,264	
Employed	1,296	89	1,038	88	1,110	87	1,532,074	91	3,953,415	92
Unemployed	155	11	138	12	167	13	156,578	9	354,347	8
Location of Work:										
Work in Place of Residence	709	55	592	57	610	55	943,489	62	1,382,500	35
Worked outside Place of Residence	571	44	407	39	431	39	551,406	36	2,402,195	61
Means of Transportation to Work:										
Car, Truck, or Van	889	69	649	63	710	64	1,203,143	79	3,296,964	83
Public Transportation	203	16	197	19	253	23	152,435	10	254,091	6
Walking, Bike, Motorcycle, Other Means	110	8	78	8	67	40	77,622	5	173,052	4
Worked at Home	78	6	75	7	11	1	61,695	4	134,643	3

Source: U.S. Census, 2000.

Table 3.3-5
Labor Force Data in Los Angeles County as of November 2010

Area Name	Labor Force	Employment	Unemployment	
			Number	Rate (%)
County of Los Angeles	4,910,000	4,271,900	638,100	13.0
City of Los Angeles	1,927,500	1,651,600	275,900	14.3
East Los Angeles Census Designated Place (unincorporated East Los Angeles)	51,200	41,900	9,300	18.1

Source: California Employment Development Department, 2010.

Table 3.3-6
Study Census Tract Housing Demographics

Housing Demographic	Tract 2060.40		Tract 2060.50		Tract 2046		City of Los Angeles		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	1,071		791		1,027		1,275,412		3,133,774	
Owner occupied	91	8	40	5	228	22	491,882	39	1,499,744	48
Renter occupied	980	92	751	95	799	78	783,530	61	1,634,030	52

Source: U.S. Census, 2000.

The unemployment rates reported by the California Employment Development Department (November 2010) show lower unemployment rates for the population in the labor workforce for the County and City of Los Angeles at 13.0 and 14.3 percent than the East Los Angeles area, respectively (Table 3.3-5). Although the data were not reported by census tract, the unemployment rate of 18.1 percent reported for East Los Angeles is higher than the city and county numbers.

Housing Demographics

Based on Year 2000 U.S. Census housing characteristic data, 2,090 houses were located in the three study census tracts, which is approximately 0.16 percent of the number of houses reported for the City of Los Angeles (see Table 3.3-6). Most of the housing within the study census tracts was renter occupied (ranging from 78 percent in Tract 2046 to 95 percent in Tract 2060.50), which is much higher than the City and County of Los Angeles at 61 and 52 percent, respectively. Note that the housing characteristic data clearly show a higher percentage of owner-occupied housing in the area east of the Los Angeles River than on the west side; however, the recent survey conducted by the Los Angeles Downtown Center Business Improvement District shows that more housing units in downtown Los Angeles were owned in 2006 (30.2 percent) than in 2004 (18.6 percent).[30] According to this report, the increase in owner-occupied housing may be the result of the inclusion of newly developed condominium properties that recently opened; however, this number represents the entire downtown area and may not be a representative number for the project study area.

3.3.3 Environmental Consequences

3.3.3.1 Construction Impacts

Impacts on community character and cohesion are addressed by how proposed projects are likely to affect the people, institutions, neighborhoods, service delivery organizations, and overall social and economic systems surrounding a proposed undertaking.

The proposed project would involve a prolonged period of construction for both the retrofit and replacement alternatives. Area residents would endure greater impacts resulting from construction activities as compared to the surrounding population; however, once construction is complete, traffic circulation would soon return to normal.

Alternative 1 – No Action

The No Action Alternative would result in no impacts to community character and cohesion as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. If this were to occur, it is estimated

[30] The Los Angeles Downtown Center Business Improvement District, 2007. *The Downtown Los Angeles Market Report & 2006 Demographic Survey of New Downtown Residents. February.*

that a period of up to 7 years may be required to construct the new viaduct. During that time, the viaduct would not be available as a link between the Boyle Heights community and the Downtown area. A traffic detour route via the 4th Street and 7th Street viaducts, and north-south connecting streets, would have to be used. Construction of the new viaduct would require removal of several commercial and industrial buildings along the viaduct alignment like that described under Alternative 3. Roadway obstruction from construction activities may limit the use of some properties located in the project area. Events or festivals would likely not be held in the immediate area. These impacts would be localized and temporary for the period required to secure funding, complete design, and construct the new viaduct.

Alternative 2 – Retrofit

Construction of Alternative 2 would require partial viaduct lane closures and street closures beneath and adjacent to the viaduct for the duration of construction (up to 2.5 years). Community disconnection could occur on a temporary basis during the construction period. Implementation of a mandatory Work Area Traffic Control Plan (WATCP), outlined in the Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook, adopted by the City, would minimize traffic-related impacts. Area residents would be able to continue their normal social activities and stay connected during the construction duration. No adverse effects to community character and cohesion are anticipated.

During the construction phase, events or festivals could likely not be held at the viaduct area. This impact would be temporary and could be minimized by keeping event organizers informed of the construction schedule so that alternative venues could be identified.

Alternative 3 – Replacement

Implementation of Alternative 3 would require complete closure of the 6th Street Viaduct for approximately 4 years. Some local streets beneath and adjacent to the viaduct would also be subject to closure. Some businesses located adjacent to the construction zone along the viaduct would be affected during demolition. These effects would include temporary access detours, traffic lane closures, and noise impacts associated with construction activities.

Traffic detours and delays would impact motorists previously using the 6th Street Viaduct and local nearby roadways. With the traffic detour plan in place, area residents would be able to continue their normal social activities and stay connected during the construction period. No adverse effects to community character and cohesion are anticipated.

The results of the noise study (see Section 3.16) reveal no substantial impacts to sensitive receptors (e.g., residences, schools, hospitals) from equipment operation and traffic detours within the proposed project's study area; however, manufacturing/commercial buildings located immediately adjacent to the 6th Street Viaduct and residents living adjacent to the detour and material hauling routes would experience noise impacts associated with construction activities, such as pile driving and equipment transport, on an occasional basis. This impact is temporary, but unavoidable.

During the construction phase, events or festivals could likely not be held at the viaduct area. This impact would be temporary and could be minimized by keeping event organizers informed of the construction schedule so that alternative venues could be identified.

3.3.3.2 Permanent Impacts

Alternative 1 – No Action

No impacts on neighborhoods and community character or cohesion would occur as long as the viaduct remains open for public use. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. It is estimated that a period of up to 7 years may be required to construct the new viaduct. Long-term impacts on neighborhoods and community character or cohesion would be the same as that described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Implementation of the Retrofit Alternative would retain, albeit in an altered form, the historic viaduct and maintain the connection on 6th Street between the communities on the east side and Downtown Los Angeles for the life of the retrofitted viaduct. Furthermore, it would not require any new roadways or major detours, or obstruct the ongoing activities of the area neighborhoods; therefore, no impacts on neighborhoods and community character or cohesion would be expected to occur.

Alternative 3 – Replacement

Implementation of any alignment under the Replacement Alternative would maintain the connection on 6th Street between the communities on the east side and Downtown Los Angeles for the long term. Furthermore, it would not create any new roadways that transect any community or obstruct the ongoing activities of the area neighborhoods; therefore, no impacts on neighborhoods or community cohesion would be expected to occur.

The Replacement Alternative would, however, impact community character because it would require demolition of the historic viaduct. Many Boyle Heights residents view the viaduct as a community landmark and an iconic symbol of the City of Los Angeles as a whole. Based on comments received during the public information meetings, Community Advisory Committee (CAC) meetings, and scoping meetings, there are a range of preferences concerning proposed project implementation – some want the viaduct to remain in its original state with only retrofit performed on it; some want a replacement structure that replicates the existing viaduct (i.e., Concept 1); and some want a nicely designed, modern landmark viaduct that reflects well on the community (e.g., Concepts 3, 4, 4A, and 5).

Residents in the Arts District also view the viaduct as an important symbol of the City. The Arts District BID plays a prominent role in encouraging its community members to stay involved in the various activities organized within the district. The BID representatives also actively participated in planning meetings for the proposed project. Several of the residents within the Arts District who participated in the CAC meetings expressed that their preference would be to see the 6th Street Viaduct remain as a City icon and a place to visit. Several expressed concern about the potential impacts to properties on the north side of the viaduct that would cause the businesses to relocate.

3.3.3.3 Indirect Impacts

Alternative 1 – No Action

No indirect impacts pertaining to community character and cohesion have been identified with implementation of the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, operations of local businesses located within the vicinity of the viaduct may be disrupted, and some of them may choose to relocate out of the area. In addition, community events and festivals may not be held within the area around the viaduct for the period the viaduct is closed. Relocation of affected businesses out of the area could result in socioeconomic impacts due to the loss of employment and income. These indirect impacts would be temporary.

Alternative 2 – Retrofit

No indirect impacts pertaining to community character and cohesion have been identified with implementation of the Retrofit Alternative.

Alternative 3 – Replacement

No indirect impacts pertaining to community character and cohesion have been identified with implementation of the Replacement Alternative.

3.3.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation would be required for the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it to maintain the transportation link between the Boyle Heights community and the Downtown area. The City would keep area residents informed of the project construction schedule, traffic lane closures, and the traffic detour plan. A WATCP, subject to the approval of the LADOT, would be developed to minimize traffic impacts near the construction site. The TMP would be developed to provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period.

The City of Los Angeles would keep major event organizers in the Boyle Heights and Downtown Arts District communities informed of the construction schedule to avoid any conflicts in the use of areas near the 6th Street Viaduct construction zone.

Alternative 2 – Retrofit

The proposed project contractor would be required to initiate and continue a public information and notification program to keep area residents informed of the project construction schedule, traffic lane closure schedule, and the traffic detour plan. A WATCP, subject to the approval of the LADOT, would be developed to minimize traffic impacts near the construction site. The TMP would be developed to identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period.

The City of Los Angeles would keep major event organizers in the Boyle Heights and Downtown Arts District communities informed of the construction schedule to avoid any conflicts in the use of areas near the 6th Street Viaduct construction zone.

Alternative 3 – Replacement

Mitigation measures for Alternative 3 would be similar to Alternative 2 described above, with more frequent notices and follow-up to affected residents and business owners in the affected areas.

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3.4 Community Impacts – Relocations and Business Disruption

This section addresses impacts to the communities as a result of required right-of-way (ROW) acquisitions and project construction activities. The information presented in this section is excerpted from the Community Impact Assessment prepared for this project[31] and the Final Relocation Impact Report[32].

3.4.1 Regulatory Setting

The Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 CFR Part 24, as summarized below. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, *et seq.*), as summarized below.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646)

Frequently referred to as the Uniform Relocation and Assistance Act or Uniform Act, this law provides uniform and equitable treatment of persons displaced from their homes or businesses by federally assisted programs. As implemented by the City of Los Angeles, "displaced persons" include any individual, family, corporation, partnership, or association required to move from real property or required to move personal property from real property acquired in part or in whole as the result of a written notice from the agency to vacate a property needed for a City project. Displacees may be entitled to moving cost reimbursements or replacement housing payments (i.e., purchase supplements, rental assistance, and down payments). The City's implementation protocols also provide for the acquisition of real property on a fair market value, which permits displacees to obtain independent property appraisals and arbitration, if required.

Title VI – Civil Rights Act

Title VI of the 1964 Civil Rights Act provides one of the principle legal underpinnings for environmental justice. It states that "No person…shall, on the grounds of race, color, or national origin, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI prohibits recipients of federal funds from actions that reflect "intentional discrimination" or that

[31] Community Impact Assessment for 6th Street Viaduct Seismic Improvement Project. Prepared 2008; updated 2011.
[32] Final Relocation Impact Report for 6th Street Viaduct Seismic Improvement Project. April 2011.

exhibit “adverse disparate impact discrimination” on the basis of race, ethnicity, or national origin. Executive Order 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* effectively extended the provisions of Title VI to include minority and low-income populations (see Section 3.5.3 for analysis of potential environmental justice impacts) and required agencies to proactively develop strategies to:

- Identify activities to promote enforcement of all health and environmental statutes in areas with minority and low-income populations;
- Improve public participation by minority and low-income populations;
- Improve data collection and research related to the health and environment of minority and low-income populations; and
- Identify differential consumption patterns of natural resources by minority and low-income populations.

3.4.2 Affected Environment

Existing land uses within the project area are described in detail in Section 3.2.1. Information about land ownership and business use activities is summarized in Table 3.4-2.

3.4.3 Environmental Consequences

3.4.3.1 Construction Impacts

To assess the ROW impacts as a result of the proposed project construction, the potentially affected properties around the viaduct corridor were first identified. A business survey was then conducted by the proposed project outreach team in September 2007 to learn about the nature of the businesses and operational requirements (see the survey form in Figure 3.4-1) of various businesses within the proximity of the proposed project corridor that have the potential to be affected by the proposed activities. The number of businesses that could be subject to partial or full displacement under each project alternative are summarized in Table 3.4-1 and graphically presented in Figures 3.4-2 and 3.4-3. A brief summary of property and business type, owner information, and potential specific impacts are presented in Table 3.4-2.

The following subsections describe potential impacts to various properties under each alternative based on the information summarized in Tables 3.4-1 and 3.4-2.

6TH STREET VIADUCT SEISMIC IMPROVEMENT PROJECT
BUSINESS SURVEY

FILL OUT THE FOLLOWING GENERAL BUSINESS INFORMATION.
Business ______
Address ______
City ______
State ______ Zip ______

WHAT LANGUAGE DO YOU SPEAK? PLEASE SELECT ONE:
- ☐ English ☐ Spanish ☐ Other ______

WHAT IS THE NAME OF THE RESPONDENT?
Name of respondent ______

WHAT IS YOUR TITLE?
- ☐ Owner
- ☐ Manager
- ☐ Partner
- ☐ Foreman
- ☐ Supervisor
- ☐ Associate
- ☐ Other ______

LIST THE FOLLOWING CONTACT INFORMATION:
Office ______
Mobile ______
Fax ______
Email ______

HOW LONG HAVE YOU OPERATED AT THIS LOCATION?
- ☐ Less than 1 YR
- ☐ 1 YR to 5 YR
- ☐ 5 YR to 10 YR
- ☐ More than 10 YR

WHAT IS YOUR PRIMARY INDUSTRY?
- ☐ Retail
- ☐ Manufacturing
- ☐ Construction
- ☐ Finance/Insurance/ Real Estate
- ☐ Transportation
- ☐ Public Utilities
- ☐ Wholesale Trades
- ☐ Government
- ☐ Not for Profit
- ☐ Entertainment
- ☐ Agricultural
- ☐ Other ______

BRIEFLY DESCRIBE YOUR OPERATIONS:
______
______

HOW MANY EMPLOYEES DO YOU HAVE?
- ☐ Less than 5
- ☐ 5 to 10
- ☐ 10 to 20
- ☐ 20 to 30
- ☐ More than 30

WHAT IS THE AVERAGE DISTANCE EMPLOYEES LIVE FROM WORK?
- ☐ Less than 1 mile
- ☐ 1 to 5 miles
- ☐ 5 to 10 miles
- ☐ More than 10 miles

BRIEFLY EXPLAIN ANY TRANSPORTATION NEEDS SPECIFIC TO YOUR EMPLOYEES (BICYCLES, BUS, PEDESTRIAN, ETC.).
______
______
______

PTG 6th St Business Ques_9-07.doc 1 of 2

6TH STREET VIADUCT SEISMIC IMPROVEMENT PROJECT
BUSINESS SURVEY

FROM WITHIN HOW MANY MILES DO YOU ATTRACT THE MAJORITY OF YOUR CUSTOMERS?
- ☐ 1 to 3 mile radius ☐ 3 to 5 mile radius ☐ More than 5 mile radius

WHICH BEST DESCRIBES YOUR OPERATING STATUS?
- ☐ Owner ☐ Tenant ☐ Subtenant
- ☐ Other ______

DESCRIBE ANY SPECIAL MOVING/RELOCATION ISSUES YOU FEEL ARE UNIQUE TO YOUR BUSINESS (MACHINERY, EQUIPMENT, OVERSIZED MATERIALS, ETC.).
______
______
______

DO YOU REQUIRE ANY SPECIAL PERMITS, ZONING OR OTHER ENTITLEMENTS TO OPERATE YOUR BUSINESS? IF SO, PLEASE DESCRIBE:
______
______
______

DO YOU REQUIRE ANY OTHER SPECIAL NEEDS (ACCESS, BUILDING STRUCTURE, OR STORAGE) WE HAVE NOT DISCUSSED?
______
______
______

DESCRIBE YOUR PARKING NEEDS.
______
______
______

HOW MANY TRUCK TRIPS PER DAY DOES YOUR BUSINESS GENERATE AND WHAT HOURS?
______
______

IS YOUR BUSINESS A CORPORATION OR PARTNERSHIP OR INDIVIDUALLY OWNED? ______

IF YOU ARE NOT THE OWNER OF THE PROPERTY, IS THE PROPERTY OWNER A CORPORATION, PARTNERSHIP OR INDIVIDUAL? ______

IF YOU ARE NOT THE OWNER OF THE PROPERTY AND THE PROPERTY OWNER IS AN INDIVIDUAL, WHAT LANGUAGE DOES THE OWNER SPEAK? ______

ANY OTHER INFORMATION ABOUT YOUR BUSINESS THAT WE HAVE NOT DISCUSSED?
______
______
______

PTG 6th St Business Ques_9-07.doc 2 of 2

Figure 3.4-1 Business Survey Form

Table 3.4-1
Summary of Potentially Affected Properties

Alternative Number	Alternative Description	Number of Businesses Affected (but not subject to relocation)	Number of Businesses to be Relocated	Total Number of Affected Businesses
1	No Action	None	None	None
2	Alternative 2 (Retrofit with "Heavy Steel Casings")	17	2	19
3	Alternative 3 (Replacement Alignment A)	19	11	30
3	Alternative 3 (Replacement Alignment B)	22	11	33
3	Alternative 3 (Replacement Alignment C)	22	8	30

Source: Final Relocation Impact Report for 6th Street Viaduct Seismic Improvement Project, April 2011.

Alternative 1 – No Action

No ROW acquisition would be required under this alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards, similar to Alternative 3 – Replacement. The viaduct would have to be closed for up to 7 years before the new viaduct is complete. Property acquisitions along the proposed alignment would be required to accommodate the new, wider viaduct. Impacts to residents and businesses would be the same as described under Alternative 3

Alternative 2 – Retrofit

Construction of Alternative 2 would require partial viaduct lane closures and partial street closures beneath and adjacent to the viaduct for the duration of construction (up to 2.5 years). Businesses located adjacent to the construction zone along the viaduct frontage roads between Mateo Street and Mesquit Street would experience periodic traffic congestion and access diversion to business entrances facing the frontage roads as a result of construction activities. Access to businesses during business hours would be provided either by staging the construction activity or by using existing alternate entrances or newly created temporary access from adjacent streets.

Under this alternative, the City of Los Angeles Bureau of Street Service Maintenance Yard (Maintenance Facility) located within the City's ROW beneath the existing viaduct on the west side of the Los Angeles River (No. 5 on Figure 3.4-2) would need to be temporarily relocated or, at the City's option, would be permanently relocated. In addition, the former Ventura Foods, Inc. buildings located on the east side of the river on the north side of the viaduct (No. 12 on Figure 3.4-2) would need to be relocated. As of October 2008, Ventura Foods, Inc., moved to a new location on a voluntary basis. The building is currently vacant. No impact to this business would occur.

AFFECTED PROPERTIES LEGEND

1. Stover Seed Company
2. Alexandria Furniture
3. Lucky Head/Un Deux Trios
4. Spilo Worldwide
5. LA Bureau of Street Services*
6. City of Los Angeles Ramp & Tunnel*
7. Vacant Commercial Land
8. Various Railroads (Tracks)*
9. Various Railroads (Vacant Land)
10. Los Angeles River*
11. Various Railroads (Tracks)*
12. (Former) Ventura Foods, Inc.*
13. Ace Beverage, Inc. (Parking)*
14. Ace Beverage , Inc. (Parking & Bldg.)*
15. Senegram Holding (Alley, S.D., & Sewer Easement)*
16. Cal Fiber, Inc. (3B)
17. Variety Specialty Produce*
18. Shalom & Sons Wholesale Foods (3B)
19. Elady Company*
20. Jerry & Orit Kohen (Unknown Business) (3B)
21. Bell Craft Furniture, Inc.*
22. Peppard Brothers
23. Caltrans
24. Cal Hondo Freight Forwarder (3A, 3C)*
25. Glacier Cold Storage (3A, 3C)*
26. Union Pacific Land Resources Company* (Alley, S.D. & Sewer Easement) (3A, 3C)
27. Fitusi Shalom Trust (Unknown Businesses) (3A, 3C)
28. Garment Silk Screen (3A, 3C)*
29. Eddie & Glass (Vacant Commercial Property) (3A, 3C)*
30. Vacant Land (Clarence Sunrise Properties) (3A, 3C)
31. Long Term, Inc.
32. Lumary's Tire Service, Inc. (3B)*

*Potentially Affected Properties under Alternative 2 - Retrofit

N
NO SCALE

LEGEND

(12) AFFECTED PROPERTIES

PROJECT LIMITS

Figure 3.4-2
Potentially Affected Properties
Alignments 3A, 3B, 3C, Except as Noted

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Figure 3.4-3 Retrofit Alternative Acquisition and Easement

Figure 3.4-3 shows the acquisition and easement required for the Retrofit Alternative.

There would be no business access issues east of Mission Road since there are no frontage roads or business entrances facing the viaduct. The right to compensation, if any, for denying access to the sole point of access to a business would be addressed in the appraisal of the property rights to be acquired. East of Mission Road, below surface easements and construction easements in which reconstruction of some bridge bent footings is required would be acquired in accordance with the Uniform Relocation Act, as currently amended. Construction-related traffic impacts would be minimized by implementation of a Work Area Traffic Control Plan, as mandated by the LADOT.

Impacts to the operating railroads on both sides of the Los Angeles River (Nos. 8, 9, and 11 on Figure 3.4-2) are addressed in Section 3.6 of this EIR/EIS (refer to Table 3.6-2). Impacts to operations of the commuter rail lines, anticipated shutdowns, detours, and commuter line schedule could not be accurately identified at this stage, but they would be addressed in the Railroad Agreements. Emphasis would be to perform maximum work during the work windows permitted by the railroad companies and to minimize any impact to commuter train schedules by detouring rail traffic on adjacent available tracks.

The businesses that use the space under the viaduct for parking would be temporarily affected by the construction activities. While impacts to particular areas for a prolonged period of time are not anticipated, access to some businesses may be temporarily altered or disrupted. Interference with access to private properties from City streets may be considered a damage issue and would be addressed in the appraisal of property rights to be acquired to determine the right to compensation. As a result, any such interference must be individually examined on its own merits and a determination made with regard to whether the level of interference triggers a right to compensation under state law.

The 6th Street Viaduct and adjacent areas are frequently used for movie production purposes. Roadway blockage and localized traffic congestion during the proposed project construction could disrupt these filming activities. The impacts could be minimized by providing advance notification of the construction schedule and roadway closure schedule so that production activities could be arranged accordingly.

Alternative 3 – Replacement

Implementation of Alternative 3 would require complete closure of the 6th Street Viaduct for approximately 4 years. Some local streets beneath and adjacent to the viaduct would also be subject to partial or full closure.

The replacement alternative 3A, 3B, and 3C horizontal alignments follow the same project corridor length, and the only difference between them is that they slightly shift horizontally to the south or north, more noticeably on the east side of the river. Construction impacts to businesses would be identical for all three alignments, except as noted in this section.

Businesses located adjacent to the construction zone along the viaduct would be affected during demolition of the existing viaduct and construction of the new structure. Potential impacts to businesses located west of Mission Road would be identical for all three alignments. Businesses located adjacent to the construction zone would experience a higher level of noise and dust, as well as periodic traffic congestion and access disruption, as a result of construction activities. Access to businesses during business hours would be provided either by staging the construction activity or by using existing alternate entrances or newly created temporary access from adjacent streets. The City Maintenance Facility (No. 5 on Figure 3.4-2) would have to be relocated, and the Ventura Foods, Inc. property (No. 12 on Figure 3.4-2) would need to be acquired. The right to compensation, if any, for restricting access to a business during construction would be addressed in the appraisal of the property rights to be acquired.

Properties identified for permanent acquisition and businesses identified to be permanently relocated (see Table 3.4-2 and Figures 3.4-2 and 3.4-4) are considered not impacted by construction because they would be vacated before commencement of the construction activities. East of Mission Road, the viaduct deck for Alignments 3A and 3B would span over the corner of a few buildings, while Alignment 3C would cantilever over all of the existing buildings by up to 12 ft on the north and south sides. The property or business owners may have a right to compensation

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
West of Los Angeles River – North; Mateo Street to Santa Fe Avenue												
1	3A, 3B, 3C	5164007020 5164007002 5164007018 5164007019	Stover Seed Co.	Corporate owned	Stover Seed Co.	Wholesale distribution	Owner	20 to 30	More than 10-mile radius	Air quality permit for dust control. Employee parking in front of the building.	Needs access on 6th Street for loading and unloading trucks. Cannot operate if street is blocked.	Full acquisition; relocate
2	3A, 3B, 3C	5164007017	Shorkend Colin & Beverly	Information not available	Alexandra Furniture	Furniture manufacturing	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in	Full acquisition; relocate
3	3A, 3B, 3C	5164007017	Shorkend Colin & Beverly	Information not available	Lucky Head	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in	Full acquisition; relocate
3	3A, 3B, 3C	5164007017	Shorkend Colin & Beverly	Information not available	Un Deux Trios	Clothing manufacturing	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in	Full acquisition; relocate
4	3A, 3B, 3C	5164007016	1435 E. Sixth LLC	Corporate owned	Spilo Worldwide	Wholesale cosmetics manufacturing	Tenant	No response	No response	No response	Cannot operate if road access is closed	Full acquisition; relocate
4	3A, 3B, 3C	5164007015	1435 E Sixth LLC	Corporate owned	Spilo Worldwide	Wholesale cosmetics manufacturing	Tenant	No response	No response	No response	See above	Full acquisition; relocate
4	3A, 3B,3C	5164007024 5164007022	Spilo Ann & Marc	Corporate owned	Spilo Worldwide	Wholesale cosmetics manufacturing	Owner	No response	No response	No response	See above	Full acquisition; relocate
5	2, 3A, 3B, 3C	No APN (Located under existing bridge)	City of Los Angeles	Public agency	Los Angeles Bureau of Street Services Shop	City street maintenance facility	Owner	20	Information not available	30 parking spaces under the bridge	City's facility	Relocate
West of Los Angeles River – North; Santa Fe Avenue to Los Angeles River												
31	3A, 3B, 3C	5164005002	Butterfield Trails, LP	Corporate owned	Long Term, Inc.	Film production	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in	Building and parking space; access to doors/gate on south side of property would be limited. Frontage road may have limited access. Business has another access from north side of the property. Aerial and/or temporary construction easement needed for some bridge concepts.
7	3A, 3B, 3C	5164004004	Chalmers Santa Fe LLC	Corporate owned	Vacant land	N/A	N/A	N/A	N/A	N/A	N/A	Vacant land; aerial easement on the north side of the viaduct needed.
8	2, 3A, 3B, 3C	5164004900	LACMTA	Public agency	MTA Tracks	Transit RR	Owner	N/A	N/A	N/A	N/A	Electrified tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of east track needed for Alternative 2.
8	2, 3A, 3B, 3C	5164004804	Amtrak/BNSF	Corporate owned	BNSF tracks	Railroad	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of west track (additional easement) needed for Alternative 2.

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
8	2, 3A, 3B, 3C	5164004901	SCRRA	Public agency	SCRRA Tracks	Transit RR	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of east track (additional easement) needed for Alternative 2.
10	2, 3A, 3B, 3C	5171014900	USACE/ LACFCD	Public agency	USACE (River)	Lined river	Owner	N/A	N/A	N/A	N/A	Riverbed/banks; aerial and/or temporary construction and small surface easement needed for Alternatives 2, 3A, 3B, 3C; depending on bridge concepts, pier may be in the river. River concrete lining would be impacted by foundation construction.
6	2, 3A, 3B, 3C	No APN (access ramp and tunnel)	City of Los Angeles	Public agency	Access ramp and tunnel	Access tunnel to river	Tenant	N/A	N/A	N/A	N/A	Ramp and tunnel are located within City ROW. Modifications to ramp and tunnel could be required for all alternatives.
West of Los Angeles River – South; Santa Fe Avenue to Los Angeles River												
32	2, 3A, 3B, 3C	5164015001	Michael Lumary	Partnership	Lumary's Tire Service, Inc.	Truck tire retread plant	Owner	20 to 30	More than 10 miles	Business needs more than 29,500 square ft of space to operate. Large machinery on premises. Need complete access on 6th Street for unloading and loading tires.	Last tire retread plant in the City of Los Angeles. Closing or blocking 6th Street will completely disable operations. Some machinery is difficult to relocate.	Building; access to door on north side of the property will be limited. Frontage road will be blocked limiting access to the door on frontage road side. Access to door may be limited by bridge columns. Business has another access from Mesquit Street.
9	3A, 3B, 3C	5164016903	National Railroad Corp. Amtrak	Corporate owned	Vacant land	Transit railroad	Owner	N/A	N/A	N/A	N/A	Open area; aerial easement needed for Alignments 3A, 3B, 3C. Surface easement needed for Alternative 3B.
9	3A, 3B, 3C	5164016803	BNSF	Corporate owned	Vacant land	Railroad	Owner	N/A	N/A	N/A	N/A	Open area; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Small surface easement required for Alternative 3B bridge foundation.
8	2, 3A, 3B, 3C	5164016906	LACMTA	Public agency	MTA tracks	Transit railroad	Owner	N/A	N/A	N/A	N/A	Electrified tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of east track needed for Alternative 2 (surface easement).

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
8	2, 3A, 3B, 3C	5164016806	PAR SBE	Corporate owned	Amtrak/BNSF	Railroad	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of west track needed for Alternative 2 (surface easement).
8	3A, 3B, 3C	5164016807	BNSF	Corporate owned	Amtrak/BNSF	Railroad	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives.
8	2, 3A, 3B, 3C	5164016909	LACMTA	Public agency	SCRRA	Transit railroad	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of east track needed for Alternative 2 (surface easement).
10	2, 3A, 3B,3C	5171015900	USACE/ LACFCD	Public agency	USACE (River)	Lined river	Owner	N/A	N/A	N/A	N/A	Riverbed/banks; aerial and/or temporary construction and small surface easement needed for Alternatives 2, 3A, 3B, and 3C; depending on bridge concepts, pier may be in the river. River concrete lining would be impacted by foundation construction.
East of Los Angeles River – North and South; Los Angeles River to Mission Road												
North Side of the Viaduct												
11	2, 3A, 3B, 3C	5171014901	SCRRA/ LACMTA	Public agency	SCRRA tracks	Transit railroad	Owner	N/A	N/A	N/A	N/A	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives. Temporary closure of west track needed for Alternative 2 (surface easement).
11	3A, 3B, 3C	5171014808	UPRR	Corporate owned	UPRR tracks	Railroad	Owner	Information not available	Information not available	Information not available	Information not available	Tracks; aerial and/or temporary construction and small surface easement needed for all alignment alternatives.
11	2, 3A, 3B, 3C	5171014809	UPRR	Corporate owned	UPRR tracks	Railroad	Owner	Information not available	Information not available	Information not available	Information not available	Industry track, aerial and/or surface easement needed for all alignment alternatives. Potential temporary closure of Ventura Foods, Inc., connection track. Surface easement for Alternative 2 and Alignment 3A.
12	2, 3A, 3B, 3C	5171014005 633 S. Mission Road	Wilsey Holsum Foods LLC (now Chalmers Malt)	Corporate owned	Ventura Foods, Inc.	Food processing, manufacturing, distribution	Owner	Information not available	Information not available	Information not available	Building was vacated in October 2008. Company is moving to Ontario, CA. Did not submit survey.	Silo/building/paved storage yard; business cannot operate during demolition. Full relocation would be required under all alternatives.

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
South Side of the Viaduct												
11	2, 3A, 3C	5171015901	SCRRA/UPRR/ LACMTA	Corporate owned/railroad	SCRRA/UPRR tracks	Railroad	Owner	Information not available	Information not available	Information not available	Information not available	Tracks/industry track. Aerial easement needed for Alternatives 3A and 3C. Potential temporary closure of SCRRA west track and Ventura Foods, Inc., connection track.
12	2, 3A, 3B, 3C	5171015001 633 S. Mission Road	Wilsey Holsum Foods LLC (now Chalmers Malt)	Corporate owned	Ventura Foods, Inc.	Food processing, manufacturing, distribution	Owner	Information not available	Information not available	Information not available	Building was vacated in October 2008. Did not submit survey.	Buildings and parking. Temporary construction and aerial easement needed for Alternative 3A and 3C. Permanent street easement for Alternative 2. Temporary construction easement required for Alternatives 2 and 3B.
East of Los Angeles River – North; Mission Road to Anderson Street												
13	2, 3A, 3B, 3C	5171013001 600 S. Mission Road	Duesenberg Investment Co	Corporate owned	Ace Beverage, Inc.	Beverage distribution	Tenant	More than 30	More than 10-mile radius	Parking for large delivery trucks.	Company has more than 200 vehicles that are dispatched every day and stored at location.	Paved truck parking. Temporary construction and aerial easement needed for all alignment alternatives. Surface easement needed for Alternatives 3A and 3B. Permanent street easement and temporary construction easement required for Alternative 2.
14	2, 3A, 3B, 3C	5171013002 1600 E. 6th Street	Duesenberg Investment Co	Corporate owned	Ace Beverage, Inc.	Beverage distribution	Tenant	More than 30	More than 10-mile radius	Parking for large delivery trucks. Buildings used for storage. Have loading docks.	Company has more than 200 vehicles that are dispatched every day and stored at location.	Buildings and parking, temporary construction and aerial easement needed for all alignment alternatives. Surface easement needed for Alternatives 3A and 3B. Permanent street easement and temporary construction easement required for Alternative 2.
15	2, 3A, 3B, 3C	5171013003	Senegram Holdings	Corporate owned	Vacant land - alley	Information not available	Owner	Information not available	Needs loading docks located in front of the buildings	Alley is used for car parking for row of buildings along Anderson Street.	Needs loading docks located in front of building.	Paved alley: Temporary construction and aerial easement needed for all alignment alternatives. Surface easement needed for Alternatives 3A and 3B. Small temporary construction easement for Alternative 2.
17	2, 3A, 3B, 3C	5171012014 635 S. Anderson Street	Senegram Holdings	Corporate owned	Variety Specialties Produce	Produce distributor	Tenant	5 to 10	More than 10 miles	Six vehicles, including trucks. Need health department permit. Have permit from City to park under bridge.	Freezers and other equipment. Need tiled floors with drains.	Building. Full acquisition and relocation needed for Alternatives 3A and 3B. Aerial and temporary construction easement for Alternative 3C. Subsurface and temporary construction easement required for Alternative 2. A small portion of building may need to be cut and refaced for Alternative 2.

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
17	2, 3A, 3B, 3C	5171012008 631 S. Anderson Street	Senegram Holdings	Corporate owned	Variety Specialties Produce	Same as above.	Same as above.	Same as above.	Same as above.	Same as above.	Same as above.	Same as above.
16	3B	5171012007 and 5171012006 (south) 627 – 625 S. Anderson Street	Senegram Holdings	Corporate owned	Cal Fiber	Cal Fiber – Newspaper recycling and insulation for different products	Owner	5 to 10	More than 10 miles	All permits required by the City. Parking for 5 to 10 cars in front and back of building.	Extensive electrical machinery needed for operation of business. Machinery includes shredders, power unit, and ventilation that cover an entire side of the building.	Buildings and parking. Temporary construction and aerial easement needed for Alternative 3B. Cal Fiber business continues north in other two buildings. Impact to operation of roof-mounted equipment will have to be accommodated.
16	3B	5171012006 (north) 621 S. Anderson Street	Senegram Holdings	Corporate owned	Cal Fiber	Warehouse storage of raw materials and finished products	Owner and several tenants at same location	10 to 20	More than 10 miles	Parking for 5 to 10 cars in front and back of building.	Receives income from tenants and filming rental income.	Building. Aerial easement needed over small corner of the building for Alignment 3B.
16	-	5171012015 619 S. Anderson Street	Senegram Holdings	Corporate owned	Cal Fiber	Warehouse storage of raw materials and finished products	Owner and several tenants at same location	Less than 5	No response	Parking for 5 to 10 cars in front and back of building.	No response	No impact.
16	-	5171012015 618 S. Anderson Street	Senegram Holdings	Corporate owned	Cal Fiber	Warehouse storage of raw materials and finished products	Owner and several tenants at same location	10 to 20	More than 10 miles	Parking for 25 to 30 cars and trucks in back of building.	Left blank	No impact.
17	3A, 3B, 3C	5171012012	Fitusi Shalom Trust	Corporate owned	Vacant Land	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Open area/yard; full acquisition for Alternatives 3A and 3B, aerial easement needed for Alternative 3C.
East of Los Angeles River – South; Mission Road to Anderson Street												
24	2, 3A, 3B, 3C	5171016010	Pacific Industrial Partners	Corporate owned	634 S. Mission Road Cal Hono Freight Forwarder Inc. (E)	Freight handling, consolidating of frozen and refrigerated products	Subtenant to Glacier Cold Storage	10 to 20	More than 10 miles	Parking lot is located directly under the bridge. 8 parking spaces available. Empty container holding.	Most of the operation takes place directly adjacent and under the bridge. Lot under the bridge is used to store large empty containers. No storage space if the bridge is closed.	Building and loading area; aerial and temporary construction easement needed for Alternatives 3A and 3C. Permanent street easement for Alternative 2. Temporary construction easement required for Alternatives 2 and 3B.
25	2, 3A, 3B, 3C	5171016010	Pacific Industrial Partners	Corporate owned	Glacier Cold Storage	Cold storage	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Building and yard area; aerial and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement required for Alternatives 2 and 3B. A small portion of building may need to be cut and refaced.
26	2, 3A, 3B, 3C	5171016011	Union Pacific Land Resources Co	Corporate owned	Information not available	Vacant land	Information not available	Information not available	Information not available	Information not available	Information not available	Vacant land, alley used for parking by adjacent businesses. Aerial and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement required for Alternatives 2 and 3B.

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
27	3A, 3B, 3C	5171017008	Fitusi Shalom Trust	Corporate owned	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Building, aerial, and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement for Alternative 3B. Temporary construction easement for Alternative 3B.
East of Los Angeles River – North; Anderson Street to East Abutment												
18	3B	5171006019	Fitusi Shalom Trust	Corporate owned	Shalom and Sons Wholesale Foods	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Building, aerial, and temporary construction easement needed for Alternative 3B.
19	2, 3A, 3B, 3C	5171006018	J&W Holdings	Corporate owned	Elady Company (formerly Best Buy, Inc.)	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Loading dock/building. Full acquisition and relocation for Alternatives 3A and 3B. Aerial and temporary construction easement needed for Alternative 3C. Permanent street easement and temporary construction easement required for Alternative 2.
20	3B	5171005007	Jerry & Orit Kohen	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Building; aerial and temporary construction easement needed for Alternative 3B.
21	3A, 3B, 3C	5171005008	Gustavo & Violeta Ulloa	Individually owned	Bell Craft Office Furniture, Inc. (E) 651-653 S. Clarence St.	Furniture manufacturer	Owner	10 to 20	More than 10 miles	AQMD spray booth permit, parking and loading are located in front of the building on the street	Need complete access to front of building to load and unload furniture	Building. Full acquisition and relocation for Alternatives 3A and 3B.
21	2, 3A, 3B, 3C	5171005009	Gustavo & Violeta Ulloa	See above	See above	See above	See above	See above	See above	See above	See above	Building. Full acquisition and relocation for Alternatives 3A and 3B. Aerial and temporary construction easement needed for Alternative 3C. Permanent street easement and temporary construction easement required for Alternative 2.
21	3A, 3B, 3C	5171005013	Gustavo & Violeta Ulloa	See above	See above	See above	See above	See above	See above	See above	See above	Storage yard area; full acquisition for Alternatives 3A and 3B. Aerial and temporary construction easement for Alternative 3C.
21	3A, 3B, 3C	5171005012	Rubel Raul	Information not available	Vacant land	N/A	N/A	N/A	N/A	N/A	N/A	Open space; full acquisition for Alternatives 3A and 3B. Aerial and temporary construction easement needed for Alternative 3C.
22	3A, 3B, 3C	5171004017	William Peppard	Information not available	Peppard Brothers	Information not available	Information not available	Information not available	Information not available	Information not available	Survey form was not turned in.	Building; aerial and construction easement needed for all alignment alternatives.
23	3A, 3B, 3C	No number	Caltrans	Public agency	Caltrans	Public agency	N/A	N/A	N/A	N/A	N/A	Sloping land east of Clarence Street. Aerial, surface, and construction easement needed for all alignment alternatives.

Table 3.4-2 Survey Information on Potentially Affected Nonresidential Properties in the Vicinity of the Project Area

Number Noted on Figure 3.4-2	Alignment Affecting Properties	Assessor's Parcel Number (APN/Address)	Parcel Owner	Type of Ownership	Establishment Located on Parcel	Type of Business and Size	Operating Status (Tenant or Owner)	Number of Occupants or Employees	Average Distance Employee Lives from Work	Special Need to Operate Business, including Parking	Relocation Issues Expressed	Type of Potential Impact
East of Los Angeles River – South; Anderson Street to East Abutment												
28	2, 3A, 3B, 3C	5171017007	2974 Properties Inc	Corporate owned	Jaim Image, Inc.	Garment, silk screen and painting	Tenant	5 to 10	5 to 10 miles	Large storage for special requirements to set power lines, air lines, and gas lines. Five parking spaces are needed.	Large open space area is needed for ventilation and product storage.	Building; aerial and temporary construction easement needed for Alternatives 3A and 3C. Permanent street easement for Alternative 2. Temporary construction easement required for Alternatives 2 and 3B.
28	3A, 3B, 3C	5171017800	Information not available	Information not available	(Rail Road?)	Vacant land	N/A	N/A	N/A	N/A	N/A	Rail track; aerial and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement for Alternative 3B.
29	2, 3A, 3B, 3C	5171017005	Rubel Raul	Information not available	Vacant land	N/A	N/A	N/A	N/A	N/A	N/A	Vacant land; aerial and temporary construction easement needed for Alternatives 3A and 3C. Permanent street easement for Alternative 2. Temporary construction easement required for Alternatives 2 and 3B.
29	3A, 3B, 3C	5171017006	Eddie & Glass	Information not available	Vacant building	N/A	N/A	N/A	N/A	N/A	N/A	Vacant building; aerial and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement for Alternative 3B.
30	3A, 3B, 3C	5171019005	Clarence Sunrise Properties	Information not available	Parking area	N/A	N/A	N/A	N/A	N/A	N/A	Parking area; aerial and temporary construction easement needed for Alternatives 3A and 3C. Temporary construction easement for Alternative 3B.
23	3A, 3B, 3C	No Number	Caltrans	Public agency	Caltrans	Public agency	N/A	N/A	N/A	N/A	N/A	Sloping land east of Clarence Street. Aerial, surface, and construction easement needed for all alignment alternatives.

Source: Survey conducted by Diverse Strategies for Organizing, Inc.

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Figure 3.4-4
Replacement Alternatives
Acquisition and Easements

for such impacts. As a result, any such interference must be individually examined on its own merits and a determination made with regard to whether the level of interference triggers a right to compensation under state law.

As mentioned above, the viaduct and adjacent areas are frequently used for movie production purposes. Roadway blockage and localized traffic congestion during the proposed project construction could disrupt the filming activities occurring on a long-term (4-year) basis along the street network in the vicinity of the 6th Street Viaduct. The impacts could be minimized by providing advance notification of the construction schedule and roadway closure schedule so that production activities could be arranged accordingly. As the viaduct would be demolished with the replacement alternative, filming activities on, under, or immediately adjacent to the viaduct would not be possible until construction is completed. The impact is unavoidable.

3.4.3.2 Permanent Impacts

Alternative 1 – No Action

No relocation of residences or businesses would be required with the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards, similar to Alternative 3 – Replacement. Property acquisitions along the proposed alignment would be required to accommodate the new, wider viaduct. Impacts to residents and businesses would be the same as described under Alternative 3 below.

Alternative 2 – Retrofit

Residential Displacements

No relocation of residences would be required with Alternative 2 implementation.

Nonresidential Displacements

The City Maintenance Facility and the building formerly occupied by Ventura Foods, Inc. would need to be demolished. It is anticipated that the City Maintenance Facility would be relocated elsewhere within the City; therefore no permanent impact to the City facility would occur. Since Ventura Foods, Inc, has moved its business out of the area, no impact would occur to its operations.

Alternative 2 would potentially reduce horizontal clearance between the rail tracks and retrofitted columns of the bridge, which may not be acceptable to the railroads. Permanent impacts for Alternative 2 are summarized in Tables 3.4-1 and 3.4-2. No permanent business access loss would occur under Alternative 2 for the remaining businesses.

Alternative 3 – Replacement

The level of community and business disruption would be the same with respect to any bridge concept.

Residential Displacements

The area immediately surrounding the 6th Street Viaduct contains mostly industrial and commercial establishments. Based on present land use, no residential displacement would be required if any of the Alternative 3 alignments were implemented.

Nonresidential Displacements

The horizontal alignments 3A, 3B, and 3C of the Replacement Alternative follow the same corridor length, and the only difference between them is that they slightly shift horizontally to the south or north, more noticeably on the east side of the river. Permanent impacts to properties and businesses would be identical for all three alignments, except as noted in Tables 3.4-1 and 3.4-2. Alternative 3B, which swings the most to the north, would have maximum permanent impacts to properties and businesses, followed by alignments 3A and 3C. No permanent business access loss would occur under alignments 3A, 3B, or 3C for the remaining businesses. No permanent impact to the railroads and Los Angeles River operations would occur, except the footprint of the new viaduct would change and increase the air easement over these properties.

3.4.3.3 Indirect Impacts

Alternative 1 – No Action

No indirect impacts from relocations have been identified with implementation of the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. The indirect impacts under this circumstance would be the same as the impacts described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Implementation of Alternative 2 would require relocation of the City Maintenance Facility, which is located beneath the viaduct west of the river, to a new location. The facility currently houses approximately 30 maintenance vehicles and an average of 20 people working on the premises daily. The facility also contains a truck wash station and 2 underground gasoline storage tanks (1,000- and 500-gallon capacity, respectively). The replacement site for this facility would have to be in an area designated for commercial, light, or heavy industrial uses due to the nature of facility operation. Relocating the facility to a new site would necessitate change in zoning and land use unless the destination site is currently zoned for public (P) use.

The City Maintenance Facility, which employs approximately 20 people, would likely be relocated to a nearby area; therefore, no effects to local employment are anticipated.

No employment information is available for Ventura Foods, Inc. (the facility owner did not return the business survey form), but it could be estimated to range from 20 to 30 people. As of October 2008, the former site of Ventura Foods, Inc. was vacant, and it is assumed that its operations have either relocated to another (out of project area) location or ceased; therefore, no impacts to employment due to the proposed project would occur to Ventura Foods, Inc.

After the retrofit is complete, the unused portions of buildings or land formerly occupied by Ventura Foods, Inc. might be used for other businesses, thus providing employment to the nearby community.

Alternative 3 – Replacement

Indirect impacts derived from implementation of Alternative 3 would be similar to those described under Alternative 2 but magnified as Alternative 3 would involve the relocation of more businesses than the Retrofit Alternative. Depending on the type of businesses, relocating existing businesses to new sites that are not in the industrial-designated area may cause indirect impacts due to land use/zoning incompatibility.

Based on preliminary survey data, more than 200 people are employed by potentially affected businesses in the proposed project area. These workers could experience employment suspension during the relocation of businesses; however, such effects would be expected to be temporary and extremely short term in cases when business owners are able to relocate their businesses to the nearby area where the former employees could be either retrained or rehired and are able to commute to work. If any business owners decide to close their businesses or relocate elsewhere, then the employment loss to local workers would be permanent. State unemployment benefits could offset the loss of income for the unemployed workers for those who qualify.

Several business owners stated during the Draft EIR/EIS public hearings that they would like to keep their businesses in Downtown Los Angeles even though they may have to move from the present location.

3.4.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation would be required for the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. The minimization and mitigation measures under this scenario would be the same as described under Alternative 3 below.

Alternative 2 – Retrofit

Extensive construction work would occur under the viaduct, requiring relocation of the City Maintenance Facility. Due to the 2.5 years of construction work, temporary relocation of the facility is not feasible. The City would relocate the facility to another location to accommodate the construction.

Partial or full acquisition of the property formally occupied by Ventura Foods, Inc. would be required to reserve the space for viaduct maintenance. The property, which is comprised of two parcels bifurcated by the existing viaduct's ROW, is currently vacant and offered for lease by its owner. Several buildings are present on the site, one of which extends beneath the viaduct on City ROW under terms of a revocable permit. The City is in the process of revoking this permit.

Alternative 3 – Replacement

Impacts to businesses and properties along alignments 3A, 3B, and 3C on the west side of the river are similar and could not be minimized by modification of the alignment. On the west side of the river, alignment corridor 3B would result in the greatest impacts to businesses and properties compared to alignments 3A and 3C. Under each alignment corridor, the City would investigate the possibility of adjusting or modifying the proposed alignment to minimize impacts to business operations to the extent applicable. The City would also work with the potentially affected property owners to obtain the understanding of their respective operation needs and restrictions as part of the alignment refinement to minimize the impacts. In some case restructuring of the existing business operations could be an option to avoid relocation.

The FRIR[33] studied the possibilities of relocating nonresidential properties subject to displacement to similar sites within the surrounding area. The replacement area under study is generally bound by the CRA/LA Central Industrial Redevelopment Project, which is located within East Central Los Angeles adjacent to the project area on the west side of the Los Angeles River, and the Adelante Eastside Redevelopment Project, which is located on the east side of the river. Based on discussions with CRA/LA staff, the available area on the east side of the river is very limited for commercial/industrial uses.

The replacement study area is zoned for heavy industrial use (M3), and it is characterized by heavy and light industrial uses. It has good freeway access, but many surface routes were not designed for heavy truck traffic and are usually congested during business hours. Based on the FRIR, adequate resources appear to exist to relocate potentially affected businesses.

[33] Final Relocation Impact Report 6th Street Viaduct Seismic Improvement Project. April 2011.

Based on information from local real estate agents, the supply of potential replacement sites in other Los Angeles industrial regions is expected to remain adequate. Considering the existing congestion on local streets and/or other limitations of potential local replacement sites due to the aged infrastructure, some businesses may choose to re-establish in newer development areas (e.g., established industrial parks), thus benefiting from enhanced access and other infrastructure. In addition, market trends may compel some of the businesses to relocate outside of the displacement area.

All acquired property owners/businesses would receive fair market value for the project-required taking regardless of whether they are eligible for relocation benefits. Relocation assistance payments and counseling would be provided to persons and businesses subject to replacement in accordance with the Uniform Act. Based on the preliminary displacement study, properties are available for the affected businesses to move into within the CRA/LA Central Industrial Redevelopment Project area.

The City would work closely with businesses that are subject to partial acquisition to identify methods to minimize impacts to business operations as a result of the proposed project construction.

Special provisions to protect properties located adjacent to the viaduct would be included in the project construction specifications. Prior to demolition, the contractor would be required to submit the means and methods for demolition for City review and approval. During the demolition period, construction inspectors would ensure that the contractors adhere to the approved plan.

In addition, prior to the commencement of demolition and construction activities, the contractor would be required to submit a construction material hauling plan for review and approval by LADOT and LABOE. The material hauling plan would be developed to minimize traffic and noise impacts to the local residents and businesses by incorporating the following measures:

- Avoid hauling during peak hours
- Avoid using local streets that are heavily transited by commercial vehicles
- Avoid businesses and factories that generate high truck volumes
- Provide signing and flagging to promote traffic circulation
- Encourage night hauling if daytime traffic is too heavy
- Provide tow truck services along the designated hauling route(s)

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3.5 Community Impacts – Environmental Justice

Potential environmental justice impacts are defined as those unavoidable adverse effects that would be disproportionately borne by minority and/or low-income populations. The information presented in this section is excerpted from the Community Impact Assessment prepared for this project.[34]

3.5.1 Regulatory Setting

All projects involving a federal action (i.e., funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* which was signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in project planning. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

Executive Order 12898

Executive Order 12898 focused attention on Title VI of the Civil Rights Act of 1964, which is a policy of the United States that prevents discrimination on the grounds of race, color, or national origin in connection with programs and activities receiving federal financial assistance, by providing that "each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Department of Transportation Order 5610.2

In support of Executive Order 12898, the United States Department of Transportation (DOT) issued an Order on Environmental Justice (DOT Order 5610.2) in 1997. This was followed by an FHWA Order on Environmental Justice (FHWA Order 6640.23), which was issued in 1998. The DOT Order declares the Agency's policy to promote the principles of environmental justice, as embodied in the Executive Order, through the incorporation of those principles in all DOT programs, policies, and activities. The Order further states that this policy should be realized by

[34] Community Impact Assessment for 6th Street Viaduct Seismic Improvement Project. July 2008, updated May 2011.

fully considering environmental justice principles throughout the planning and decision-making process using the principles of the *National Environmental Policy Act*, *Title VI* of the *Civil Rights Act of 1964,* the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended*, the *Intermodal Surface Transportation Efficiency Act of 1991*, and other DOT statutes, regulations, and guidance that address infrastructure planning and decision making.

The DOT Order (5610.2) on Environmental Justice provides clear definitions of the four minority groups addressed by the Executive Order. These groups are:

1. Black – a person having origins in any of the black racial groups of Africa
2. Hispanic – a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race
3. Asian American – a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands
4. American Indian and Alaskan Native – a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition

The FHWA Order defines "low-income" as "a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines." The HHS poverty guidelines are used as eligibility criteria for the Community Services Block Grant Program and a number of other federal programs; however, a state or locality may adopt a higher threshold for defining low income if the higher threshold is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines. The 1999 poverty threshold for an average family size of four was $16,700 (note that 1999 is used to be consistent with the census data 2000).

DOT further clarifies that neighborhood and community boundaries and impacts should be considered in planning, programming, and project development activities, whether there are minority or low-income populations involved or not. Most importantly, the public should always be involved in defining the affected "neighborhood" and "community" through the public-involvement process, since the identification or definition of neighborhood and community boundaries can be subjective.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

Enacted in 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) placed additional emphasis on environmental stewardship, as well as consideration of environmental issues, as a part of metropolitan and statewide transportation planning, and the linking of planning and the environmental assessment process. Each of these aspects strengthens the linkages between planning and environmental protection and creates opportunities to examine the potential for environmental justice issues early on and throughout the project development process.

Federal-Aid Highway Act of 1970

This law established further basis for equitable treatment of communities affected by transportation projects. Agencies must assure that the adverse economic, social, and environmental effects of a federally supported highway project have been fully considered in developing the project, and that the final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe, and efficient transportation; public services; and the costs of eliminating or minimizing such adverse effects.

Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

Executive Order 13166, which was issued by President Clinton in August 2000, requires federal agencies to "develop a system by which limited-English proficiency persons can meaningfully access…[federal] services [including participation in the project planning process] without unduly burdening the fundamental mission of the agency." Federal agency response to this order has included the provision for oral language assistance, translating vital documents in languages other than English, and training staff to serve non-English speakers. As it applies to the proposed project, the Executive Order requires that written materials and oral presentations prepared for public dissemination be made available to limited-English speakers and readers.

3.5.2 Affected Environment

Based on population demographic data presented in Section 3.3.2, the study area (Census Tracts 2060.40, 2060.50, and 2046) is considered a predominantly minority community compared to the larger population within Los Angeles County. Based on socioeconomic data described in Section 3.3.2, the study area population is also considered to be low income based on the "need-based" poverty threshold for Los Angeles County[35].

3.5.3 Environmental Consequences

3.5.3.1 Construction Impacts

A range of impacts from construction activities that were considered in the environmental justice analysis includes business and community disruption, minority-owned or low-income residential and business displacement, air quality, noise, and traffic disruption and detours from

[35] Moore, Paul, *et al.,* 2000. *The Other Los Angeles: The Working Poor in the City of the 21st Century.* Los Angeles for A New Economy. August.

construction activities resulting from closure of traffic lanes or the viaduct. Of these impacts, only traffic impacts would be predominately borne by the near-construction-zone community, while the benefits of the completed project would be enjoyed by the entire region; thus, the proposed construction impacts would cause disproportionately high adverse effects on minority and low-income populations for both the retrofit and replacement alternatives.

Alternative 1 – No Action

No disproportionate impacts to minority or low-income populations would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, it is the responsibility of the City of Los Angeles to seek emergency funding sources to replace it. Under this scenario, Alternative 1 would cause disproportionately high adverse effects on nearby minority and/or low-income populations, related to more circuitous transit, bicycle, and pedestrian circulation, per Executive Order 12898 regarding environmental justice.

Alternative 2 – Retrofit

Alternative 2 would cause some inconvenience to local residents and business owners within the project area and its vicinity over the duration of construction (up to 2.5 years) due to periodic lane closures, traffic congestion, and access restrictions. Although full closure of the viaduct may be necessary on an occasional basis, long-term detours are not anticipated. The project study area contains predominantly minority and low-income populations compared to the larger area within the City and County of Los Angeles. Construction would require partial lane closures on the 6th Street Viaduct. Residents and businesses in the area adjacent to the viaduct would experience impacts from traffic congestion resulting from material hauling along the designated hauling route(s) and occasional closures of traffic lanes near or on the viaduct. Nearby residents who are dependent on public transit, bicycles, or walking within the area near the viaduct would be more affected by the temporary closure of traffic lanes, bicycle paths, and pedestrian routes.

No residences would require relocation as a result of proposed construction activities. One city facility (Maintenance Facility) would need to be relocated. As described in Section 3.4.3.3, this relocation is not expected to cause any loss of employment and is not anticipated to create an adverse impact to local workers.

Occasionally, some homeless people are present near and around the bridges along the Los Angeles River, including the 6th Street Viaduct. The City of Los Angeles would assist the homeless in finding shelters in accordance with Los Angeles Municipal Code Section 41.49, the Los Angeles Homeless Services Authority (LAHSA). No impacts to the homeless would occur.

Because nearby residents who are dependent on public transit, bicycle, or walking within the area near the viaduct would be more affected by the temporary closure of traffic lanes, bicycle paths, and pedestrian walkways, construction of Alternative 2 would cause disproportionately high adverse effects on minority and/or low-income populations living closer to the construction zone as per Executive Order 12898 regarding environmental justice.

Alternative 3 – Replacement

The level of impacts pertaining to environmental justice would be the same for any bridge concept or alignment alternative.

The study area is considered a predominantly minority community compared to the larger population within Los Angeles County, and the population is considered low income; therefore, the proposed construction of the Replacement Alternative would cause disproportionately high adverse effects on minority and/or low-income populations who live closer to the viaduct and the proposed detour routes as per Executive Order 12898 regarding environmental justice, as discussed in the following paragraphs.

The construction of Alternative 3 is estimated to take up to 4 years, and the viaduct would be fully closed during this time. As a result, traffic along the local street networks on both sides of the river would have to be rerouted away from the 6th Street Viaduct, which would increase the volume of motor vehicles on other streets within the project area (see Section 3.7 for a discussion of the detour routes and traffic impacts during construction). Residents living closer to the construction site, the detour routes, or the construction materials hauling routes would receive disproportionately high adverse effects from traffic congestion compared to the larger populations.

Local trips utilizing the 6th Street Viaduct total approximately 11,500 vehicles per day, out of the daily average of 13,260 (see Section 3.7.2.3). Based on this information, it appears that the 6th Street Viaduct serves the local population more than regional commuters; therefore, the predominantly minority community would also be disproportionately impacted by greater travel time and cost when traveling east-west on the less convenient, out-of-direction detour routes for the 4-year construction period.

As indicated in Table 3.4-1, several businesses within the proposed project limits would need to be permanently relocated as a result of right-of-way (ROW) acquisition. Based on the results of the business survey (Table 3.4-2), owners of potentially affected properties are either public agency or privately owned businesses. None of the privately owned business owners identified themselves as being minority owners; therefore, environmental justice impacts in this regard are not anticipated.

Relocation of the businesses described above could also cause low-income and likely predominantly minority workers (note that accurate information regarding the racial composition of workers is not available) to lose their jobs. Several business owners stated during the Draft EIR/EIS public hearings that they would like to keep their businesses in Downtown Los Angeles even though they may have to move from the present location. It is likely that the workers from businesses subject to relocation would be hired back by their employers once the relocation is completed.

Based on the FRIR[36] for this proposed project, there appears to be adequate space within the CRA/LA Central Redevelopment Project area for potentially impacted businesses to relocate. The affected business owners would be offered relocation benefits to the extent allowed by law in accordance with the provisions of the Uniform Act.

Alternative 3 would not require any temporary or permanent residential displacements; therefore, no minority or low-income residents would be relocated.

Occasionally, some homeless people are present under the 6th Street Viaduct. In accordance with Los Angeles Municipal Code Section 41.49, the LAHSA would be contacted to provide services to any homeless people found within the project area prior to construction. No impacts to the homeless population would occur.

3.5.3.2 Permanent Impacts

Alternative 1 – No Action

With the No Action Alternative, there would be no impacts to local residents or area business owners as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek emergency funding sources to replace it in order to maintain this important transportation link between the Boyle Heights community and the Downtown area. As described in Section 3.5.3.2, minority and low-income populations who live closer to the viaduct and traffic detour routes would receive disproportionately higher and adverse effects than the larger populations for a longer period of time; however, after construction of the new viaduct, no impacts pertaining to environmental justice would remain.

Alternative 2 – Retrofit

No disproportionately high and adverse effects on minority or low-income populations would occur on a permanent basis with implementation of the Retrofit Alternative.

[36] Final Relocation Impact Report 6th Street Viaduct Seismic Improvement Project. April 2011.

Alternative 3 – Replacement

The project does not propose construction of additional traffic lanes on the viaduct; therefore, there would be no long-term (i.e., postconstruction) traffic volume increase to the Boyle Heights and downtown industrial area as a result of Alternative 3.[37] Although Alternative 3 proposes to construct a wider viaduct, this is to provide standard sidewalks, shoulders/bikeways, and a safety median.

Based on the above discussion and analysis, the replacement viaduct (Alternative 3) would not cause disproportionately high and adverse effects on minority or low-income populations.

In addition, Alternative 3 is compatible with two planning visions for this location: 1.) the LARRMP, and 2.) the CCNCP and the Boyle Heights Community Plan. Consistent with the LARRMP, the replacement viaduct could create economic development opportunities to enhance and improve river-adjacent communities, including potential development of retail spaces, educational facilities, or other public institutions on the unused portions of the acquired land, as well as providing public access to the river. Alternatively, consistent with the CCNCP and the Boyle Heights Community Plan, the replacement viaduct could create industrial development opportunity sites for needed job-producing uses on the unused portions of the acquired land. Figure 3.4-3 in Section 3.4.3 shows the areas where existing buildings would be either partially or fully acquired to provide ROW for the new viaduct.

It should be noted that land immediately adjacent to the 6th Street Viaduct is zoned for heavy industrial uses. Future redevelopment of the vacated land resulting from the proposed replacement alternative would have to go through the planning process established by the City of Los Angeles Planning Department. Impacts from potential redevelopment of the unused portion of acquired land are beyond the scope of this project.

3.5.3.3 Indirect Impacts

No indirect impacts pertaining to environmental justice have been identified with implementation of Alternative 2 – Retrofit or Alternative 3 – Replacement. Under Alternative 1 – No Action, if the viaduct was determined to be unserviceable, the City would have to seek emergency funding sources to replace it in order to maintain this important transportation link between the Boyle Heights community and the Downtown area. The viaduct would have to be closed for up to 7 years. Minority and low-income populations who live closer to the viaduct and traffic detour routes would receive disproportionately higher and adverse effects than the larger populations for a longer period of time. The level of impacts may be elevated if other

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[37] Traffic Analysis Report 6th Street Viaduct Seismic Improvement Project. October 2008; re-validated February 2011.

construction activities are taking place during that same period in close vicinity of the 6th Street Viaduct.

3.5.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required under this alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, then the City would have to seek emergency funding sources to replace it in a timely manner to maintain this important transportation link between the Boyle Heights community and the Los Angeles Downtown area. Mitigation measures described under Alternative 3 below would be applicable during construction of the new viaduct.

Alternative 2 – Retrofit

The following mitigation measures would be implemented to minimize disproportionately high and adverse impact to the area residents:

- The City of Los Angeles would develop a construction staging plan and TMP in close coordination with the members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP would also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian and bicycle routes, and residential and commercial access routes to be used during the construction period.
- Prior to the commencement of demolition and construction activities, the contractor would be required to submit a material hauling plan for review and approval by Caltrans, LADOT, and LABOE. The material hauling plan would be developed to minimize traffic and noise impacts to the local residents and businesses by incorporating the following measures:
  - Avoid hauling during peak hours
  - Avoid using local streets that are heavily transited by commercial vehicles
  - Avoid businesses and factories that generate high truck volumes
  - Provide signing and flagging to promote traffic circulation
  - Encourage night hauling if daytime traffic is too heavy
  - Provide tow truck services along the designated hauling route
- The construction contractor would be required to adhere to the requirements of existing rules and regulations set forth by the South Coast Air Quality Management District (SCAQMD), as outlined in Section 3.15.4 of this EIR/EIS.

- The construction contractor would be required to implement equipment noise control and administrative measures outlined in Section 3.16.4 of this EIR/EIS.
- The Los Angeles Homeless Services Authority (LAHSA) would be contacted to provide services to any homeless people found within the project area prior to construction.

Alternative 3 – Replacement

In addition to the mitigation measures described under Alternative 2 above, the City would implement the following measures to further minimize impacts to the area residents as a result of Alternative 3 implementation.

- Prior to demolition activities, the contractor will be required to submit the means and methods for demolition to Caltrans and City of Los Angeles for review and approval. During the demolition period, construction inspectors will ensure that the contractors adhere to the approved plan.
- Implement mitigation measures proposed in Section 3.7.4 to minimize impacts at 2 of the 13 affected intersections. The rest of the impacted intersections could not be mitigated without causing further ROW impacts. These two mitigation measures consist of:
  - Install new traffic signals at the intersection of 4th Street and I-5 SB on-/off-ramps/ Gertrude Street, and connect to Los Angeles City ATSAC system.
  - Restripe to add an EB right-turn lane at the intersection of 4th Street and Soto Street.
- The City of Los Angeles would actively participate in the community planning process to redevelop the vacated area around the 6th Street Viaduct with consideration to provision of recreational, retail, cultural, or other amenities through the planning process.
- The City of Los Angeles would provide improvements to enhance the aesthetics of the affected intersections along the proposed detour routes.
- The City of Los Angeles would actively participate in implementation planning for the LARRMP to improve the area near the 6th Street Viaduct to the extent feasible, in accordance with the objectives set forth in the Master Plan.

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3.6 Utilities and Emergency Services

This section addresses potential impacts to public utilities and emergency services that would result from construction and operation of the proposed project. Public utilities include electricity, natural gas, water and wastewater facilities, storm drains, telecommunications, oil pipelines, and solid waste disposal. Emergency services include law enforcement, fire protection, and ambulance service. For each of the utilities and service systems discussed, existing infrastructure, levels of service, and capacity are described.

3.6.1 Affected Environment

The study area for utilities and emergency services impact assessment includes the area immediately adjacent to the 6th Street Viaduct and surrounding area that is likely to experience increased vehicle movements associated with construction-related detour traffic. The potentially affected area is generally bound by 1st Street to the north, 7th Street to the south, Central Avenue to the west, and Soto Street to the east.

3.6.1.1 Utilities

Electricity

The LADWP currently supplies electricity to the study area. LADWP owns and operates several overhead and underground transmission and distribution lines in the project area. One 230-kilovolt (kV) underground transmission line runs along the north frontage road and two 230-kV underground lines run along the South Frontage Road from Mateo Street to a substation yard on Santa Fe Avenue just south of south frontage road. LADWP poles located along the north and south frontage roads support 34.5-kV overhead electrical transmission lines from Mateo Street toward Santa Fe Avenue. Along both sides of the river embankment, four transmission towers are located within the vicinity of the 6th Street Viaduct, two each on the north and south sides of the viaduct (see Figure 1-3). The closest tower to the south is located on the east bank approximately 45 ft from the southern edge of the viaduct, and the closest tower on the north side is located on the west bank approximately 104 ft from the northern edge of the viaduct. In addition, electrical conduits and overhead lines run along the same alignment as the transmission lines, as well as along the streets that intersect the viaduct from Mateo Street to Clarence Street. The 6th Street Viaduct is also lined with lampposts owned by the City of Los Angeles.

Natural Gas

The Southern California Gas Company supplies natural gas to the project area. There are approximately 13 gas distribution pipelines within the project area, 3 of which are abandoned. The gas lines are owned and operated by the Southern California Gas Company. Two active lines run along the 6th Street frontage roads – a 6-inch line at the south frontage road and a 4-inch line at the north frontage road from Mateo Street to Santa Fe Avenue. The remaining gas lines in the project area are mostly located under the viaduct at the intersecting streets (i.e., Mateo Street, Imperial Street, Santa Fe Avenue, Mesquit Street, Mission Road, Anderson Street, and Clarence Street).

Water

LADWP provides domestic water to the project area. Three active water lines run along the frontage roads – an 8-inch line on the north frontage road and a 6-inch line and 8-inch line on the South Frontage Road, respectively. There is also a 6-inch abandoned water line along south frontage road. These four lines run from Mateo Street eastbound (EB) ending at the intersection with Mesquit Street. There is also an active 8-inch water line that runs from Clarence Street to the east and under the viaduct.

There are four additional active water lines that cross under the viaduct at the intersections with Santa Fe Avenue (8-inch line), Mission Road (8-inch line), Anderson Street (8-inch line), and Clarence Street (12-inch line).

Storm Drains

The City owns and operates the storm drain systems in the study area, and the United States Army Corp of Engineers (USACE) owns the Los Angeles River Channel. The stormwater flows generated in the study area ultimately discharge into the Los Angeles River. For the area under the viaduct and west of the Los Angeles River, two storm drain lines (15-inch-diameter and 36-inch-diameter) appear to collect locally generated flows. The 15-inch storm drain located at the corner of Mateo Road discharges into a 36-inch line, which is tributary to the 97-inch storm drain sewer No. 3. The 36-inch storm drain, which appears abandoned, runs from Mateo Street along the south frontage road toward a manhole east of Mesquit Street and west of the Los Angeles River, and finally discharges to the river channel.

The area north of the viaduct and east of the river channel is a mostly industrial area that is served by two major drain lines: a 30-inch line running north to south along Mission Road and a 42-inch line running along Clarence Street and discharging into a 62-inch trunk line at the intersection with Jesse Street. The 62-inch storm drain also collects the flows conveyed by two large pipes draining areas north of the viaduct and west of US 101.

In addition, a drainage network placed underneath the concrete-lined Los Angeles River channel was built by USACE.

Wastewater

The City of Los Angeles Bureau of Sanitation provides wastewater and sanitary sewer services for the project area. There are 10 active sewer lines within the project limits. An 8-inch line serves the north frontage road, and two 8-inch lines serve the south frontage road from Mateo

Street to Santa Fe Avenue prior to connecting to a 36-inch main sewer line at Santa Fe Avenue. There is also one 8-inch abandoned sewer line underneath the viaduct from Mateo Street to Santa Fe Avenue. Sewage flows generated by the industrial area north of the viaduct at Mission Road are transported via a large twin-concrete siphon conduit crossing under the Los Angeles River bed to the west bank of the river and continue to join the 36-inch main at Santa Fe Avenue. The project area east of the river channel at the intersection with Mission Road, Anderson Street, and Clarence Street includes large sewer pipes (60-inch, 10-inch, and 12-inch-diameter lines, respectively), all flowing in a southerly direction.

Telephone, Cable, and Fiber Optics

Multiple telephone, cable, and fiber-optic lines are located in the study area. These facilities run above and below the ground, along the viaduct sidewalk, and along south frontage road and Mesquit Street. The following companies own and operate telephone, cable, and/or fiber-optic lines in the project area:

- AT&T
- Bell System
- Western Union

Solid Waste

The City of Los Angeles Bureau of Sanitation provides curbside pickup for solid waste within the project study area. Regional planning for solid waste facilities in the area is under the jurisdiction of Los Angeles County, which is the local enforcement agency under integrated waste management laws. The Los Angeles County Sanitation District oversees the operation of landfills that would accept solid waste generated during construction of the proposed project. The County and City encourage source reduction and recycling objectives that meet or exceed the requirements of State Assembly Bill (AB) 939. AB 939 mandates a 50 percent reduction in waste volumes from 1990 levels by 2010. The Solid Waste Resources Citywide Recycling Division of the Bureau of Sanitation provides guidance for the recycling of construction and demolition debris. In addition, hazardous waste can be landfilled or recycled at several facilities throughout the state. Any hazardous waste generated within the study area is managed in accordance with federal and state requirements. The nearest landfill to the proposed project site is Puente Hills Landfill, which is located in the City of Industry. The newly opened Puente Hills Material Recovery Facility is at the same location and could be used for material recycling purposes.

3.6.1.2 Railroads

Railroad corridors exist along the east and west banks of the river. On the west bank of the river, the two tracks closest to the river are owned by SCRRA and are used primarily by Metrolink trains. The five tracks west of the SCRRA tracks are owned by BNSF, and the rest of the tracks are owned and operated by the MTA. Amtrak also operates trains on a BNSF track and an MTA track on the west bank. On the east bank, the two tracks closest to the river are owned by SCRRA, while Metrolink and the UPRR use those tracks. The remainder of the ten tracks are owned by UPRR and utilized by UPRR and Ventura Foods Spur.

3.6.1.2 River Access Tunnel

A City of Los Angeles tunnel is located under the 6th Street Viaduct on the west side of the river. The tunnel was constructed as part of the viaduct, and consists of an access ramp with retaining wall on both sides of the ramp, portals (entrance), and tunnel (see Figure 1.3). It provides access to the Los Angeles River from the frontage road on the south side of the viaduct at the Santa Fe Avenue intersection.

3.6.1.3 Emergency Services

The project study area is under the jurisdiction of the Los Angeles Police Department (LAPD) Central Bureau. The project area west of the Los Angeles River is served by the Central Area Community Police Station, which is located approximately 1-mile west of the proposed project. The project area east of the Los Angeles River is served by the Hollenbeck Community Police Station, which is located approximately 2 miles northeast of the project site.

The Los Angeles Fire Department (LAFD) provides fire protection and other emergency services throughout the project area. Two fire stations are located near the proposed project: LAFD #9, which is located approximately 1-mile west of the project site, and LAFD #25, which is located approximately 2 miles east of the project site.

Table 3.6-1 lists the locations of the police and fire stations serving the project area.

3.6.2 Environmental Consequences

3.6.2.1 Construction Impacts

Alternative 1 – No Action

Under this alternative, there would be no construction activities on the viaduct or its vicinity; therefore, there would be no temporary impacts to utilities and emergency services within the project study area as long as the viaduct is in operation.

If the viaduct was determined to be unserviceable, the City would have to seek emergency funding sources to replace it in order to maintain this important transportation link between the Boyle Heights community and the Downtown area. The viaduct would have to be closed for up to 7 years to complete construction. Traffic detours to the 4th Street and 7th Street viaducts, and connecting north-south streets, would occur. Impacts to utilities and emergency services would be the same as described under Alternative 3, but for a longer period of time.

Table 3.6-1
Emergency Response Providers in the Project Study Area

Emergency Provider	Location
Central Community Police Station	251 E. 6th Street, Los Angeles, CA 90014
Hollenbeck Community Police Department	1936 E. 1st Street, Los Angeles, CA 90033
Los Angeles Fire Station #9	430 E. 7th Street, Los Angeles, CA 90014
Los Angeles Fire Station #25	2927 Whittier Boulevard, Los Angeles, CA 90023

Source: Community Impact Assessment (Parsons, 2011).

Alternative 2 – Retrofit

Utilities

Construction of Alternative 2 could result in temporary impacts to utilities, such as an increase in utility demand and solid waste volume. Construction activities would utilize machinery and tools that require more electrical power consumption than is currently used for the 6th Street Viaduct, local streets, and affected properties. This increase in electrical usage would be temporary, and the contractor would be able to tap into the City of Los Angeles' existing power grid or would generate power onsite. Construction activities for Alternative 2 would not cause a substantial increase in the existing demand for electricity or require the development of new sources.

Construction of Alternative 2 would involve foundation work that would require temporary relocation of many underground utility lines, such as sewer pipes and storm drain lines. The City of Los Angeles would work in close coordination with the utility providers to develop a relocation plan to minimize possible impacts and disruption to service utilities.

Construction of the Retrofit Alternative is not expected to result in a large amount of solid waste. No impacts to local solid waste facilities are anticipated.

Railroads

Construction of Alternative 2 would result in potential periodic shutdown of some railroad tracks on each side of the river to modify existing bent columns and foundations, and to construct shear walls. Interruptions of railroad activity would be temporary and scheduled to accommodate their continuing use. Table 3.6-2 summarizes anticipated impacts to railroad operations due to the proposed construction activities. Bent 12 would be excluded from retrofitting because of the lack of room available for construction of the column encasement due to the proximity to the railroad tracks. Written construction agreements would be entered into with the railroad companies. Close coordination with the railroad owners to gain agreement on allowable work near the railroads during periods when they are not in operation and avoidance of track closures would minimize the impacts to railroad operations. In addition, the California Public Utilities Code requires approval from the Public Utilities Commission (PUC) for construction or alteration of crossings, and it grants the PUC exclusive power on design, alteration, and closure of crossings. A request of authorization would be submitted to the Rail Crossing Engineering Section (RCES). The design criteria of the proposed project would comply with the PUC General Orders (GOs), such as GO 26-D: “Clearance on railroads and street railroads as to side and overhead structures, parallel tracks and crossings.”

Table 3.6-2
Potential Impacts to Railroads under Retrofit Alternative

Railroad Facility	Existing Condition	Owner/Operator	Potential Impact
Railroad (West Bank)	First and second tracks starting from west side (both tracks are electrified Yard Tracks)	MTA	Potential periodic or long-term shut down of railroad operation on track #2 to modify existing Bent #11 columns, foundation, and add shear wall.
Railroad (West Bank)	Third through seventh tracks starting from west side. Most westerly track in this group of tracks is also used by Amtrak trains. Fourth and fifth tracks are primarily used as storage tracks. Sixth and seventh tracks are used as storage tracks and for yard train movements.	BNSF Railway	Potential periodic or long-term shut down of railroad operation on track #3 (also being used by Amtrak) to modify existing Bent #11 columns, foundation and add shear wall.
Railroad (West Bank)	Third track starting from west side.	Amtrak (operates on BNSF most westerly track)	Potential periodic or long-term shut down of railroad operation on track #3 (also being used by BNSF) to modify existing Bent #11 columns foundation, and add shear wall.
Railroad (West Bank)	Eighth and ninth tracks starting from west side are used primarily by Metrolink trains. BNSF is using these tracks for accessing the BNSF yard tracks.	SCRRA (Metrolink)	Potential periodic or long-term shut down of railroad operation on track #9 to modify existing west bank pier foundation and add shear wall.
Railroad (East Bank)	First and second tracks starting from west side are primarily used by Metrolink trains. UPRR is using these tracks for accessing the UPRR yard tracks and for some through train movements from the Los Angeles/Long Beach area destined for North Carolina or Seattle.	SCRRA (Metrolink)	Potential periodic or long-term shut down of railroad operation on track #1 to modify existing east bank pier foundation and add shear wall.
Railroad (East Bank)	Third through ninth track starting from west side, third and fourth tracks seems to be primarily used for local through movements of UPRR trains, fifth through eighth tracks are used as storage tracks, and ninth rack is collector track for various industry spurs.	UPRR	No impact (no retrofit is proposed for existing Bent # 12 located within UPRR tracks area).
Railroad (East Bank)	Tenth track (industry spur) starting from west side, north end of the track ends just below the southern portion of the existing bridge. This track primarily serves Ventura Foods, Inc.	UPRR/Ventura Foods Spur	Potential long-term shut down and removal of north end of the track #10 from west side (which serves Ventura Foods, Inc.) to modify existing Bent #13 columns foundation, and add shear wall.

Source: Moffat & Nichol, 2009

River Access Tunnel

Construction of Alternative 2 would not affect the river access tunnel.

Emergency Services

Construction of Alternative 2 would require some traffic lane closures on the viaduct and nearby roadways along the viaduct footprint, including the frontage roads on each side of the Los Angeles River. In addition, temporary closure of the viaduct may be required occasionally to accommodate construction activities. During the proposed project construction period, delays in emergency response time could occur due to roadway obstruction and partial roadway closure. A mandatory WATCP outlined in the Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook, adopted by the City, would be implemented at the construction site and its vicinity. In addition, a TMP would be prepared by the contractor to identify roadway closures and detour routes within the affected area during construction. All affected emergency routes would be identified in the TMP. The TMP would be reviewed and approved by LADOT before initiation of construction activities. The approved TMP, along with viaduct construction schedules, would be made available to LAPD and LAFD. All residents, businesses, and organizations within the affected area would also be notified in advance of the construction schedules, roadway closures, and detour routes as a safety precaution. The approved TMP would be strictly implemented during each phase of the project to avoid adverse impacts to emergency services within the area.

Alternative 3 – Replacement

The level of impacts on utilities and emergency responses would be the same for any bridge concept or alignment alternative.

Utilities

Similar to Alternative 2, construction of Alternative 3 would result in temporary impacts to utilities, such as an increase in utility demand and solid waste volume, but to a greater extent due to the larger scope of construction work and construction area involved; however, temporary incremental impacts to local or regional energy supplies, or change in the efficiency of energy usage can be anticipated.

Construction of Alternative 3 would involve foundation work that would affect some underground utility lines. This impact could be minimized by locating the columns and foundations to avoid conflicts with utility lines where feasible, such as the tunnel, sewer lines, and overhead power transmission lines. Where avoidance is not possible, the City of Los Angeles would work in close coordination with the utility providers to develop a relocation plan to minimize possible impacts and disruption to service utilities. For example, construction of

Bridge Concept 4 on any alignment alternative and Concept 5 on Alignment 3B would impact the existing sewer siphon located on the north side of the viaduct on the west side of the river.

Construction activities associated with Alternative 3 would require demolition of the existing viaduct, thus generating a large amount of solid waste (see Section 2.4.3.4). Solid waste that remains after recycling would be disposed of at appropriate landfills within the region. Any hazardous waste produced by construction activities would be properly handled and disposed of, as discussed in Section 3.14 – Hazardous Waste/Materials.

Railroads

Construction of Alternative 3 would require demolition of the existing viaduct, including the columns in the railroad track area, and construction of falsework and new foundations. Construction of falsework and foundations could affect the railroad operations on both sides of the river; however, impacts to railroad operations under this alternative would be less than with the Retrofit Alternative since the new viaduct would be designed to span over the railroad tracks. Table 3.6-3 summarizes anticipated impacts to railroad operations due to the proposed construction activities for all bridge concepts. Written construction agreements would be negotiated with the railroad companies by the City and be binding upon the Contractor. Close coordination with the railroad owners to gain agreement on allowable work near the railroads during periods when they are not in operation and avoidance of track closures would minimize the impacts to railroad operations. In addition, the California Public Utilities Code requires approval from the PUC for construction or alteration of crossings, and it grants the PUC exclusive power on design, alteration, and closure of crossings. A request of authorization would be submitted to RCES. The design criteria of the proposed project would comply with the PUC GOs, such as GO 26-D: "Clearance on railroads and street railroads as to side and overhead structures, parallel tracks and crossings."

River Access Tunnel

Construction of the new viaduct could require reconstruction of the river access ramp, tunnel, and portals to accommodate the construction of new columns and foundation. The tunnel may be impacted under any of the replacement alternatives depending on how the new west main span abutment/bent is configured. If the selected bridge type requires the tunnel and access ramp to be reconstructed, it could be designed to match the architectural style and theme of the new viaduct, including both the entry access point and the portal at the river bank.

Table 3.6-3
Potential Impacts to Railroads under Replacement Alternative

Railroad Facility	Existing Condition	Owner/ Operator	Potential Impact		
			Alignment 3A	**Alignment 3B**	**Alignment 3C**
Railroad (West Bank)	First and second tracks starting from west side (both tracks are electrified Yard Tracks)	MTA	• During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by MTA. • Demolition of existing Bent #11 would have to be performed during approved work windows on Track #2.	Same as Alignment 3A	Same as Alignment 3A
Railroad (West Bank)	Third through seventh tracks starting from west side. Most westerly track in this group of tracks is also used by AMTRAK trains. Fourth and fifth tracks are primarily used as storage tracks. Sixth and seventh tracks are used as storage tracks and for yard train movements.	BNSF Railway	• Loss of track #6 during demolition to support the platform falsework. • During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by BNSF. • Demolition of existing Bent #11 would have to be performed during approved work windows on Track #3.	Same as Alignment 3A	Same as Alignment 3A
Railroad (West Bank)	Third track starting from west side	AMTRAK (operates on BNSF most westerly track)	• During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by BNSF. • Demolition of existing Bent #11 would have to be performed during approved work windows on Track #3.	Same as Alignment 3A	Same as Alignment 3A
Railroad (West Bank)	Eighth and ninth tracks starting from west side are used primarily by Metrolink trains. BNSF is using these tracks for accessing the BNSF yard tracks.	SCRRA (Metrolink)	• During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by SCRRA. • Shoring may be required to support track #9 during existing west pier foundation removal and during construction of new pier bent. • Battered piles may be required at the river bank pier foundations for Alternatives 3A1 and 3A3, extending below the railroad ROW. • Demolition of existing west bank Pier would have to be performed during approved work windows on Track #9.	Same as Alignment 3A	Same as Alignment 3A
Railroad	First and second tracks	SCRRA	• During demolition and reconstruction, falsework and	Same as Alignment 3A	Same as Alignment 3A

Table 3.6-3
Potential Impacts to Railroads under Replacement Alternative

Railroad Facility	Existing Condition	Owner/ Operator	Potential Impact: Alignment 3A	Potential Impact: Alignment 3B	Potential Impact: Alignment 3C
(East Bank)	starting from west side are primarily used by Metrolink trains. UPRR is using these tracks for accessing the UPRR yard tracks and for some through train movements from Los Angeles/Long Beach area destined for North Carolina or Seattle.	(Metrolink)	platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by SCRRA. • Shoring may be required to support track #1 from west side during existing east pier foundation removal and during construction of new pier bent. • Battered piles may be required at the river bank pier foundations extending below the railroad ROW. • Demolition of existing east bank Pier would have to be performed during approved work windows on Track #1.		
Railroad (East Bank)	Third through ninth track starting from west side, Third and fourth tracks seem to be primarily used for local through movements of UPRR trains, fifth through eighth tracks are used as storage tracks, and ninth track is collector track for various industry spurs.	UPRR	• Loss of track #7 during demolition to support the platform falsework. • During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by UPRR. • Demolition of existing Bent #12 would have to be performed during approved work windows on Tracks #4 and #5.	Same as Alignment 3A	Same as Alignment 3A
Railroad (East Bank)	Tenth track (industry spur) starting from west side, north end of the track ends just below the southern portion of the existing bridge. This track primarily serves Ventura Foods, Inc.	UPRR/Ventura Foods Spur	• During demolition and reconstruction, falsework and platform installation work would be done during railroad-approved work windows and in presence of a flagger assigned by UPRR. • Demolition of existing Bent #13 and reconstruction of new bent would require removal of the north end of track #10 from west side, which serves Ventura Foods, Inc.	Same as Alignment 3A	Same as Alignment 3A

Source: Moffat & Nichol, 2009

Emergency Services

Construction of Alternative 3 would require closure of the existing viaduct for up to 4 years, resulting in delays in emergency response time. The Contractor would work closely with LAPD and LAFD to notify them in advance of the proposed detour routes on the east and west sides of the Los Angeles River. In addition, implementation of the mandatory Work Area Traffic Control Plan (WATCP) and the Traffic Management Plan (TMP) to be developed for implementation, as described in Section 3.3.4, would seek to minimize the impacts to emergency services at locations in close proximity to the construction site.

3.6.2.2 Permanent Impacts

Alternative 1 – No Action

No direct impacts to utilities and emergency services would occur within the study area under the No Action Alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek emergency funds to replace it. It is anticipated that it would take up to 7 years before the new viaduct would be constructed. Impacts to utility service facilities, emergency services, or railroads during this period would be the same as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Utilities

Operation of Alternative 2 would not require a substantial increase in utility usage. No permanent impacts would occur.

Railroads

Implementation of Alternative 2 would result in reducing horizontal clearance between the existing tracks and the retrofitted columns of the viaduct. The current horizontal clearance between the center of the tracks and the columns is approximately 8 ft, which is less than the current standard of 8.5 ft required by BNSF and 10 ft required by Metrolink. Implementation of the proposed heavy steel casing column retrofit would further reduce the horizontal clearance by approximately 1 ft. This impact is adverse and unavoidable.

River Access Tunnel

There would be no permanent impact to the river access tunnel under the Retrofit Alternative.

Emergency Services

No fire or police facilities would be displaced as a result of proposed project implementation. No permanent adverse impacts to fire and police protection would occur.

Alternative 3 – Replacement

The level of impacts on utilities and emergency responses would be the same for any bridge concept or alignment alternative.

Utilities

Operation of Alternative 3 would not require an appreciable increase in utility usage. Although lighting levels may be increased above existing conditions due to the need to meet current lighting standards, the additional electricity required would not represent a substantial demand on local supplies when compared to the regional capacity provided by LADWP. No permanent impacts would occur.

River Access Tunnel

As indicated earlier, construction of the new viaduct could require reconstruction of the river access ramp, tunnel, and portals to accommodate the construction of new columns and foundation. Once reconstructed, the tunnel would continue to provide access to the river.

Railroads

Once construction of the proposed project is completed, except for routine maintenance of the viaduct, no impacts to railroad operations are anticipated.

Emergency Services

No fire or police facilities would be displaced for construction of the proposed project. No permanent adverse impacts to fire and police protection would occur.

3.6.2.3 Indirect Impacts

Alternative 1 – No Action

No indirect impacts on utility service facilities, emergency services, or railroads would occur with the No Action Alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek emergency funds to replace it. It is anticipated that it would take up to 7 years before the new viaduct would be constructed. Indirect impacts on utility service facilities, emergency services, or railroads would be the same as the impacts described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

The proposed project is not growth-inducing; therefore, it would not create a need for additional fire and police protection facilities. No indirect impacts on utility service facilities, emergency services, or railroads would occur with the implementation of Alternative 2.

Alternative 3 – Replacement

No indirect impacts on utility service facilities, emergency services, or railroads would occur with the implementation of Alternative 3.

3.6.3 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required under this alternative as long as the viaduct remains in service. If the viaduct was determined unserviceable, mitigation measures described under Alternative 3 – Replacement would apply.

Alternative 2 – Retrofit

The proposed project would be designed to avoid adverse effects to existing service utilities, emergency services, and railroad operations. Bent 12 would not be retrofitted due to the limited room available for construction. The requirement for close coordination with the utility service providers in advance of the construction activities to relocate affected utilities is one component of the Standard Specifications. Temporary impacts to emergency services within the project area would be minimized by implementation of the WATCP, mandated by the City, and the provision of advance notice to emergency service providers of the construction schedule, especially the scheduled traffic lane closures that could happen occasionally.

During the final design phase, the City would meet with RCES staff to discuss relevant safety issues and rail crossing alteration/replacement permit requirements. Written construction maintenance agreements would be entered into with the railroad companies. Close coordination with the railroads' owners or operators to work on the railroad during the period when the railroad is not in operation and to avoid track closures would minimize the impacts to railroad operations.

No measures are available to mitigate the reduction in horizontal railroad clearance if Alternative 2 is implemented.

Alternative 3 – Replacement

Impacts to utility services and railroads would be mitigated in a similar fashion as that described under Alternative 2. Impacts to emergency services within the affected area (i.e., project vicinity and detour routes) would be minimized by implementation of the City-mandated WATCP, the TMP that would outline the detour routes, and the provision of advance notice to emergency service providers of construction schedule closures of the viaduct. In addition, the affected intersections along the detour routes would be mitigated as determined practicable by LADOT, as discussed in Section 3.7 – Traffic and Transportation/Pedestrian and Bicycle Facilities.

In compliance with the Integrated Waste Management Act of 1989 (Assembly Bill 939), a demolition waste recycling program would be developed to reduce the amount of waste to be disposed of in local landfills. The program would be developed by the City prior to initiation of construction, and it would be implemented by the Contractor during demolition activities.

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3.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section addresses potential impacts to vehicular traffic and circulation associated with implementation of each of the proposed project alternatives. The traffic and circulation impact analysis is based on the results of a traffic study conducted for the project.[38]

3.7.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). Special needs of the elderly and disabled must also be considered in all federal-aid projects that include pedestrian facilities. When pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR part 27) implementing Section 504 of the Rehabilitation Act (29 U.S.C. 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to Federal-aid projects, including Transportation Enhancement Activities.

3.7.2 Affected Environment

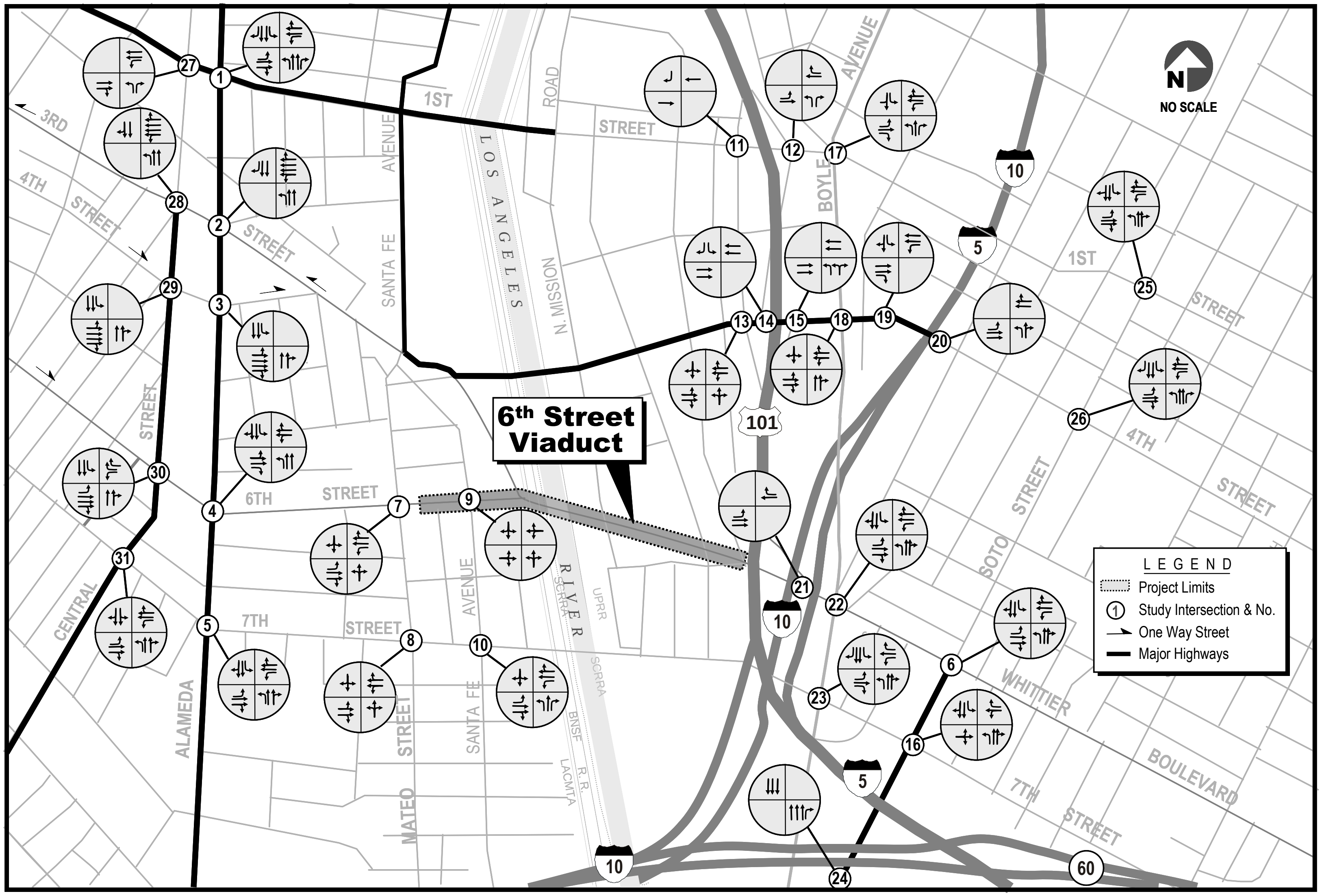
3.7.2.1 Study Area Definition

The 6th Street Viaduct provides a major link between downtown Los Angeles and various communities on the east side of the Los Angeles River. In the project vicinity, 6th Street/Whittier Boulevard is directly connected to four major north-south streets – Central Avenue and Alameda Street located to the west of the viaduct and Boyle Avenue and Soto Street located to the east. Sixth Street is connected to US 101 through a northbound (NB) on-ramp immediately east of the project limit. The area surrounding the project area is fully developed with residential, commercial, and industrial buildings. Figure 3.7-1 shows the project area and surrounding roadway and intersection system.

3.7.2.2 Existing Roadway System

Classifications and descriptions of the existing roadways within the study area, as defined by the LADOT, are summarized below.

[38] Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project. October 2008 and 6th Street Viaduct Seismic Improvement Project 2008 Traffic Analysis Report Validation Findings Technical Memorandum. February 2011.



Source: Modified from Traffic Analysis Report, (ACT Consultant, 2007)

Figure 3.7-1 Traffic Study Intersections and Existing Lane Configurations

East-West Streets

1st Street – First Street is the northern boundary of the project study area. It is designated as a Major Highway west of the Los Angeles River and a Secondary Highway east of the river. It has two lanes in each direction, except at certain sections between Mission Road and US 101 that were striped to one lane in each direction due to ongoing construction activities, and left-turn pockets at most signalized intersections. The posted speed on 1st Street is 25 mph. The 1st Street Viaduct spans over the Union Pacific Railroad (UPRR), the Los Angeles River, and the Burlington Northern Santa Fe (BNSF) Railway facilities. The 1st Street Viaduct and Street Widening Project is currently under construction in combination with the Gold Line Eastside Extension light rail transit line. Sections of the street were restriped to one lane in each direction, and intersection approach lanes were also reduced during construction. The 1st Street construction work will be completed by 2010.

4th Street – Within the project study area, 4th Street is designated as a Major Highway between I-5 and Santa Fe Avenue. It is a Secondary Highway west of Santa Fe Avenue and east of I-5. Fourth Street has two lanes in each direction and a median lane allowing left turns during off-peak hours. The median lane operates as a reversible lane during peak periods. It provides an additional westbound (WB) through lane during the morning peak period and is reversed in the eastbound (EB) direction during the afternoon peak period. Fourth Street becomes a WB one-way street west of the intersection with 3rd Street. The posted speed on 4th Street is 35 mph. Within the project study area, 4th Street carries more traffic than all three other east-west streets combined. The 4th Street Viaduct spans over the MTA and UPRR tracks, the Los Angeles River, and the MTA and BNSF tracks.

6th Street – Sixth Street is designated as a Secondary Highway within the project study area. It becomes Whittier Boulevard east of I-5. Sixth Street has two lanes in each direction and left-turn pockets at most signalized intersections. The posted speed on 6th Street is 35 mph. The 6th Street Viaduct spans over Santa Fe Avenue, the MTA and UPRR tracks, the Los Angeles River, the MTA and BNSF tracks, and US 101.

7th Street – Seventh Street is the southern boundary of the project study area. It is a Secondary Highway within the project study area. It has two lanes in each direction and left-turn pockets at most signalized intersections. The posted speed on 7th Street is 35 mph. The 7th Street Viaduct spans over the MTA and UPRR tracks, the Los Angeles River, and the MTA and BNSF tracks.

North-South Streets

Central Avenue – Central Avenue is the western boundary of the project study area. It is designated as a Major Highway, except for the segment north of 3rd Street, which becomes a

Secondary Highway. It has two lanes in each direction and left-turn pockets at most signalized intersections. The posted speed on Central Avenue is 35 mph. It is connected to the four east-west streets within the study area with signalized intersections.

Alameda Street – Alameda Street is designated as a Major Highway with two lanes in each direction and left-turn pockets at most signalized intersections. The posted speed on Alameda Street is 35 mph. It intersects with the four east-west streets within the study area with signalized intersections.

Mateo Street – Mateo Street is designated as a Secondary Highway with one lane in each direction. It is connected to 6th Street and 7th Street with signalized intersections and terminates at Santa Fe Avenue before crossing under the 4th Street Viaduct. Mateo Street is the first intersection with the 6th Street Viaduct west of the Los Angeles River. The posted speed on Mateo Street is 30 mph. It serves the warehouses and businesses in the area.

Santa Fe Avenue – Santa Fe Avenue is designated as a Secondary Highway south of 4th Street and becomes a Major Highway north of 4th Street. It has two lanes in each direction. It traverses under the viaducts of 1st Street, 4th Street, and 6th Street, and it connects with 7th Street via a signalized intersection. This street provides access to warehouses and light industrial land uses in the area. The posted speed on Santa Fe Avenue is 30 mph.

Boyle Avenue – Boyle Avenue is designated as a Secondary Highway with one lane in each direction and a central left-turn lane. It is connected to the four east-west streets within the study area with signalized intersections. The posted speed is 35 mph.

Soto Street – Soto Street is the eastern boundary of the project study area. It is designated as a Major Highway south of 6th Street (Whittier Boulevard) and a Secondary Highway north of Whittier Boulevard. It has two lanes in each direction and left-turn pockets at most signalized intersections. It intersects with the four east-west streets within the study area via signalized intersections. The posted speed on Soto Street is 35 mph.

Traffic Study Intersections

The traffic study analyzed 31 intersections, including several freeway on- and off-ramps. Intersection locations and control types are listed in Table 3.7-1.

Table 3.7-1
Studied Intersections

No.	Intersection	Control Type
1	1st Street and Alameda Street	Signal
2	3rd Street and Alameda Street	Signal
3	4th Street and Alameda Street	Signal
4	6th Street and Alameda Street	Signal
5	7th Street and Alameda Street	Signal
6	Whittier Boulevard and Soto Street	Signal
7	6th Street and Mateo Street	Signal
8	7th Street and Mateo Street	Signal
9	6th Street (Frontage Road) and Santa Fe Avenue	Signal
10	7th Street and Santa Fe Avenue	Signal
11	1st Street and US 101 SB Off-Ramps	Stop Sign
12	1st Street and US 101 NB On-/Off-Ramps	Signal
13	4th Street - Pecan Street/US 101 SB On-Ramp	Stop Sign
14	4th Street and US 101 SB Off-Ramp	Stop Sign
15	4th Street and US 101 NB Off-Ramp	Signal
16	7th Street and Soto Street	Signal
17	1st Street and Boyle Avenue	Signal
18	4th Street and Boyle Avenue	Signal
19	4th Street and I-5 SB On-/Off-Ramps/Gertrude Street	Stop Sign
20	4th Street and I-5 NB On-/Off-Ramps/Cummings Street	Signal
21	Whittier Boulevard and US 101 NB On-Ramp	Stop Sign
22	Whittier Boulevard and Boyle Avenue	Signal
23	7th Street and Boyle Avenue	Signal
24	SR 60 EB On-Ramp and Soto Street	No Control
25	1st Street and Soto Street	Signal
26	4th Street and Soto Street	Signal
27	1st Street and Central Avenue	Signal
28	3rd Street and Central Avenue	Signal
29	4th Street and Central Avenue	Signal
30	6th Street and Central Avenue	Signal
31	7th Street and Central Avenue	Signal

Notes:
NB = Northbound SB = Southbound EB = Eastbound

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.

3.7.2.3 Existing Traffic Volumes

Existing (2007) traffic volumes were defined based on traffic counts conducted in December 2006 and May 2007. Daily traffic volumes and vehicle classification counts were conducted on selected streets. Average Daily Traffic (ADT) for all roadway segments within the project study area in terms of annual average value (AADT) is summarized in Table 3.7-2. The AADT for segments without daily traffic counts was estimated using the base year (2000) volumes provided by the Southern California Association of Governments (SCAG). The SCAG volumes were projected to 2007 volumes using a compound growth rate of 1 percent per year.

Table 3.7-2
Existing Average Daily Traffic Volumes and Vehicle Classifications

Street	Segment and Intersection #	AADT	Truck AADT	% Truck	AM Peak Hour – Truck				PM Peak Hour – Truck			
					EB		WB		EB		WB	
					Med Truck	Heavy Truck	Med Truck	Heavy Truck	Med Truck	Heavy Truck	Med Truck	Heavy Truck
6th Street	Soto (6) to Boyle (22)	14,900	894	6	13	8	43	29	38	26	15	10
	Boyle (22) to US 101 NB on-ramp (21)	13,260	796	6	8	5	47	31	33	22	15	10
	US 101 NB on-ramp (21) to Mateo (7)	13,220	793	6	10	7	45	30	35	23	13	9
	Mateo (7) to Alameda (4)	12,290	737	6	12	8	36	24	33	22	11	7
	Alameda (4) to Central (30)	12,340	740	6	15	10	35	23	31	20	14	9
1st Street	Soto (25) to Boyle (17)	10,880	544	5	8	5	20	13	20	13	13	9
	Boyle (17) to US 101 NB on-/off-ramps (12)	10,420	521	5	9	6	19	13	19	13	12	8
	US 101 NB on-/off-ramps (12) to SB on-/off-ramps (11)	12,470	624	5	9	6	40	27	19	13	18	12
	US 101 SB on-/off-ramps (11) to Alameda (1)	12,690	635	5	30	20	41	27	20	13	18	12
	Alameda (1) to Central (27)	21,420	1,071	5	13	9	29	20	32	21	33	22
4th Street	Soto (26) to I-5 NB on-/off-ramps/ Cummings (20)	27,520	1,376	5	14	10	59	39	32	22	50	34
	I-5 NB on-/off-ramps/ Cummings (20) to SB on-/off-ramps (19)	21,050	1,053	5	18	12	37	25	50	33	13	9
	I-5 SB on-/off-ramps (19) to Boyle (18)	17,780	889	5	15	10	44	29	45	30	8	6
	Boyle (18) to US 101 NB off-ramp (15)	17,470	874	5	11	8	48	32	39	26	14	9
	US 101 NB off-ramp (15) to SB off-ramp (14)	17,840	892	5	10	7	77	52	31	21	22	15
	US 101 SB off-ramp (14) to Pecan/US 101 SB on-ramp (13)	17,680	884	5	8	5	75	50	30	20	23	15
4th Street	Pecan/US 101 SB on-ramp (13) to Alameda (2)	23,850	1,193	5	12	8	72	48	52	34	20	13

Table 3.7-2
Existing Average Daily Traffic Volumes and Vehicle Classifications

Street	Segment and Intersection #	AADT	Truck AADT	% Truck	AM Peak Hour – Truck				PM Peak Hour – Truck			
					EB		WB		EB		WB	
					Med Truck	Heavy Truck	Med Truck	Heavy Truck	Med Truck	Heavy Truck	Med Truck	Heavy Truck
	Alameda to Central, EB: (29) to (3), WB: (2) to (28)	25,770	1,289	5	11	8	71	47	50	33	27	18
7th Street	Soto (16) to Boyle (23)	12,170	730	6	9	6	26	18	14	9	30	20
	Boyle (23) to Santa Fe (10)	11,280	677	6	16	11	22	15	31	21	10	6
	Santa Fe (10) to Mateo (8)	13,460	808	6	14	9	33	22	34	23	14	9
	Mateo (8) to Alameda (5)	13,470	808	6	19	13	32	22	31	21	18	12
	Alameda (5) to Central (31)	12,730	764	6	16	11	33	22	27	18	18	12
Central Avenue	1st Street (27) to 3rd Street (28)	6,530	392	6	11	7	12	8	14	10	9	6
	3rd Street (28) to 4th Street (29)	9,010	541	6	12	8	15	10	20	13	12	8
	4th Street (29) to 6th Street (30)	12,890	773	6	30	20	16	11	35	23	12	8
	6th Street (30) to 7th Street (31)	12,440	746	6	17	12	31	21	23	15	22	15
Alameda Street	1st Street (1) to 3rd Street (2)	19,340	967	5	27	18	27	18	30	20	28	19
	3rd Street (2) to 4th Street (3)	19,730	987	5	26	17	27	18	33	22	26	17
	4th Street (3) to 6th Street (4)	20,210	1,011	5	26	17	29	20	31	21	29	20
	6th Street (4) to 7th Street (5)	21,370	1,069	5	27	18	34	23	33	22	31	21
Mateo Street	6th Street (7) to 7th Street (8)	2,730	300	11	11	7	11	8	9	6	9	6
Santa Fe Avenue	6th Street/Frontage Road (9) to 7th Street (10)	6,170	679	11	26	17	13	9	23	15	18	12
Boyle Avenue	1st Street (17) to 4th Street (18)	9,190	368	4	11	8	11	7	12	8	10	7
	4th Street (18) to 6th Street (22)	12,770	511	4	14	9	10	6	20	13	11	7
	6th Street (22) to 7th Street (23)	14,190	568	4	13	8	15	10	20	13	14	10
Soto Street	1st Street (25) to 4th Street (26)	27,280	1,364	5	32	21	29	19	55	37	27	18
	4th Street (26) to 6th Street/Whittier (6)	29,740	1,487	5	20	13	47	31	32	21	57	38
	6th Street/Whittier (6) to 7th Street (16)	15,960	798	5	23	15	24	16	29	19	19	13
	7th Street (16) to SR 60 EB on-ramp (24)	23,150	1,158	5	41	27	24	16	50	33	20	13

Notes: AADT = Annual Average Daily Traffic; NB = Northbound; SB: Southbound; EB = Eastbound

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.

Analysis of a 3-mile stretch of residential areas along 6th Street and Whittier Boulevard in the vicinity of the viaduct bounded by 4th Street and 7th Street, using trip generation codes published by the Institution of Transportation Engineers, determined that local trips utilizing the 6th Street Viaduct total approximately 11,500 vehicles per day (out of the daily average of 13,260); these are predominantly passenger cars. Based on this information, it appears that the 6th Street Viaduct serves the local population more than regional commuters.

3.7.2.4 Existing Intersection Levels of Service

The efficiency of traffic operations on a transportation facility is measured in terms of Level of Service (LOS). Street intersections, as the critical location of surface transportation systems, are normally selected to describe traffic performance. LOS is a measure of average operating conditions at intersections during an hour. It is based on turn movement traffic volumes from each street approach (V), traffic handling capacity of each street approach per traffic control at each street approach (C), and the volume-to-capacity (V/C) ratio determined by dividing the volume of the traffic handled by the intersection during the hour by the total capacity (i.e., the maximum traffic volume that the intersection is capable of handling during an hour). LOS ranges from A to F, with A representing excellent (free-flow) conditions and F representing congestion. Intersections with a vehicular volume at or near its capacity experience greater congestion and longer vehicle delays than intersections with a smaller vehicular volume to available capacity. Table 3.7-3 describes the LOS concept and the operating conditions expected under each LOS for signalized intersections.

Table 3.7-3
Intersection Level of Service (LOS) Definitions

LOS	Interpretation	Volume/Capacity Ratio
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.000-0.6000
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized, and traffic queues start to form.	0.601-0.700
C	Good operation. Occasionally backups may develop behind turning vehicles. Most drivers feel somewhat restricted	0.701-0.800
D	Fair operation. There are no long-standing traffic queues. This level is typically associated with peak traffic periods.	0.801-0.900
E	Poor operation. Some long-standing vehicular queues develop on critical approaches.	0.901-1.000
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go type traffic flow.	Over 1.000

Source: Highway Capacity Manual, Special Report 209. Transportation Research Board, Washington, D.C. 1997.

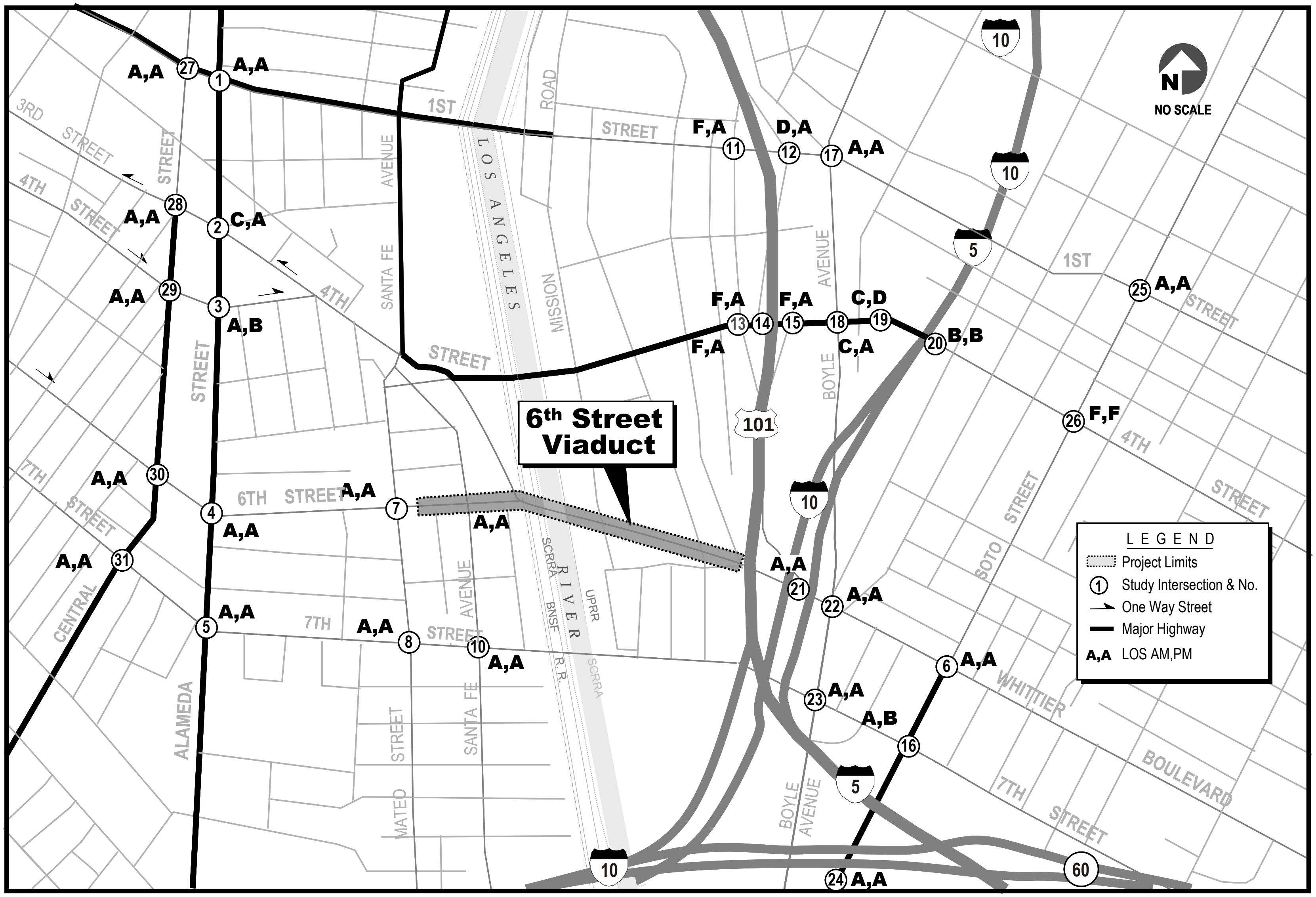
Level of service (LOS) was calculated for the study intersections using the CalcaDB Model, which is a spreadsheet developed by LADOT using the CMA Circular 212 method. Capacity per lane was set at 1,500 vehicles at signalized intersections and 1,200 vehicles at non-signalized intersections. The LADOT allows a reduction of 0.100 in vehicles per capacity (V/C) for intersections connected to the LADOT Automated Traffic Surveillance and Control (ATSAC) System. All of the signalized intersections studied are part of the ATSAC system; therefore, they were subject to the 0.100 V/C reduction for each CMA run.

Existing LOS determined by the CMA method are summarized in Table 3.7-4. Existing peak-hour LOS are shown in Figure 3.7-2.

Table 3.7-4
Existing Levels of Service at Study Intersections

No.	Intersection	AM		PM	
		LOS	V/C	LOS	V/C
1	1st Street and Alameda Street	A	0.537	A	0.529
2	3rd Street and Alameda Street	C	0.706	A	0.411
3	4th Street and Alameda Street	A	0.290	B	0.652
4	6th Street and Alameda Street	A	0.528	A	0.513
5	7th Street and Alameda Street	A	0.566	A	0.578
6	Whittier Boulevard and Soto Street	A	0.549	A	0.572
7	6th Street and Mateo Street	A	0.319	A	0.288
8	7th Street and Mateo Street	A	0.248	A	0.296
9	6th Street (Frontage Road) and Santa Fe Avenue	A	0.141	A	0.102
10	7th Street and Santa Fe Avenue	A	0.403	A	0.476
11	1st Street and US 101 SB Off-Ramps	F	1.133	A	0.547
12	1st Street and US 101 NB On-/Off-Ramps	D	0.815	A	0.388
13	4th Street - Pecan Street/US 101 SB On-Ramp	F	1.037	A	0.541
14	4th Street and US 101 SB Off-Ramp	F	1.047	A	0.451
15	4th Street and US 101 NB Off-Ramp	F	0.109	A	0.422
16	7th Street and Soto Street	A	0.557	B	0.670
17	1st Street and Boyle Avenue	A	0.361	A	0.537
18	4th Street and Boyle Avenue	C	0.718	A	0.595
19	4th Street and I-5 SB On-/Off-Ramps/Gertrude Street	C	0.731	D	0.870
20	4th Street and I-5 NB On-/Off-Ramps/Cummings Street	B	0.670	B	0.647
21	Whittier Boulevard and US 101 NB On-Ramp	A	0.534	A	0.281
22	Whittier Boulevard and Boyle Avenue	A	0.551	A	0.487
23	7th Street and Boyle Avenue	A	0.339	A	0.334
24	SR 60 EB On-Ramp and Soto Street	A	0.218	A	0.286
25	1st Street and Soto Street	A	0.408	A	0.485
26	4th Street and Soto Street	F	0.102	F	0.142
27	1st Street and Central Avenue	A	0.258	A	0.445
28	3rd Street and Central Avenue	A	0.380	A	0.162
29	4th Street and Central Avenue	A	0.082	A	0.391
30	6th Street and Central Avenue	A	0.337	A	0.395
31	7th Street and Central Avenue	A	0.443	A	0.353
Notes: NB = Northbound; SB: Southbound; EB = Eastbound					

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.



Source: Modified from Traffic Analysis Report, (ACT Consultant, 2007)

Figure 3.7-2 Existing Level of Service (2007)

It should be noted that except for several intersections along 4th Street, most of the intersections within the project study area are concurrently operating at LOS A or B during the morning and afternoon peak hours. Existing LOS F condition, defined by LADOT as FAILURE, occurs at the following locations:

- 1st Street/US 101 Southbound (SB) Off-Ramp, AM peak hour
- 4th Street/Pecan Street, AM peak hour
- 4th Street/US 101 SB Off-Ramp, AM peak hour
- 4th Street/US 101 NB Off-Ramp, AM peak hour
- 4th Street/Soto Street, AM and PM peak hours

3.7.2.5 Future Year (2038) Traffic Forecast

The traffic study predicted traffic volume and LOS for the year 2038 to cover the 20-year design life. Since the project would not increase traffic volume capacity, year 2038 traffic volume under the No Action and build alternatives would be the same.

Future year traffic volumes were derived from traffic model outputs provided by SCAG. The SCAG model covered all of the Major and Secondary Highways in the traffic study area for this proposed project. Maps in Geographic Information System (GIS) format and databases for 2000 (base year) and 2030 were provided by SCAG. The databases include directional volumes for ADT volumes, morning peak period, and afternoon peak period for each link (street segment) within the study area.

Year 2030 traffic volumes were originally projected to Future Year 2035 using growth rates derived from Year 2000 and 2030 data. These growth rates are link specific and range from 0.1 to 1.4 percent; the higher growth rates were generally observed on directions with relatively low Year 2000 volumes. The peak period data provided by SCAG included volumes for 3 consecutive hours in the AM peak period and 4 hours during the PM peak period. For the purpose of intersection capacity analysis, the peak-period volumes were converted to peak-hour volumes by using the factor of 0.38 for the AM peak period and 0.28 for the PM peak period; these factors were provided by SCAG.

Because of funding delays and anticipated ROW acquisition issues, the construction year has been pushed back from the original estimate of 2011-2014 in the Draft EIR/EIS to 2014-2017, with a new opening year of 2018 rather than 2014. As a result, new Future Year 2038 traffic volumes were projected for analysis purposes instead of Year 2035, as previously analyzed. An updated traffic study was prepared to validate the original 2008 Traffic Analysis,[39] Comparison

[39] 6th Street Viaduct Seismic Improvement Project 2008 Traffic Analysis Report Validation Findings Technical Memorandum. February 2011.

of 2009-2010 traffic volumes recorded by LADOT and 2011 field count data with the 2008 Traffic Study Report counts shows an overall decrease in traffic volumes within the traffic study area of 16 percent, which is consistent with other parts of the City of Los Angeles during the same period; therefore, the traffic validation study concluded that there would be no significant changes to the projected traffic volumes for Year 2038 from Year 2035, and the results of the 2008 Traffic Analysis Report are still applicable.

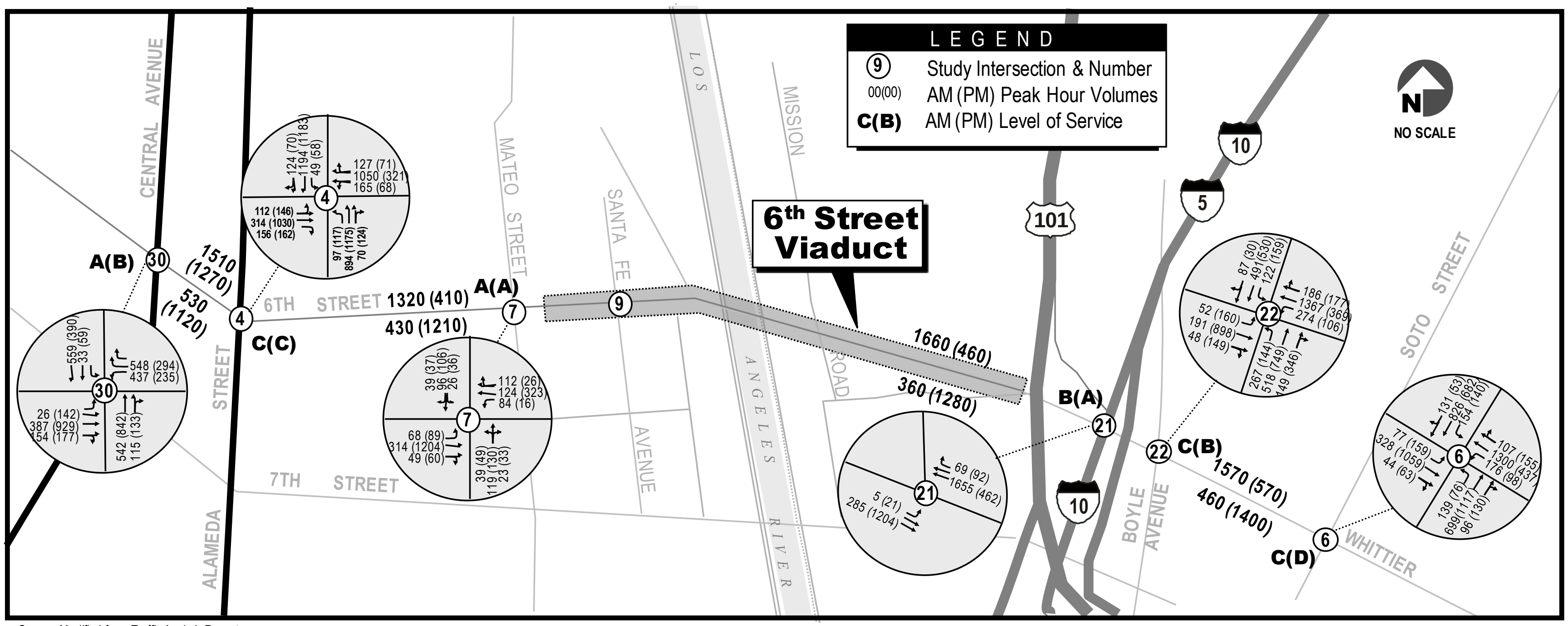
Figure 3.7-3 shows the projected 2038 ADT and AM and PM peak-hour volumes, respectively, and the estimated LOS at intersections. The peak-hour turning movements at intersections were derived from the directional peak-hour volumes using the existing turning movement patterns. It was assumed that vehicle classification would remain the same as the existing condition shown in Table 3.7-2.

3.7.2.6 Transit, Truck, Parking, and Pedestrian Conditions

Existing Transit Service – The MTA operates two bus routes on the 6th Street Viaduct: Route 18 and Route 720. Neither line has stops on the viaduct. Westbound buses stop at the southwest corner of Whittier Boulevard and Mott Street, and EB buses stop at the northwest corner of 6th Street and Alameda Street. Route 720 is a Metro Rapid Service that runs between the communities of Commerce and Santa Monica via Whittier Boulevard, 6th Street, and Wilshire Boulevard; there are no local stops along the 6th Street Viaduct.

Existing Truck Conditions – Table 3.7-2 documents truck percentages at various intersections along 6th Street within the study area. Based on the data shown in Table 3.7-2, truck use on the 6th Street Viaduct is on an average of 6 percent, with the higher number of trucks traveling WB during the AM peak hours and EB during the PM peak hours.

Existing Parking Conditions – Parking is not permitted on the 6th Street Viaduct. Curb parking is available under the 6th Street Viaduct on the cross streets of Santa Fe Avenue, Mission Road, Anderson Street, and Clarence Street. The City of Los Angeles Street Maintenance Facility is located beneath the 6th Street Viaduct between Imperial Street and Santa Fe Avenue. Empty spaces underneath the viaduct on both sides of the river are also used by nearby businesses for parking. Privately owned parking spaces are available at most businesses and residences located to the northeast. Existing parking enforcement on the 6th Street Viaduct and near the viaduct is shown in Figure 3.7-4 and summarized in Table 3.7-5.



Source: Modified from Traffic Analysis Report, (ACT Consultant, 2007)

Figure 3.7-3 2038 Traffic Volumes and Level of Service

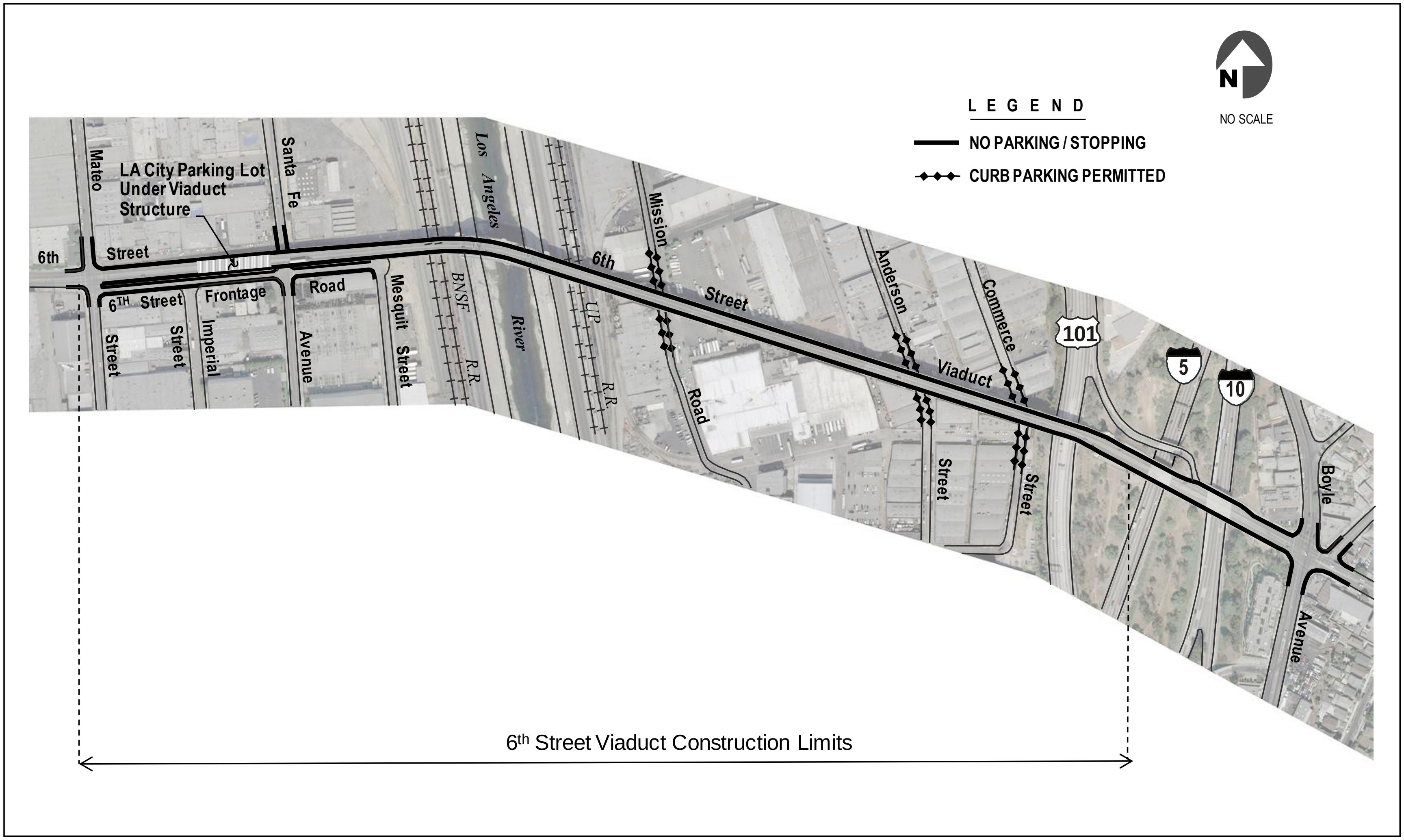


Figure 3.7-4 Parking within 6th Street Viaduct Construction Limits

Table 3.7-5
Existing Parking Enforcement in the Project Area

Location	Parking Enforcement
6th Street Viaduct between Mateo Street and Boyle Avenue	No stopping any time
6th Street (Frontage Roads) between Mateo Street and Mesquit Street	No parking any time
Santa Fe Avenue underneath 6th Street Viaduct	No parking any time
Mission Road underneath 6th Street Viaduct	Curb parking permitted
Anderson Street underneath 6th Street Viaduct	Curb parking permitted
Clarence Street underneath 6th Street Viaduct	Curb parking permitted
Space underneath 6th Street Viaduct between Imperial and Santa Fe Avenue	City of Los Angeles, Street Maintenance Parking Lot

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.

Existing Pedestrian Facilities – A 5-ft-wide raised walkway exists on each side of the 6th Street Viaduct. Based on several observations, pedestrian traffic on the 6th Street Viaduct is low to moderate. The segment of 6th Street between Boyle Avenue and Mateo Street is elevated without cross street access for a distance of approximately 4,300 ft. The distance is discouraging to normal pedestrian activities. Another reason for the low pedestrian volume is that there is no major pedestrian destination at the east and west ends of the segment. Occasional pedestrians on the viaduct are not likely to be regular commuters.

The construction area below the 6th Street Viaduct is adjacent to industrial buildings. No commercial stores or food services are located within the vicinity of the viaduct. Pedestrian traffic consists mainly of workers traveling to the industrial buildings. Existing pedestrian volumes are not significant because the area is not currently served directly by buses, and the workers mainly commute by passenger cars.

Bicycle Facility – The City of Los Angeles Bicycle Plan[40] does not currently designate 6th Street in the proposed project area as a bikeway. Bicyclists now use sidewalks or traffic lanes on the viaduct. There is no designated bikeway along any local street network within the vicinity of the 6th Street Viaduct on either side of the Los Angeles River.

3.7.3 Environmental Consequences

3.7.3.1 Construction Impacts

Alternative 1 – No Action

There would be no impacts to traffic circulation, pedestrian walkways, parking, and transit service within the project area as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek funding to replace it in order to maintain this transportation link between the Boyle Heights community and the Downtown area.

[40] City of Los Angeles General Plan Transportation Element, 1999.

The viaduct would have to be closed during the period of construction. Traffic conditions and effects during the viaduct closure would be the same as closing the viaduct for construction under Alternative 3 – Replacement (described below), but could take longer (up to 7 years).

Alternative 2 – Retrofit

Traffic and Circulation

Implementation of Alternative 2 would not require full closure of the viaduct or adjacent streets; however, temporary lane closures on the viaduct would be likely to occur, and adjacent streets could experience episodes of increased congestion as a result of construction. Moreover, access to businesses situated adjacent to the viaduct could be restricted. Any such effects would be highly localized and temporary during the construction period.

Parking

Implementation of Alternative 2 would result in obstruction of parking spaces within the area under the viaduct and its immediate vicinity on a temporary basis. Although the impact would occur only during the construction period, businesses who are dependent on the use of these parking spaces could find it difficult to operate during the 2.5-year construction period. Loss of parking spaces underneath the viaduct and its adjacent area would constitute an adverse impact to nearby businesses; however, it should be noted that the parking spaces under the viaduct are either used without authorization or under revocable permits issued by the City of Los Angeles. The permits are subject to revocation at any time at the pleasure of the City. The City would choose not to renew the permit if construction of the Retrofit Alternative is undertaken.

Pedestrian Traffic

Occasional temporary traffic lane and sidewalk closures may be required on the viaduct and in areas beneath and adjacent to the viaduct during the retrofit construction to permit safe operation of equipment and transport of materials. These activities would cause some disruption to pedestrian traffic; however, no substantial impacts are anticipated with the provision of detour pedestrian walkways.

Bicycle Facility

During project construction, bicyclists may not be allowed to use the viaduct from time to time for safety reasons. They would have to use the 4th Street or 7th Street viaducts to travel from one side of the river to the other.

Public Transit

Occasional temporary lane closures would likely be required during the retrofit construction. Bus users may experience some 10- to 15-minute rush-hour travel delays along the 6th Street Viaduct as a result of the lane closures. The impacts are not considered substantial.

Alternative 3 – Replacement

The level of construction impacts on traffic and circulation would be the same for any bridge concept; however, compared to other alignments, Alignment 3C would cause greater localized traffic disruption and access restrictions to businesses located adjacent to the viaduct footprint.

Traffic Detour and Delay

Construction of any alignment would require full closure of the 6th Street Viaduct for up to 4 years (2014-2017). Traffic detours would occur along the street network east and west of the river due to the closure of the viaduct (see Figures 3.7-5 and 3.7-6). Traffic heading west to east to cross the Los Angeles River via the 6th Street Viaduct would be diverted at Central Avenue and Alameda Street to cross the river via the 4th Street Viaduct or 7th Street Viaduct. Traffic heading east to west to cross the Los Angeles River via the 6th Street Viaduct would be diverted at Soto Street to cross the river via the 4th Street Viaduct or 7th Street Viaduct. In addition, the 6th Street frontage roads on both sides of the viaduct would need to be vacated if any alignment under Alternative 3 is constructed, causing obstruction to the operations of adjacent businesses that are not subject to relocation but depend on the frontage roadways for access. Furthermore, greater access restriction would occur to businesses located adjacent to the viaduct footprint on the east side of the river with the Alignment 3C. The Alignment 3C is designed to minimize ROW impacts to buildings on the east side of the river, leaving almost no room between the viaduct and the front-row buildings for construction activities. Selection of other alignments would require certain buildings adjacent to the north side of the viaduct to be removed, providing more room for construction.

A traffic study was conducted to determine the level of impacts during the anticipated 4 years of construction with the viaduct closed.[41] Year 2014 was previously used for analysis to represent the 4-year construction period when the viaduct would be closed. Year 2014 traffic volumes were used based on a 2011-2014 construction period assumed at the time the Draft EIR/EIS was circulated. Since that time, the projected 4-year construction period has been pushed back to 2014-2017 due to funding delays and anticipated ROW acquisition issues; therefore, year 2018 is now used for the analysis as the new opening year. As indicated earlier, a traffic validation study has been conducted and confirmed that the results of the 2008 Traffic Study Report are still valid.[42] In assessing the traffic impacts of the with and without proposed project scenarios, the level of significance under CEQA is determined by comparing the increase in V/C value in accordance with the LADOT intersection criteria as follows:

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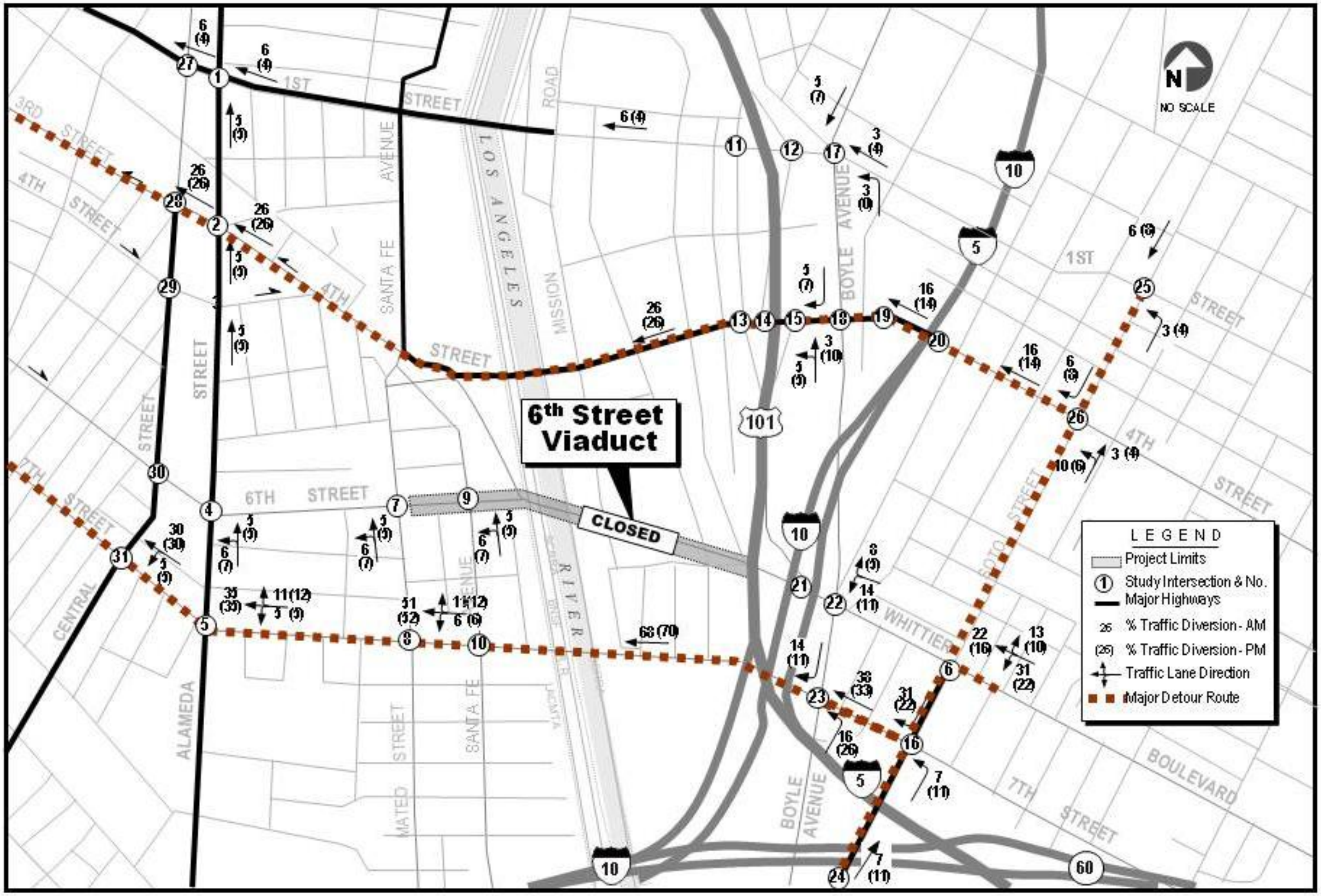
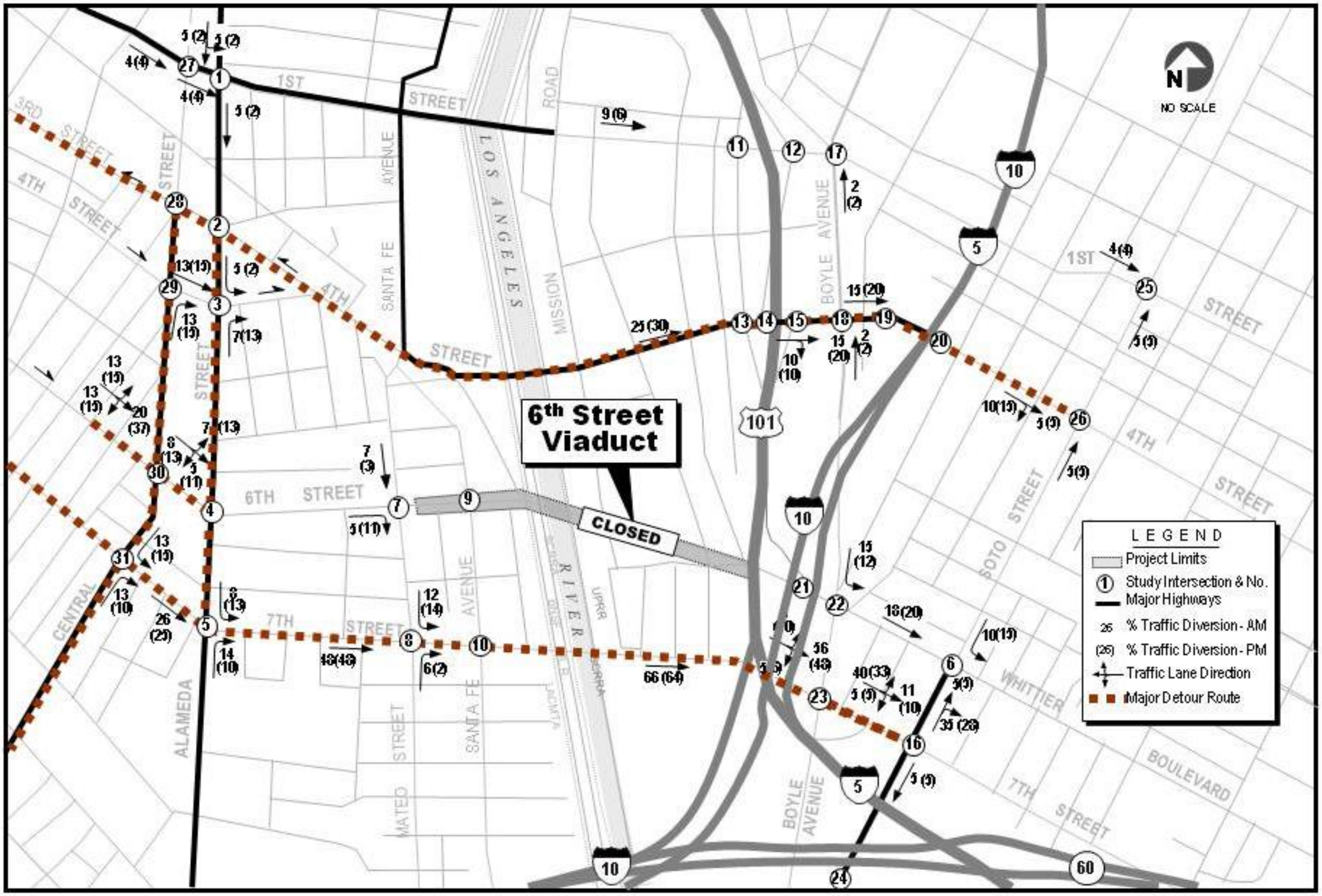
[41] Traffic Analysis Report 6th Street Viaduct Seismic Improvement Project. October 2008.

[42] 6th Street Viaduct Seismic Improvement Project 2008 Traffic Analysis Report Validation Findings Technical Memorandum. February 2011.



Source: Modified from Traffic Analysis Report (ACT Consultant, 2007)

Figure 3.7-5 Traffic Diversion Distribution – AM / PM Peak Hour (From East to West of LA River)



Source: Modified from Traffic Analysis Report (ACT Consultant, 2007)

Figure 3.7-6 Traffic Diversion Distribution – AM / PM Peak Hour (From West to East of LA River)

Intersection V/C Ratio with Projected Traffic	Significant Increase in V/C Ratio
0.000-0.700 (LOS A or B)	<0.060
0.701-0.800 (LOS C)	<0.040
0.801-0.900 (LOS D)	<0.020
0.901 or greater (LOS E or F)	<0.010

Table 3.7-6 shows the LOS at various study intersections in 2018 based on the traffic operational analysis with and without the detour required for closure of the 6th Street Viaduct. According to Table 3.7-6, the LOS at 13 intersections would be adversely impacted in either the AM or PM peak hour by the detoured traffic (as summarized in Table 3.7-7). The locations of the impacted intersections are denoted in Figure 3.7-7.

Parking

During demolition and construction activities, several roadways adjacent to the viaduct would be occasionally or continuously blocked, which would result in the loss of existing on-street parking. Based on the preliminary investigation, the following parking areas could be eliminated during the construction period:

- City of Los Angeles, Street Maintenance Parking Lot – 30 parking spaces
- Vacant spaces underneath the viaduct on both sides of the river, which are used by local businesses to park automobiles and trucks. These areas are not designated as public parking lots.
- Mission Road On-Street Parking – 8 spaces
- Anderson Street On-Street Parking – 8 spaces
- Clarence Street On-Street Parking – 8 spaces

Since the City Maintenance Facility would be relocated with this alternative, there would be no impact from the loss of parking for this facility. The temporary loss of public parking spaces would create some inconvenience to residents, business owners, and visitors in the area from having to park on adjacent streets and walking to destinations. The TMP would be developed to facilitate continuous roadway and pedestrian access to businesses and private parking lots within the project limits.

Table 3.7-6
Summary of Level of Service and Significant Impact Parameters

Intersection	Construction Year (2018) without Project (Viaduct Open)				Construction Year (2018) with Project (Viaduct Closed)				Significant Impact (CEQA)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	Differ-ential V/C	Yes/ No	Differ-ential V/C	Yes/ No
1st Street/Alameda (1)	0.604	B	0.638	B	0.609	B	0.653	B	0.005	No	0.015	No
3rd Street/Alameda (2)	0.653	B	0.431	A	0.706	C	0.440	A	0.053	Yes	0.009	No
4th Street/Alameda (3)	0.294	A	0.629	B	0.304	A	0.679	B	0.010	No	0.050	No
6th Street/Alameda (4)	0.580	A	0.569	A	0.391	A	0.446	A	-0.189	No	-0.124	No
7th Street/Alameda (5)	0.619	B	0.630	B	0.748	C	0.796	C	0.129	Yes	0.166	Yes
Whittier Boulevard/ South Soto Street (6)	0.613	B	0.635	B	0.660	B	0.706	C	0.048	No	0.071	Yes
6th Street/Mateo Street (7)	0.351	A	0.316	A	0.046	A	0.032	A	-0.304	No	-0.284	No
7th Street/Mateo Street (8)	0.284	A	0.303	A	0.512	A	0.470	A	0.229	No	0.167	No
6th Street/Santa Fe (9)	0.159	A	0.117	A	0.159	A	0.117	A	0.000	No	0.000	No
7th Street/Santa Fe (10)	0.444	A	0.582	A	0.685	B	0.816	D	0.241	No	0.235	Yes
1st Street/US 101 SB Off-Ramps (11)	0.672	B	0.302	A	0.706	C	0.328	A	0.034	No	0.026	No
1st Street/US 101 NB On-/Off-Ramps (12)	0.760	C	0.289	A	0.787	C	0.294	A	0.027	No	0.005	No
4th Street – Pecan Street/US 101 SB On-Ramp (13)	0.801	D	0.412	A	0.898	D	0.499	A	0.097	Yes	0.087	No
4th Street/US 101 SB Off-Ramp (14)	0.787	C	0.366	A	0.885	D	0.421	A	0.097	Yes	0.055	No
4th Street/US 101 NB Off-Ramp (15)	1.059	F	0.399	A	1.137	F	0.469	A	0.078	Yes	0.070	No
7th Street/South Soto Street (16)	0.605	B	0.725	C	0.712	C	0.826	D	0.107	Yes	0.101	Yes
1st Street/Boyle Avenue (17)	0.402	A	0.605	B	0.437	A	0.640	B	0.035	No	0.035	No
4th Street/Boyle Avenue (18)	0.804	D	0.669	B	0.899	D	0.771	C	0.095	Yes	0.102	Yes
4th Street and I-5 SB On-/Off-Ramps/ Gertrude Street (19)	0.719	C	1.040	F	0.809	D	1.127	F	0.090	Yes	0.087	Yes
4th Street and I-5 NB On-/Off-Ramps/ Cummings Street (20)	0.801	D	0.755	C	0.877	D	0.773	C	0.076	Yes	0.018	No
Whittier Boulevard/ US 101 NB On-Ramp (21)	0.564	A	0.062	A	0.046	A	0.062	A	-0.518	No	0.000	No
Whittier Boulevard/ Boyle Avenue (22)	0.598	A	0.530	A	0.426	A	0.401	A	-0.172	No	-0.129	No
7th Street/Boyle Avenue (23)	0.371	A	0.365	A	0.836	D	0.645	B	0.465	Yes	0.280	No

Table 3.7-6
Summary of Level of Service and Significant Impact Parameters

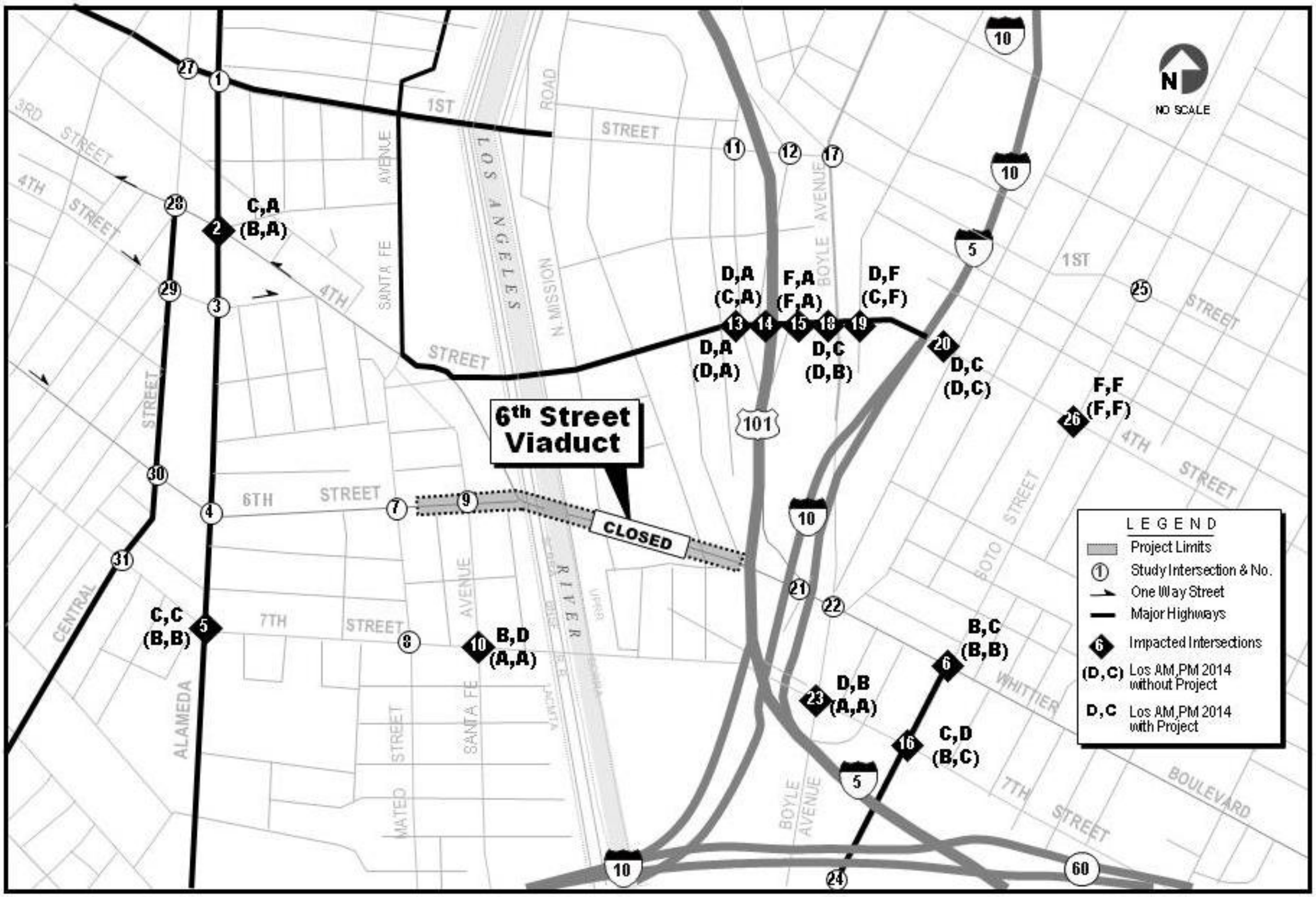
Intersection	Construction Year (2018) without Project (Viaduct Open)				Construction Year (2018) with Project (Viaduct Closed)				Significant Impact (CEQA)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	Differential V/C	Yes/ No	Differential V/C	Yes/ No
SR 60 EB On-Ramp/ Soto Street (24)	0.254	A	0.329	A	0.254	A	0.329	A	0.000	No	0.000	No
1st Street/Soto Street (25)	0.451	A	0.532	A	0.478	A	0.533	A	0.027	No	0.001	No
4th Street/South Soto Street (26)	1.115	F	1.542	F	1.205	F	1.591	F	0.090	Yes	0.048	Yes
1st Street/Central Avenue (27)	0.290	A	0.486	A	0.233	A	0.466	A	-0.057	No	-0.020	No
3rd Street/Central Avenue (28)	0.415	A	0.181	A	0.401	A	0.143	A	-0.013	No	-0.037	No
4th Street/Central Avenue (29)	0.095	A	0.426	A	0.089	A	0.408	A	-0.006	No	-0.019	No
6th Street/Central Avenue (30)	0.388	A	0.475	A	0.162	A	0.361	A	-0.227	No	-0.114	No
7th Street/Central Avenue (31)	0.483	A	0.413	A	0.516	A	0.401	A	0.033	No	-0.012	No
Notes: NB = Northbound; SB: Southbound; EB = Eastbound												

Sources: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008. and 6th Street Viaduct Seismic Improvement Project 2008 Traffic Analysis Report Validation Findings Technical Memorandum. February 2011.

Table 3.7-7
Summary of Impacted Intersections

Intersection		LOS with Detour	
		AM	PM
2	3rd Street and Alameda Street	C	A
5	7th Street and Alameda Street	C	C
6	Whittier Boulevard and Soto Street	B	C
10	7th Street and Santa Fe Avenue	B	D
13	4th Street-Pecan Street/US 101 SB On-Ramp	D	A
14	4th Street and US 101 SB Off-Ramp	D	A
15	4th Street and US 101 NB Off-Ramp	F	A
16	7th Street and Soto Street	C	D
18	4th Street and Boyle Avenue	D	C
19	4th Street and I-5 SB On-/Off-Ramps/Gertrude Street	D	F
20	4th Street and I-5 NB On-/Off-Ramps/Cummings Street	D	C
23	7th Street and Boyle Avenue	D	B
26	4th Street and Soto Street	F	F
EB – eastbound; LOS – level of service; NB – northbound; ROW – right-of-way; SB – southbound; WB – westbound			

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.



Source: Modified from Traffic Analysis Report (ACT Consultant 2007)

Figure 3.7-7 Impacted Intersections During Project Construction (2018)

Pedestrian Traffic

During the construction period, the 6th Street Viaduct would be closed for public use. Pedestrians using sidewalks on the existing 6th Street Viaduct would be diverted to use the nearest east-west crossing at 7th Street. The detour of pedestrian traffic would result in an additional walking distance of approximately 2,000 ft (0.4-mile).

Due to construction activities, north-south pedestrian movements underneath the 6th Street Viaduct would likely be impacted at Santa Fe Avenue west of the Los Angeles River and at Mission Road, Anderson Street, and Clarence Street east of the Los Angeles River.

Bicycle Use

During project construction, bicyclists would have to use the 4th Street or 7th Street viaducts to travel from one side of the river to the other.

Public Transit

Closure of the 6th Street Viaduct would obstruct bus operation (Route 18 and Route 720) along the viaduct. It is likely that the transit routes would be detoured to 7th Street. The detour of buses to the 7th Street Viaduct would result in approximately 0.4-mile of additional travel distance, which would add some delay in traveling time depending on traffic conditions.

The detour of buses would not impact bus stop locations or passenger service since there are no bus stops along 6th Street between Alameda Street and Soto Street. For WB buses, it is likely that the bus would travel along Whittier Boulevard passing the last bus stop at the southwest corner of Whittier Boulevard and Mott Street before turning south onto Soto Street to cross the Los Angeles River via the 7th Street Viaduct. For EB buses, the bus would travel along 6th Street and turn south onto Alameda Street to travel across the Los Angeles River via the 7th Street Viaduct.

3.7.3.2 Permanent Impacts

Alternative 1 – No Action

Implementation of Alternative 1 would not result in any permanent impacts on traffic circulation, parking, pedestrian traffic, and public transit as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek funding to replace it in order to maintain this transportation link between the Boyle Heights community and the Downtown area. The viaduct would have to be closed during the period of construction. After the viaduct was placed back in service, no permanent impacts to traffic circulation, parking, pedestrian traffic, and public transit would be anticipated, as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Implementation of the Retrofit Alternative would not result in any permanent impacts on traffic circulation, parking, pedestrian traffic, and public transit once the retrofit is completed.

Alternative 3 – Replacement

The level of permanent impacts on traffic and circulation would be the same for any bridge concept or alignment alternative.

Year 2038 Traffic

Implementation of Alternative 3, with any bridge concept or viaduct alignment, would not increase traffic capacity; thus, traffic volumes in the future design year 2038 would be a result of normal traffic growth and other development projects that may occur in future years. The 2038 traffic forecast was presented earlier in Section 3.7.2.

Parking

Implementation of Alternative 3 would result in the loss of all parking spaces underneath the viaduct (i.e., City Maintenance Office and other empty spaces) and those along Mission Road, Anderson Street, and Clarence Street. On-street parking would be restored after construction is completed, depending on whether the area near the viaduct would be redeveloped for other uses. Because the City Maintenance Office would be subject to relocation, there would be no impact from the loss of parking for this use. If any remaining businesses would lose their private parking spaces, the City would help identify alternate parking facilities. The impact of the loss of parking would be unavoidable.

Pedestrian Traffic

The proposed project would improve pedestrian facilities. Standard 10-ft-wide sidewalks would be extended along both sides of the viaduct as part of Alternative 3. The viaduct design would be in compliance with ADA requirements. The sidewalks would be elevated with a standard curb between the traveled way and sidewalk. Sidewalks would be provided along the entire viaduct length of approximately 3,440 ft for all of the bridge concepts. Belvederes (i.e., elevated viewing platforms) would be provided for Bridge Concepts 1, 2, 3, 4, and 4A. These belvederes are provided for pedestrians, located outbound of the sidewalks away from the traveled way for comfort to the pedestrian and for viewing at the middle of the river or along the river banks. Across the river spans, Bridge Concepts 1, 2, and 3, would provide crash barriers between the traveled ways, protecting the steel arches from vehicular impact and providing additional separation between the traveled way and sidewalks. In addition, Bridge Concept 2 would use steel tie arches for the pedestrian ways across the river spans, creating a unique pedestrian experience while crossing the river with the sidewalks separated a few feet from the viaduct roadway. Bridge Concepts 4 and 4A would also provide crash barriers between the traveled ways, protecting the supporting cables from vehicular impact and providing additional separation between the traveled ways and sidewalks. These barriers would extend over the river spans and along the cable-supported spans.

The improvements, as described above, would be beneficial to area residents. No long-term adverse impacts to pedestrian traffic would occur.

Bicycle Use

The 2010 Bicycle Plan designates 6th Street and Whittier Boulevard within the project limits as a bicycle lane. Implementation of any of the Alternative 3 alignments would be consistent with the 2010 Bicycle Plan. The improvement under the Replacement Alternative would be a benefit for bicyclists.

Public Transit

Once the viaduct is reopened, all transit routes and bus stops along 6th Street in the project area would be reinstated. No long-term impacts are anticipated.

3.7.3.3 Indirect Impacts

Alternative 1 – No Action

No indirect impacts to local transportation and circulation, public transit, bicycle use, or pedestrian traffic would occur under this alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would have to seek funding to replace it in order to maintain this transportation link between the Boyle Heights community and the Downtown area. The viaduct would have to be closed during the period of design and construction, which is anticipated to be up to 7 years. Indirect impacts under this scenario would be the same as the impacts described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Under this alternative, the City Maintenance Facility would have to be relocated. Since the buildings formerly occupied by Ventura Foods, Inc. are vacant, no relocation would be required. Relocation of the City Maintenance Facility could induce various traffic impacts proximate to the replacement area. Although this indirect impact cannot be accurately analyzed until the exact location is identified, it is assumed that the facility would be relocated to the area with compatible land use and zoning with adequate infrastructure to handle additional traffic to be generated by the facility; therefore, indirect impacts on traffic and transportation would not be expected to be substantial.

Alternative 3 – Replacement

Under this alternative, the City Maintenance Facility and several affected businesses would have to be relocated. Relocation of the affected businesses within the project area could create traffic impacts at and near selected replacement areas. Although this indirect impact cannot be accurately analyzed until the exact locations are identified, it is assumed that the affected businesses would be relocated to areas with compatible land use and zoning with adequate infrastructure to handle additional traffic to be generated from their operations; therefore, indirect impacts on traffic and transportation would not be expected to be substantial.

3.7.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation measures are required as long as the viaduct remains in service. If the viaduct is determined to be unserviceable, it would have to be closed for up to 7 years for the City to identify the funds, finish the design, and construct the replacement structure. During the closure period, and prior to construction, the City would develop a TMP to identify traffic detour routes, transit routes, pedestrian and bicycle routes, and residential and commercial access routes to minimize area traffic impacts. Measures to minimize intersection impacts would be the same as Alternative 3 – Replacement, as described below.

Alternative 2 – Retrofit

During the construction period, the City would continue its public outreach activities to keep area residents and businesses informed of the proposed project schedule and progress. The City-mandated WATCP would be strictly implemented to minimize traffic impacts within the immediate vicinity of the construction site. In addition, a TMP would be developed to identify temporary traffic detour routes, pedestrian and bicycle routes, and residential and commercial access routes to be used as needed during the construction period.

For the loss of private parking, property owners would receive compensation through the ROW acquisition process.

Loss of on-street public parking during the construction period is unavoidable because the City has the right to revoke on-street public parking privileges for City-related projects as needed.

Alternative 3 – Replacement

During the construction period, the City would continue its public outreach activities to keep area residents and businesses informed of the proposed project schedule and progress. A TMP would be developed to identify temporary traffic detour routes, transit routes, pedestrian and bicycle routes, and residential and commercial access routes to minimize area traffic impacts due to the required closures of the 6th Street Viaduct and some local streets and frontage roads adjacent to the viaduct. Local residents, businesses, and emergency service providers would be informed in advance of the construction schedule and traffic detour routes as outlined in Figures 3.7-5 and 3.7-6. In addition, a traffic staging plan, as outlined in Section 2.3.3 of this EIR/EIS, and a construction material hauling plan, as described in Section 3.4.4 of this EIR/EIS, would be implemented to minimize localized traffic impacts within the construction site vicinity.

Intersections to be impacted by traffic detours could be mitigated by implementing the measures outlined in Table 3.7-8; however, based on the results of the Traffic Study, only 3 out of 13 measures could be fully implemented without resulting in some consequential ROW impacts to the nearby area. These intersections include Intersections 2, 19, and 26 (see Figure 3.7-7); however implementation of mitigation measures at Intersection 2 would result in a loss of 25 curbside parking spaces, and implementation of mitigation measures at Intersection 19 would be completed by the Metropolitan Transportation Authority (MTA) as part of a separate project. Two additional measures could be partially implemented at Intersections 13 and 14 without resulting in some consequential ROW impacts. Since it is not a policy of LADOT to implement mitigation measures that would cause further ROW impacts, only measures 26 would be implemented, and Measures 13 and 14 would be partially implemented, as summarized below:

- Install new traffic signals at the intersection of 4th Street and US 101 on- and off-ramps, and connect to Los Angeles City ATSAC system.
- Restripe to add an EB right-turn lane at the intersection of 4th Street and Soto Street.

The impacts at other intersections are therefore unavoidable.

For the loss of private property parking, owners would receive compensation through the ROW acquisition process.

Loss of on-street public parking during the construction period is unavoidable because the City has the right to revoke on-street public parking privileges for City-related projects as needed.

Table 3.7-8
Potential Mitigation Measures at Impacted Intersections

Intersection		Proposed Mitigation Identified in Traffic Analysis
2	3rd Street and Alameda Street	Re-stripe existing one-way WB roadway from 4 WB through lanes to 5 lanes, extending from Alameda Street to Central Avenue. Implementation of this mitigation would impact (eliminate) up to 25 parking stalls along the south side of 3rd Street.
5	7th Street and Alameda Street	Widen 7th Street by 12 ft on the north and south sides, extending to 500 ft on each side of Alameda Street to provide an additional through lane at the EB and WB approaches to the intersection. Implementation of this mitigation would likely impact 24,000 square ft of private property.
6	Whittier Boulevard and Soto Street	Widen Soto Street by 12 ft along the east side to provide a protected NB right-turn lane and a second SB left-turn lane. Implementation of this mitigation would likely impact 6,000 square ft of private property.
10	7th Street and Santa Fe Avenue	Widen the 7th Street EB approach by 12 ft to provide a third through lane. Widen 7th Street east of Santa Fe Avenue by 300 ft to provide adequate tapering distance from 3 to 2 lanes. Implementation of this mitigation would likely impact 6,000 square ft of private property.

Table 3.7-8
Potential Mitigation Measures at Impacted Intersections

Intersection		Proposed Mitigation Identified in Traffic Analysis
13	4th Street-Pecan Street/ US 101 SB On-Ramp	Widen the 4th Street WB approach by 12 ft to provide an additional WB lane. The US 101 overcrossing structure and 4th Street west of the ramp along the north side would have to be widened. Implementation of this mitigation would likely impact private property frontage and buildings for a distance of 300 ft. Install new traffic signals and connect to Los Angeles City ATSAC system.
14	4th Street and US 101 SB Off-Ramp	Same as Intersection Mitigation No. 13.
15	4th Street and US 101 NB Off-Ramp	Option 1: Widen the 4th Street WB approach by 12 ft to provide an additional WB lane and widen the US 101 overcrossing structure to accommodate the additional through lane. Implementation of this mitigation would likely impact 6,000 square ft of private property. Option 2: Widen the US 101 NB off-ramp to provide 2 NB left-turn lanes and a right-turn pocket. Implementation of this mitigation would impact Caltrans ROW.
16	7th Street and Soto Street	Option 1: Widen the west side of Soto Street to provide a second SB left-turn lane. Implementation of this mitigation would likely impact 7,000 square ft of private property. Option 2: Widen the south side of 7th Street to provide a new EB left-turn lane. Implementation of this mitigation would likely impact 7,000 square ft of private property.
18	4th Street and Boyle Avenue	Widen 4th Street by 12 ft on the north and south sides to provide an additional through lane at the EB and WB approach to the Boyle Avenue intersection. Implementation of this mitigation would likely impact 24,000 square ft of private property.
19	4th Street and I-5 SB On-/Off-Ramps/ Gertrude Street	Install new traffic signals and connect to Los Angeles City ATSAC system.
20	4th Street and I-5 NB On-/Off-Ramps/ Cummings Street	Widen the 4th Street WB approach by 12 ft to provide an additional WB lane and widen the roadway below the I-5 undercrossing structure west of the ramp to accommodate an additional through lane. Implementation of this mitigation would likely impact 4,000 square ft of private property and Caltrans ROW.
23	7th Street and Boyle Avenue	Widen 7th Street between Hollins Street and Boyle Avenue to add a second WB through lane. Remove traffic island and re-stripe to eliminate SB free right turn to accommodate an additional WB lane. Implementation of this mitigation would likely impact 170 ft of private property frontage.
26	4th Street and Soto Street	Restripe to add an EB right-turn lane.
EB – eastbound; LOS – level of service; NB – northbound; ROW – right-of-way; SB – southbound; WB – westbound		

Source: Traffic Analysis Report for 6th Street Viaduct Seismic Improvement Project, 2008.

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3.8 Visual/Aesthetics

This section addresses potential visual and aesthetic impacts associated with various alternatives of the proposed project based on the results of the visual impact assessment prepared for this project.[43] The visual analysis was prepared consistent with methodologies established by FHWA's Visual Impact Assessment for Highway Projects.[44] This methodology divides the views into landscape or character units that have distinct, but not necessarily homogenous, visual appearance. Typical views, called key viewpoints, are selected for each unit to represent the views to/from the project. The view of the motorist is also considered as a separate character unit.

Existing and proposed visual quality, both from specific viewpoints, as well as for general landscape units, is evaluated based on three criteria – vividness, intactness, and unity:

- Vividness: the memorability of the components of a view as they combine to form striking or distinctive patterns in the landscape. This can include the prominence of a structure or feature as viewed against other elements, or the interplay of the different elements that create a striking view.
- Intactness: The integrity of visual order in the view and its freedom from visual encroachment. Both natural and man-made environments may be encroached upon by elements that detract from the overall composition of the view. The removal of elements may also have the same effect.
- Unity: the visual coherence and composition of the landscape viewed to form a harmonious visual pattern. Manmade environments with no visual relation to natural landform or landcover patterns display a lack of unity.

3.8.1 Regulatory Setting

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 U.S.C. 4331[b][2]; emphasis added). To further emphasize this point, FHWA, in its implementation of NEPA (23 U.S.C. 109[h]), directs that final decisions regarding projects are made in the best overall public interest, taking into account adverse environmental impacts including, among others, the destruction or disruption of aesthetic values.

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[43] Visual Impact Assessment for 6th Street Viaduct Improvement Project. August 2008; revised February 2011.

[44] USDOT, 1981. United States Department of Transportation, Federal Highway Administration, Office of Environmental Policy, *Visual Impact Assessment for Highway Projects,* U.S. Department of Transportation, Washington D.C. March.

Likewise, CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities." (*Public Resources Code* [PRC] Section 21001[b]; emphasis added).

Applicable local policies that provide aesthetic guidelines within the project area include:

- The Central City North Community Plan (2000), which includes an objective that encourages the preservation and enhancement of the varied and distinctive character of the community and its landmarks.
- The Boyle Heights Community Plan (1998), which states that the unique character of community streets should be maintained and enhanced by improved design characteristics, such as street trees, landscaped median strips, traffic islands, and special paving.

A local planning endeavor that may ultimately affect the aesthetics of the project area is the City of Los Angeles River Revitalization Master Plan (LARRMP). The LARRMP provides a conceptual framework for future Los Angeles River planning; however, the LARRMP has not been integrated into the City of Los Angeles General Plan, nor have zoning or land use designations been revised to reflect the proposed elements of the plan. Prior to implementation of the plan, the City of Los Angeles will go through an environmental review process for the proposed components of the plan that were not evaluated in the Programmatic EIR.

3.8.2 Affected Environment

The proposed project is located within a heavily urbanized area on the east side of Downtown Los Angeles, connecting the Boyle Heights neighborhood east of the Los Angeles River with the Central City North community to the west.

3.8.2.1 Setting

The 6th Street Viaduct crosses US 101 on its eastern edge, and then it crosses over a mix of rail yards, industrial buildings, and the concrete-lined Los Angeles River. The area is highly industrialized, particularly the areas immediately around the viaduct, although a few residential areas are located farther away from the structure.

Native vegetation and landscaping are largely absent from the areas around and underneath the viaduct, except for vegetation associated with the highways. This vegetation appears to consist of landscape plantings with volunteer species, including acacia, eucalyptus, and fan palms. The topography of the area appears relatively flat within the rail/river corridor, except for the river channel itself. Areas to the east have more topographic character, and the two freeways sit lower in the landscape than the surrounding areas.

No Scenic Routes are located within or near the project area. The viaduct was determined eligible for listing in the National Register of Historic Places (NRHP) under Criteria A and C for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne steel and reinforced concrete design. It is also listed in the California Register of Historical Resources (CRHR). The 6th Street Viaduct was also determined eligible as one of a thematic group of 118 “Historic Highway Arch and Other Bridges in California” as part of the Caltrans Statewide Bridge Inventory in 1987. In addition, the 6th Street Viaduct is designated as City of Los Angeles Historic-Cultural Monument (HCM) #905.

3.8.2.2 Viewshed and Viewer Sensitivity

A viewshed is the area normally visible from an observer’s viewpoint location, including the screening effects of any vegetation or structures. Limits of a viewshed are defined as the visual limits of the views to or from the proposed project. The viewshed includes the locations of viewers likely to be affected by visual changes brought about by the project features. For this project, the viewshed includes the portions of the city that have views to the bridge. The area of this viewshed is highly dependent on the topography of adjacent areas, as well as the height of the buildings, with high rises having potential views even though they are some distance from the project site.

The sensitivities of different types of viewers vary depending upon their activity and their awareness of and familiarity with the surrounding environment. The following describes the comparative sensitivity of the various types of viewers in decreasing order of sensitivity.

- **Residents:** Residents, particularly those with views of the project from their homes, would be most sensitive to change because of the relative permanency of their viewing experience.
- **Business Owners, Employees, and Customers:** Owners, employees, and customers of retail, industrial, and professional establishments within the project area would be considered sensitive viewers because they have frequent opportunities to experience the views from their workplaces and routinely visit on-street activity areas. These views can be fleeting or lengthy in duration.
- **Pedestrians:** Pedestrians, both on the bridge or on a street with views to the bridge, would be considered sensitive viewers, as they would be directly within the viewshed and would have lengthy exposure to views.
- **Regular Motorists:** Regular motorists would be those who live in the community or who commute through the corridor on a regular basis and are familiar with the surrounding views; however, their sensitivity to these views would be less than that of a pedestrian, as their passage through the project area is quicker and their attention is focused on road conditions.

- **Occasional Motorists:** Occasional motorists are typically nonresident, noncommuter tourists. Tourists would most likely be heading west toward downtown after exiting US 101. They would only have views of the project area from the roadway.

3.8.2.3 Visual Resources and Visual Quality at Key Viewpoints

The 6th Street Viaduct corridor study area can be divided into seven landscape units, which are described below, and can be seen in Figure 3.8-1. Nearly all of the landscape units are bisected by the 6th Street Viaduct, which crosses above the groundplane of the units.

Visual quality, as used in FHWA's methodology, is based on the concepts of the science of aesthetics[45] and is analogous to Bureau of Land Management's scenery quality rating and U.S. Forest Service's variety classes. The methods outlined in the FHWA report describe many factors that can contribute to a landscape's visual quality, but these factors can ultimately be grouped under three headings: vividness, intactness, and unity, as defined above. Therefore as an example, a unit may have an overall low visual quality due to the intrusion of visually conflicting elements, the lack of unifying objects, or other subtracting features while having a memorable focal element.

- **Western Warehouse Landscape Unit:** This landscape unit, comprising the western portion of the project area, is dominated by warehouses and industrial development. The area is densely developed, very urban, and has little vegetation or open space. The overall visual quality of this landscape unit is low due to low ratings for vividness, intactness, and unity. The vividness or memorability of the unit is low. The warehouse and industrial developments, coupled with the aboveground utilities and power-substation, create a jumble of form, lines, color, and texture in the landscape that form neither a cohesive nor striking visual image. The intactness and unity are low for similar reasons. The viaduct structure provides a unique and memorable image from within the unit, which increases the vividness in several locations where it can be viewed as part of the urban streetscape; however, some areas under the viaduct have been in-filled between columns to create "buildings" roofed by the viaduct. These appear inconsistent with the structure's architecture and reduce the overall visual quality of the viaduct.

[45] "Aesthetics is defined as the science or philosophy concerned with the quality or sensory experience … It is also viewed as a body of knowledge about those characteristics of objects that make them pleasing or displeasing to the senses, and those characteristics of human perception that affect sensation. The quality of being aesthetics is not the opposite of 'practicality' or 'reality,' but rather another aspect or way of experiencing the same real world phenomena. Thus, blue skies, uncontaminated water, and uncluttered urban landscapes all have aesthetic value, because they imply health, pleasure, and security." USDOT, 1981. United States Department of Transportation, Federal Highway Administration, Office of Environmental Policy, *Visual Impact Assessment for Highway Projects,* U.S. Department of Transportation, Washington D.C. March., page 117.

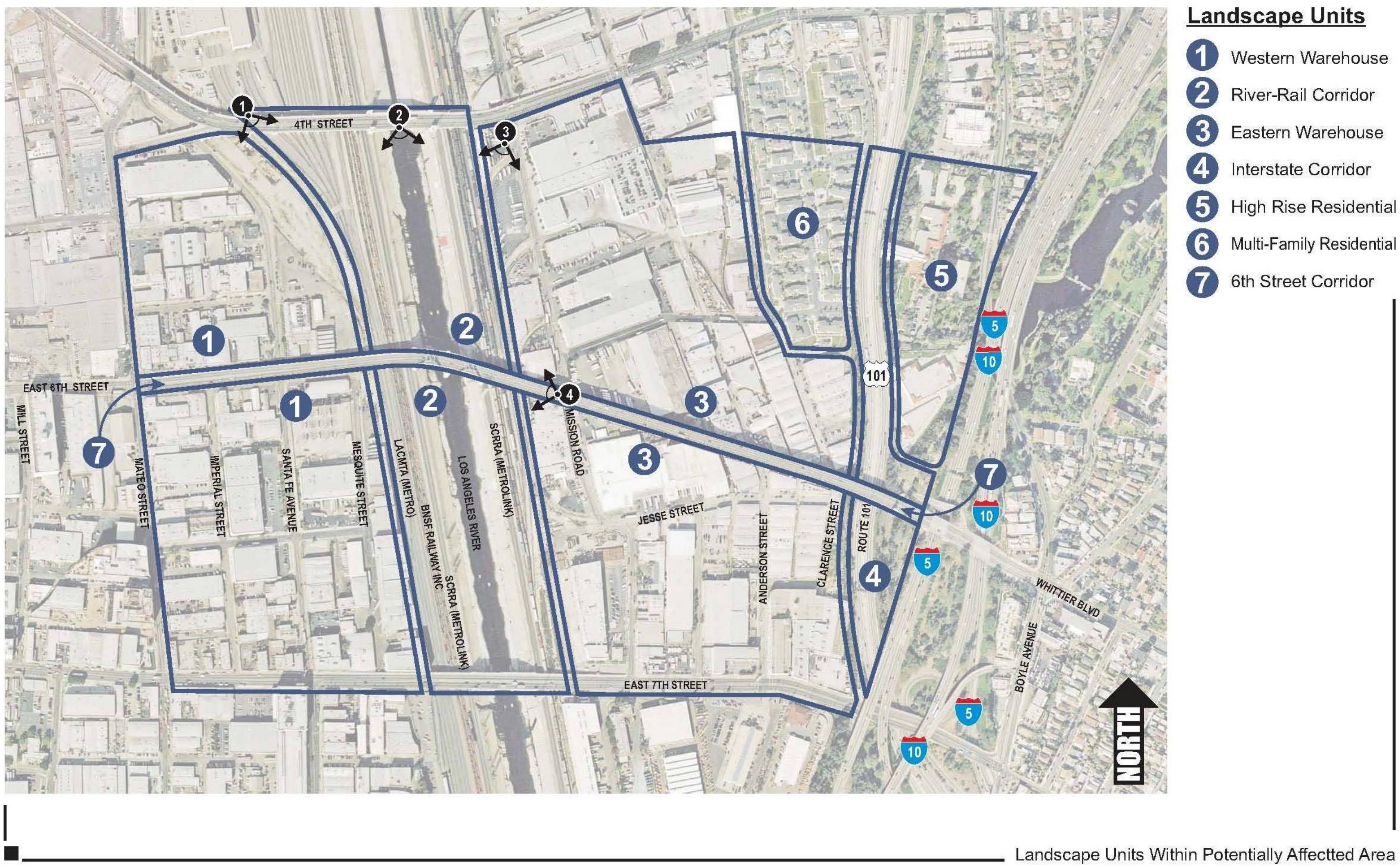

Figure 3.8-1 Key Viewpoint Locations

- **River-Rail Corridor Landscape Unit:** This landscape unit is in the heart of the project area. It is made up of the channelized Los Angeles River and numerous railroad tracks, which are owned by MTA, BNSF, and UPRR, along the west and east banks of the river. The overall visual quality of this landscape unit is very low. The rail lines and concrete river channel create a visual landscape that has very low interest. Because of the prominence of the Los Angeles River as a backdrop in many movies over the years, the river has a high importance to some members of the community and a high vividness to these individuals; however, a concrete-lined and graffiti-coated channel in general has low vividness and low visual quality. The unity of the elements and their continuance through the unit creates a monotonous image that is punctuated by the visually remarkable images of the crossings, including the 4th, 6th, and 7th Street viaducts.
- **Eastern Warehouse Landscape Unit:** The landscape unit is made up of warehouses and industrial buildings. It is similar in character and development patterns to the Western Warehouse Landscape Unit. Like the Western Warehouse Landscape Unit, the eastern unit has similar development patterns, images, and visual quality. In this unit, the viaduct also provides a visual counterpoint to the warehouses and industrial development; however, in several locations the viaduct has been altered by the addition of shear walls between columns that distract from the lines created by the viaduct. As with the western unit, the eastern unit has low visual quality.
- **Interstate Corridor Landscape Unit:** This landscape unit is at the eastern edge of the project area and consists of two freeway undercrossings – US 101 and I-5. Most of the views within this unit are from US 101, since landscaping and topography limit the views from I-5. This unit has a moderately low visual quality. The unit has a moderately low vividness, with the plantings and existing viaduct crossing providing a moderately low to moderate memorability of the crossing. The intactness and unity of the unit are also moderately low.
- **High-Rise Residential Landscape Unit:** This landscape unit is found in the northeast quadrant of the project area in the Boyle Heights neighborhood. It is made up of a mix of commercial and multi-story apartments (east side of US 101). Views to the project area can be found from the western façades of the buildings. The High-Rise Residential Landscape Unit has commanding views to the surrounding landscape. In these views, the 6th Street Viaduct blends somewhat into the urban fabric of the background landscape. The views from this landscape unit have a moderate to moderately low visual quality. Other than the viaduct, there are no visually notable structures within the urban fabric to provide a memorable view, and the viaduct itself is partially obscured by other structures in the mid-ground. The intactness and unity of the view are moderate.
- **Multi-Family Residential Landscape Unit:** Between the Eastern Warehouse Landscape Unit and the Interstate Corridor Landscape Unit is the Multi-Family Residential Landscape

Unit, which is composed of a single complex of two-story units. The entrance to the complex is off Clarence Street. Views to the project are primarily along Clarence Street from the entrance and, obliquely, from units fronting Clarence Street. The overall visual quality of this unit is moderate to moderately low. The vividness is moderately low. The apartment buildings, while well kept and the complex neat, lack any ornamentation or distinguishing features that might create a more vivid view. The intactness and unity are moderate for the unit because of the repetition of form between structures and the addition of landscaping within the complex. Some of the only landscaping within the project area can be found within this landscape unit, which helps to soften the visual appearance of the unit.

- **6th Street Corridor Landscape Unit:** This landscape unit addresses the views along 6th Street as the viaduct crosses mostly above the other landscape units. The visual quality of this landscape unit is moderate. The most vivid views are to the downtown skyline in the distance. Views into the surrounding landscape units for motorists are somewhat diminished because of the bridge railings; however, pedestrians with a higher vantage point and closer proximity to the railings have much clearer views into the landscape below. Several bridge elements, including the entry monuments and the two archways, provide notable points within the visual environment along the roadway. The intactness and unity of the roadway are moderate.

Key viewpoints of the visual resources were established within these landscape units. Key viewpoints were chosen based on the view experienced most frequently by a sensitive viewer group. This was done to determine the extent of visual effects on a resource or view resulting from the project based on the viewer’s response to the change in visual quality. Note that with the discussion of visual quality associated with each key view described below, it is important to remember that these are evaluations specific to the location, and other areas within the unit may have higher or lower visual quality than the average.

In addition to the landscape units, Figure 3.8-1 shows the location and direction of the key viewpoints analyzed. The key viewpoints for the visual analysis are:

- **Viewpoint 1 within the River-Rail Corridor Landscape Unit:** This view is from the 4th Street Viaduct looking towards the center span and eastern portion of the 6th Street Viaduct. The view is from the perspective of a pedestrian on 4th Street. The existing visual character is of a heavily industrialized area of low visual quality, with low vividness and intactness. The bridge itself has a high visual quality due to its vividness within the landscape.
- **Viewpoint 2 within the River-Rail Corridor Landscape Unit:** This viewpoint is from the center of the 4th Street Viaduct looking towards the center span and western portion of the 6th Street Viaduct. The view is from the perspective of a pedestrian on 4th Street. The existing visual character is of a heavily industrialized area of low visual quality, with low vividness,

intactness, and unity. The viaduct itself has a high visual quality due to its vividness within the landscape.

- **Viewpoint 3 within the Eastern Warehouse Landscape Unit:** This view is from the 4th Street Viaduct at the western edge of the landscape unit looking to the 6th Street Viaduct. The existing visual character is of a heavily industrialized area of low visual quality, with low vividness, intactness, and unity. The viaduct itself has a high visual quality due to its vividness within the landscape.
- **Viewpoint 4 within the 6th Street Corridor Landscape Unit:** This viewpoint looks toward the center span of the 6th Street Viaduct from the roadway. The view is from the perspective of the WB motorist. The character of the existing view is highlighted by the main-span elements (i.e., railing, light fixtures, and arches), along with the background view of the downtown skyline. The main-span elements increase the visual quality of the view due to their vividness and proximity to the viewer; however, the elements outside of the bridge (i.e., power transmission lines, adjacent industrial buildings, rail lines, and concrete channel) detract from the view, lowering the unity and intactness, as well as the vividness of the view. Overall, the view has a moderate to moderately low quality.

3.8.3 Environmental Consequences

3.8.3.1 Construction Impacts

For purposes of this analysis, temporary impacts are defined as those impacts that would be in effect only during demolition and construction of the 6th Street Viaduct. These impacts are only temporary and would cease on completion of the project.

Alternative 1 – No Action

No impacts to visual resources over the baseline condition would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Visual and aesthetic impacts from construction of the replacement viaduct would be the same as that described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Construction: Construction activities generate visual and aesthetic images that are generally disruptive to the status quo and may be undesirable or offensive to some affected individuals or groups. The presence and operation of construction equipment, such as heavy trucks, cranes, or excavators, may be experienced as disruptive or out of context. Construction-generated fumes and dust generate visual as well as air quality impacts.

Construction Staging Areas: Two locations have been identified as candidates for use as construction staging areas. Two construction yards are anticipated for the project – one to the southeast at Mission Road and Jesse Street abutting the railroad corridor, and the other to the northwest at Santa Fe Avenue and Willow Street near the railroad switching yard. The first location may not be used because the cultural resources study identified an archaeological site within the proposed area; hence, the area would be protected (see Section 3.9 – Cultural Resources). The second location is currently open space/parking lots, and they would presumably be returned to open space/parking after completion of the project. Impacts of the staging facilities would be considered as low due to the small areas of these sites and their locations adjacent to railroad corridors and industrial uses. Overall, due to the temporary nature of these effects, they are not considered substantial.

Alternative 3 – Replacement

Active Demolition and Construction: Demolition and construction activities generate visual and aesthetic images as described under Alternative 2 above. Nighttime construction could be anticipated for all alignment and bridge concepts under the Replacement Alternative, to avoid local traffic impacts during the daytime. Because the project site is located within an industrial zone, localized lighting within the construction area would not result in adverse impacts to area residents.

Construction Staging Areas: The impact description is the same as Alternative 2 discussed above.

3.8.3.2 Permanent Impacts

The visual impact of project alternatives is determined by assessing the visual resource change due to the project and predicting viewer response to that change. Visual resource change is the total change in visual character and visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the existing visual character of the landscape. The second step is to compare the visual quality of the existing resources with the projected visual quality after the project is constructed. Viewer response to the changes is the sum of viewer exposure and viewer sensitivity to the project, as previously described. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to react negatively to the change.

Alternative 1 – No Action

With this alternative, the structure would remain in its current configuration and at its current rate of deterioration. There would be no change to the existing landscape unit under this alternative scenario as summarized in Table 3.8-1 located at the end of this section. If the viaduct was determined to be unserviceable, the City would have to identify emergency funding sources to replace it. Under this circumstance, the anticipated permanent impacts of Alternative 1 would be the same as that described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Retrofitting the columns and other improvements to the existing viaduct would leave much of the viaduct visually the same as the existing span; however, many of these components would appear larger than the existing elements, which may also change the visual proportions of the structure. For example, the columns would appear more massive than they appear now (see example simulation in Figure 3.8-2). The infill walls would add a new visual component to portions of the viaduct where there are not already infill walls between the column bents. These changes would likely go unnoticed by the general public over the long-term.

Proposed changes, although not radical, would be most noticeable in the Eastern and Western Warehouse Landscape Units. These two units border the viaduct and have many roads that cross under the span. In addition, the viewer groups in this area are made up of business owners and employees who see the viaduct daily. The railings and light fixtures would not be replaced under this alternative, preserving the existing views for travelers on the viaduct. Viewers within the River-Rail Corridor Landscape Unit would have quick views as their train passes the viaduct, but they would not likely notice the changes.

The improvements to the viaduct would not likely change the overall visual quality of any of the associated landscape units as summarized in Table 3.8-1 presented under Alternative 3 below. The new finish and color on the overall bridge associated with the new coatings would clean up the viaduct, temporarily removing graffiti and unifying the image of the bridge in the landscape. This would cause an increase in the vividness of the structure, but it would not affect an overall change within the context of the surrounding environment.

Implementation of the Retrofit Alternative could include the installation of architectural accent lighting. Because the bridge is sited in an industrial area, near Downtown Los Angeles, it can be anticipated that there would be a high amount of nighttime lighting already present in the area. Because the specific area that the bridge crosses is the Los Angeles River and the railroad tracks on either bank, which are currently not lit, it can be anticipated that the new bridge architectural lighting would be a noticeable addition to the nighttime viewscape. The architectural lighting scheme would likely add to the vividness of the bridge, and the lighting would make the bridge more visible to areas farther from the bridge than the adjacent landscape units, especially from skyscrapers in downtown or residential towers in the Boyle Heights neighborhood that face the project area. The accent lighting would be designed to shield or direct the light inward and upward toward the viaduct, avoiding spillover lighting to the surrounding area to prevent nighttime glare and light effects on residences in the vicinity. Low-reflective materials would be used as part of the architectural lighting plan.

Existing View

View after Retrofitting

Figure 3.8-2 Artist Rendering of Viaduct Retrofit

Alternative 3 – Replacement

With this alternative, 6 different bridge concepts were identified for design consideration, along with 3 different alignments, allowing for 18 different combinations of sub-alternatives. The following discussion provides an analysis of the general effects of the different alignments on the visual environment. Following that is an assessment of bridge concepts and their effect on the visual environment of the area.

Bridge/Viaduct Alignments

Several alignment alternatives have been considered, but three (i.e., 3A, 3B, and 3C) were identified for further design consideration. This analysis looks at the effects of each of the alignments on the visual character of the landscape.

Alignment 3A: This alignment closely follows the existing viaduct; however, because of the wider viaduct replacement structure, the north side of the viaduct footprint would extend further to the north, while the south side of the footprint would remain essentially at the same location except for the segment of the alignment over the Los Angeles River, which would be shifted slightly to the south to improve the horizontal curve radius and provide better design speeds and stopping sight distances.

The realignment would require removal of several buildings that abut the northern edge of the existing structure. A row of buildings north of the structure between Mateo Street and Santa Fe Avenue, west of the river crossing, would be removed, as would several buildings east of the river crossing, particularly between Jesse and Clarence Streets.

From the ground level, the new open space created by clearing these properties would be seen by travelers on local streets and from any nearby businesses. Removal of the buildings would open up the views to the new structure since many of the existing buildings are close to the existing viaduct. On 6th Street, the building removals would not be noticeable to the drivers because the bridge railing would block out most of the views to the immediate area. Pedestrians looking over the railing would see the open areas.

Alignment 3B: With this alignment alternative, the new structure would swing much more to the north, especially between the tie-in at the US 101 crossing to the eastern edge of the river crossing. At the river crossing, the alignment would swing south of existing. Between Santa Fe Avenue and Mateo Street, the alignment would follow the existing viaduct footprint, with the widening occurring to the north. In plan view, the new alignment cuts a long arc through the landscape.

This alignment would remove considerably more of the existing buildings east of the river crossing than Alignment 3A. One or more buildings between Clarence Street and the railroad tracks north of the existing alignment would be removed by the proposed project with this alignment. West of the river, Alignment 3B is nearly the same as Alignment 3A, so the anticipated impacts would be similar.

At ground level, the cleared properties, plus the removal of the existing viaduct, would create a long linear open space around the new viaduct structure. Views to this new structure would be more open along the cross streets than the current configuration allows. Views from the new viaduct would be very similar to those described for Alignment 3A.

Alignment 3C: This alignment would keep the same basic centerline as the existing east of the river crossing. The new structure would be wider on the north and south sides, and it would be cantilevered to minimize building removals. At the river crossing, the radius would be 'flattened,' moving the bridge slightly south. West of the river crossing, the wider structure would be aligned to the north as in the previous two alignment alternatives. With this alternative, property acquisition and clearing would primarily be associated with the row of buildings on the north side of the structure between Mateo Street and Santa Fe Avenue. Because this alternative most closely follows the existing alignment, there would be little impact to the views on the ground on the east side of the river.

Replacement Bridge Concepts

Fifteen (15) bridge concepts (types) were developed during preliminary project design and were screened down to five bridge concepts (i.e., Concepts 1, 2, 3, 4, and 5) for further consideration. Each bridge concept could be constructed on any of the viaduct replacement alignments (i.e., 3A, 3B, or 3C) discussed above.

In spring 2009, two additional bridge concepts, Concepts 1A and 4A, were investigated in response to public input; these concepts are a design expression of Concepts 1 and 4, respectively. The difference between Concepts 4A and 4 reflects an individual aesthetic appearance of the bridge, but it does not change the assessments of each bridge concept. The total project cost for Concept 1A was found to be significantly higher than other bridge concepts considered, so Bridge Concept 1A was withdrawn from further consideration (see Section 2.3.3.2). The remaining six bridge concepts are:

Concept 1. Reproduction of the existing structure (main span replication) (see Figure 2-8 for a computer simulation and Figure 3.8-3 for a photo simulation)

Concept 2. Haunched cast-in-place prestressed concrete box girder with steel tied arch pedestrian bridge on each side of the roadway span (see Figure 2-10 for a computer simulation and Figure 3.8-4 for a photo simulation)

Concept 3. Steel half through arch with four corner pylons (see Figure 2-11 for a computer simulation and Figure 3.8-5 for a photo simulation)

Concept 4. Extradosed concrete box girder with dual pylons (cable-stay bridge with two spans) (see Figure 2-12 for a computer simulation and Figure 3.8-6 for a photo simulation)

Concept 4A. Extradosed concrete box girder with three dual pylons (cable-stay bridge with three spans) (see Figure 2-13 for a computer simulation and Figure 3.8-7 for a photo simulation)

Concept 5. Extradosed concrete box girder with single pylon (cable-stay bridge with seven spans) (see Figure 2-14 for a computer simulation and Figure 3.8-8 for a photo simulation)

Each of the designs carried forward for evaluation would expand the viaduct's current width from 66 ft to a maximum of 94 ft. Photo simulations for Bridge Concepts 1, 2, 3, 4, 4A, and 5, along with a description of each concept and its effects on the visual environment, are presented on the following pages. These simulations represent the anticipated views from Key Viewpoint 3.

Nighttime Glare and Light

Implementation of Alternative 3 would likely include architectural accent lighting. Because the bridge is sited in an industrial area, near Downtown Los Angeles, it can be anticipated that there would be a high amount of nighttime lighting already present in the area. Because the specific area that the bridge crosses is the Los Angeles River and the railroad tracks on either bank, which are currently not lit, it can be anticipated that the new bridge architectural lighting would be a noticeable addition to the nighttime viewscape. The architectural lighting scheme would likely add to the vividness of the bridge, and the lighting would make the bridge more visible to areas farther from the bridge than the adjacent landscape units, especially from skyscrapers in downtown or residential towers in the Boyle Heights neighborhood that face the project area. The accent lighting would be designed to shield or direct the light inward and upward toward the viaduct, avoiding spillover lighting to the surrounding area to prevent nighttime glare and light effects on residences in the vicinity. Low-reflective materials would be used as part of the architectural lighting plan.

Anticipated Changes by Landscape Unit

Within the landscape units, it is anticipated that each of the bridge types would create a memorable crossing that would equal or exceed the visual quality of the existing bridge from the perspective of drivers and pedestrians, for those on the viaduct as well as those within the surrounding units. It is anticipated that the changes associated with any of the proposed replacement bridge types would improve the visual quality for these viewer groups. Deteriorated elements that are part of the existing viaduct structure include railings, deck surface, and light fixtures, which detract from its overall visual quality. This is also true of the overhead power lines and nearby transmission line towers. The deteriorated viaduct elements would no longer remain with any of the bridge type alternatives; however, the proximate visual detractions (i.e. overhead lines and transmission towers) would remain in place.

Existing View from Key Viewpoint 3

Note: Bridge color subject to change during the design phase.

Proposed View from Key Viewpoint 3

Figure 3.8-3 Bridge Concept 1: Main Span Replication

Existing View from Key Viewpoint 3

Note: Bridge color subject to change during the design phase.

Proposed View from Key Viewpoint 3

Figure 3.8-4 Bridge Concept 2: Haunched Box Girder with Parallel Steel Tied Arches

Existing View from Key Viewpoint 3

te: Bridge color subject to change during the design phase.

Proposed View from Key Viewpoint 3

Figure 3.8-5 Bridge Concept 3: Steel Half-Through Arch

Existing View from Key Viewpoint 3

Proposed View from Key Viewpoint 3

Figure 3.8-6 Bridge Concept 4: Extradosed Concrete Box with Dual Pylons (Two-Span Cable-Stay Bridge)

Existing View from Key Viewpoint 3

Proposed View from Key Viewpoint 3

Figure 3.8-7 Bridge Concept 4A: Extradosed Concrete Box Girder with Three Dual Pylons (Three-Span Cable-Stay Bridge)

Existing View from Key Viewpoint 3

Note: Bridge color subject to change during the design phase.

Proposed View from Key Viewpoint 3

Figure 3.8-8 Bridge Concept 5: Extradosed Concrete Box Girder with Single Pylon (Cable-Stay Bridge with Seven Spans)

The discussion below summarizes the anticipated changes to the visual environment for the viaduct under the Replacement Alternative and the No Action Alternative if the viaduct is determined unserviceable and is subject to replacement. Table 3.8-1 provides a summary.

- **Western Warehouse Landscape Unit:** The largest impact to the Western Warehouse Landscape Unit would be the removal of a row of buildings along the 6th Street frontage road on the north side of the viaduct, from Mateo Street to Santa Fe Avenue. This would occur with any of the three proposed alignments under Replacement Alternative 3 and the No Action Alternative in the event the viaduct is determined unserviceable and has to be replaced. The touchdown point at Mateo Street would remain similar in configuration to the existing, with minor changes to the northeast corner to accommodate the wider replacement bridge section. The new viaduct would maintain or increase the vividness of the structure within the landscape of this unit no matter which bridge type is eventually selected. The visual quality of the landscape unit would remain low since the overall fabric of the unit would remain.
- **River-Rail Corridor Landscape Unit:** Each of the three proposed alignments is nearest to the existing viaduct alignment through this landscape unit. The primary views within this unit are presented to riders of the Amtrak and Metrolink trains, and these travelers would have short, somewhat oblique views to the new structure similar to those presented by the existing viaduct. Any of the bridge types would create a striking and memorable structure for these viewers. Viewers on either the 4th or 7th Street viaducts, in particular pedestrians, would have clear views of the new viaduct. Each of the proposed bridge types would create a prominent and memorable structure to replace the existing memorable structure; therefore, the visual quality of the anticipated views within and into this landscape unit is expected to remain essentially the same.
- **Eastern Warehouse Landscape Unit:** The alignment of a new viaduct would have its largest impact on the Eastern Warehouse Landscape Unit since the alignment has the largest variability within this unit. Alignment 3B has the greatest impact of the three alignments because of the number of building removals and property clearings associated with it and the subsequent increase in open space that would be created, at least temporarily depending on if the parcels are redeveloped. As with the Western Warehouse Landscape Unit, any of the new proposed bridge types would maintain or increase the vividness and memorability of the structure. Any increase in open space surrounding the new structure would also increase its visibility within the unit; however, it is anticipated that within the landscape unit, the overall visual quality would remain approximately the same.

Table 3.8-1
Summary of Visual Quality Change by Landscape Unit

Landscape Unit	Primary Project Elements	FHWA Visual Assessment Criteria: Vividness w/o[1]	Vividness with[2]	Intactness w/o[1]	Intactness with[2]	Unity w/o[1]	Unity with[2]	Overall Visual Quality w/o[1]	Overall Visual Quality with[2]
Alternative 1 – No Action, the Viaduct remains in service[3]									
Western Warehouse	No construction included in this alternative; routine inspection and maintenance activities only. If the viaduct is determined unserviceable and is subject to replacement, the elements would be the same as Alternative 3 - Replacement	Low	N/A[4]	Low	N/A[4]	Low	N/A[4]	Low	N/A[4]
River-Rail Corridor		Very Low	N/A[4]	Very Low	N/A[4]	Low	N/A[4]	Very Low	N/A[4]
Eastern Warehouse		Low	N/A[4]	Low	N/A[4]	Low	N/A[4]	Low	N/A[4]
Interstate Corridor		Mod. Low	N/A[4]	Mod. Low	N/A[4]	Mod. Low	N/A[4]	Mod. Low	N/A[4]
High-Rise Residential		Mod.	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]
Multi-Family Residential		Mod. Low	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]
6th Street Corridor		Mod.	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]	Mod.	N/A[4]

[1] Without mitigation measures in place.

[2] With mitigation measures in place. Mitigation measures are described in Chapter 6 of this report.

[3] The ratings shown in the No Action table for vividness, intactness, and unity are the baseline for the existing visual character of each landscape unit and can be used as a comparison to the proposed build alternatives (including the Viaduct Retrofit) ratings with and without mitigation. If the viaduct became unserviceable due to advanced ASR and/or earthquake damage, the No Action impacts and mitigation measures would be similar to Alternative 3.

[4] Mitigation is not applicable to the No Action Alternative with the viaduct remaining in service, since no construction activities are included with this alternative.

Table 3.8-1
Summary of Visual Quality Change by Landscape Unit

Landscape Unit	Primary Project Elements	FHWA Visual Assessment Criteria: Vividness w/o[1]	Vividness with[2]	Intactness w/o[1]	Intactness with[2]	Unity w/o[1]	Unity with[2]	Overall Visual Quality w/o[1]	Overall Visual Quality with[2]
Alternative 2 – Viaduct Retrofit[3]									
Western Warehouse	Retrofit existing columns by encasing in heavy steel and architectural mortar, with infill walls between select columns. Construct new foundations and grade beams, retrofit bent caps, and the closure of some expansion joints.	Low	Low	Low	Low	Low	Low	Low	Low
River-Rail Corridor		Very Low	Low	Very Low	Low	Low	Low	Very Low	Low
Eastern Warehouse		Low	Low	Low	Low	Low	Low	Low	Low
Interstate Corridor		Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low
High-Rise Residential		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Multi-Family Residential		Mod. Low	Mod. Low	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
6th Street Corridor		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.

1 Without mitigation measures in place.

2 With mitigation measures in place. Mitigation measures are described in Chapter 6 of this report.

3 The ratings shown in the No Action table for vividness, intactness, and unity are the baseline for the existing visual character of each landscape unit and can be used as a comparison to the proposed build alternatives (including the Viaduct Retrofit) ratings with and without mitigation.

Table 3.8-1
Summary of Visual Quality Change by Landscape Unit

Landscape Unit	Primary Project Elements	FHWA Visual Assessment Criteria: Vividness		Intactness		Unity		Overall Visual Quality	
		w/o[1]	with[2]	w/o[1]	with[2]	w/o[1]	with[2]	w/o[1]	with[2]
Alternative 3 – Viaduct Replacement[3]									
Western Warehouse	Replace the existing viaduct with a new four-lane structure. Three different alignments and six different bridge types are proposed for analysis.	Low	Low	Low	Low	Low	Low	Low	Low
River-Rail Corridor		Very Low	Low	Very Low	Low	Low	Low	Very Low	Low
Eastern Warehouse		Low	Low	Low	Low	Low	Low	Low	Low
Interstate Corridor		Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low	Mod. Low
High-Rise Residential		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Multi-Family Residential		Mod. Low	Mod. Low	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
6th Street Corridor		Mod.	Mod. High	Mod.	Mod. High	Mod.	Mod.	Mod.	Mod. High

1 Without mitigation measures in place.

2 With mitigation measures in place. Mitigation measures are described in Chapter 6 of this report.

3 The ratings shown in the No Action table for vividness, intactness, and unity are the baseline for the existing visual character of each landscape unit and can be used as a comparison to the proposed build alternatives (including the Viaduct Retrofit) ratings with and without mitigation.

- **Interstate Corridor Landscape Unit:** The existing bridge over US 101 would be replaced under all of the bridge replacement scenarios, but the alignment would remain approximately the same for Alignments 3A and 3C. Alignment 3B would shift to the north and would slightly skew the structure from its existing alignment; however, this would not be expected to substantially change the existing view from the freeway. Existing landscaping in the area of the bridge would be removed by the construction activities for the bridge replacement. Viewers from the freeway would primarily see the section that is over the freeway, with fleeting glances to the structure west of the freeway, especially for SB traffic. The replacement of the structure would remove the noticeable retrofitting performed earlier by Caltrans (in mid 1990s) and would unify the structure into one coherent image. Any of the new structure alternatives would provide a vivid image in the landscape, and removal of the earlier retrofit elements (e.g., the existing shear walls) would improve the unity and intactness of the structure.
- **High-Rise Residential Landscape Unit:** From the aspect of the High-Rise Residential Landscape Unit, the viaduct is one element within the urban fabric. Any of the three replacement alignments would not significantly alter the view of the viaduct from this unit, except that any adjacent property clearing may slightly increase the visibility of the structure against the mix of buildings within the viewshed; however, the type of bridge could cause the structure to stand out more against the backdrop of other structures. The bridge types that involve longer or taller structures, such as the cable-supported concepts (Bridge Types 4, 4A, and 5), would create a more vivid and viewable structure, and they would correspondingly increase the visual quality of the views to moderate or moderately high. The other bridge types would have less of a visual presence, and they would be expected to blend more into the urban fabric, similar to the existing structure.
- **Multi-Family Residential Landscape Unit:** Alignment 3B would bring the structure approximately 50 to 60 ft closer to this landscape unit as viewed from Clarence Street. Even with the building removals that would be associated with this alternative, there are still intervening buildings that would limit the ground-level views to the new structure from Clarence Street. If one of the cable-supported bridge concepts (Bridge Type 4, 4A, or 5) were selected, there may be greater views to the new towers than with the current viaduct configuration, especially from the second-floor units. It is anticipated that the visual quality of the landscape unit would remain the same under the various alignment and bridge-type scenarios.
- **6th Street Corridor Landscape Unit:** For this unit, the selected alignment would not affect the views to a great extent. Depending on where the viewer is positioned on the viaduct, the views to downtown from the east may shift slightly from existing, but the downtown skyline would continue to form the major backdrop for the viewer, and the placement relative to the bridge is not important to the view. Another noticeable element would be the wider cross section of the bridge that would accommodate four lanes of traffic, a median, and two wider sidewalks.

The bridge type selection would also be important to the viewer, and each of the proposed bridge types would create a different visual experience to travelers using the viaduct.

Simulation at Key Viewpoints

Simulations for each of the key viewpoints were developed to demonstrate the potential effect of the viaduct replacement from several vantage points. These are discussed below.

Key Viewpoints 1 and 2

The photograph for Key Viewpoint 1 was taken looking southeast from the 4th Street Viaduct over the rail yard to the 6th Street Viaduct center span and portions of the Eastern Warehouse Landscape Unit. The photograph for Key Viewpoint 2 was taken in the River-Rail Landscape Unit looking southwest from the 4th Street Viaduct to the center span and western portion of the 6th Street Viaduct.

The existing visual character from both of these viewpoints is of a heavily industrialized area of low visual quality, with low vividness, intactness, and unity. The bridge itself has a high visual quality due to its vividness within the landscape. The new viaduct concept selected to replace the existing structure would change the current visible features within the project area. In the case of the replication alternative (Bridge Concept 1) shown in the simulations (Figures 3.8-9 and 3.8-10), "new" elements would include the reintroduced center-span monuments and end monuments at each of the four corners of the main span bridge (these were removed from the existing bridge in the 1950s for public safety). The new bridge rails would be slightly taller than those of the existing structure, but from this distance, that change would be unnoticeable. In addition, the new viaduct would have longer spans outside the main span. The purpose of the longer spans is to be able to completely span the railroad tracks on both sides of the river. The effect of longer spans would change the balance and proportion from the existing viaduct. The viaduct with Bridge Concept 1 would be visually similar when viewed from the 6th Street roadway, but the existing "goose-neck" street light fixtures would be removed and replaced with a system that more closely replicates the original design.

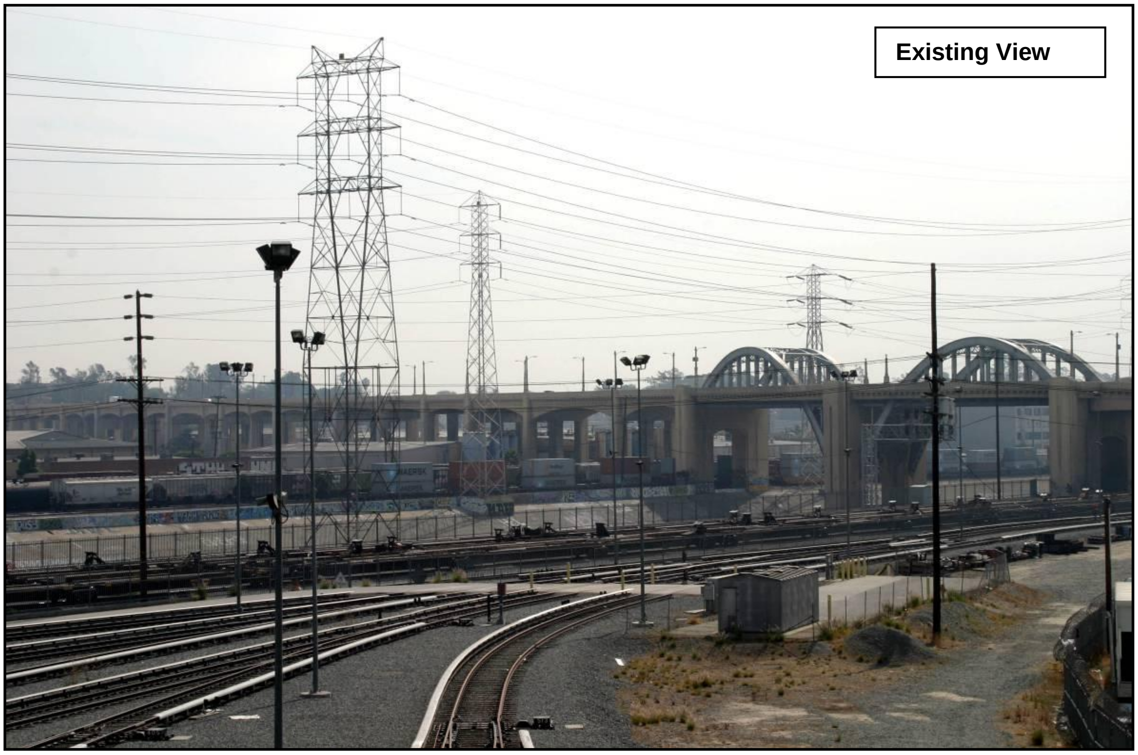

Figure 3.8-9 Viewpoint 1: Bridge Concept 1 – Replication on Alignment 'B' Looking Southeast

Figure 3.8-10 Viewpoint 2: Bridge Concept 1 – Replication on Alignment ‘B’ Looking Southwest

Specific visual changes would be dependent on the design of the new viaduct structure; however, it can be assumed that the visual character of the viaduct would remain the same or possibly be increased with each of the proposed replacement bridge concepts because the new structure designs create an equally memorable structure in the landscape. The character of the surrounding land use, however, would remain the same. The project would require the removal of some existing buildings north of the viaduct, which would have the effect of creating some open space where none currently exists; the extent of this is dependent on the alignment selected. This land could either be left as open space within the community or sold and new businesses constructed. If left open, views to the new structure would increase, and the open space could improve the existing visual quality of the surrounding landscape units.

It is not anticipated that any of the proposed structures would result in a significant visual impact from Key Viewpoints 1 and 2. Each of the proposed structures and alignments would create a prominent element within the viewshed and serve the same visual purpose as the existing structure – that of a memorable counterpoint to the industrial character of the surrounding land uses. In the case of the replication concept (Bridge Concept 1), the visual character of the viaduct would still be modified from the existing by restoration of previously removed architectural elements, and the fact that the structure would be new.

An additional change to note between the replicated viaduct compared to the existing structure is that the replacement viaduct would have longer spans on the east and west sides of the main span. The current structure has columns set within the railyards on each side of the river, which conflict with the railroad operations. To rectify this, the new viaduct has been designed to span the railyards, creating longer spans on each side of the relatively short spans over the river. The remaining spans of the viaduct will also be longer. The longer spans would change the balance and proportions (between span to column) found in the current structure, with its equally spaced columns throughout the structure, to one in which the center spans would appear much shorter relative to the overall viaduct structure.

Residents and local business employees would most likely notice the changes in the visual environment from the replacement of the structure. Pedestrians on the 4th Street Viaduct would have clear views of the new structure, and commuters would have a partial view to full view depending on the height of their vehicle in relation to the height of the railing. Those who regularly use the 4th Street Viaduct, such as residents, business employees, and commuters, would most likely notice changes to the visual environment caused by the structure replacement; however, awareness of a changed structure would quickly diminish, and the new facility would become a familiar component within the overall viewshed.

Key Viewpoint 3

Simulations from this key viewpoint can be seen in Figures 3.8-3 to 3.8-8 under the discussion of the proposed bridge concepts.

Key Viewpoint 4

The photograph for this key viewpoint was taken facing west on the 6th Street Viaduct, towards Downtown Los Angeles, and represents the view of the WB traveler on 6th Street.

The character of the existing view is highlighted by the main-span elements (i.e., railing, light fixtures, and arches), along with the background view of the downtown skyline. The main-span elements increase the visual quality of the view due to their vividness and proximity to the viewer; however, the elements outside of the bridge (i.e., power transmission lines, adjacent industrial buildings, rail lines, and concrete channel) detract from the view, lowering the unity and intactness, as well as the vividness of the view. Overall, the view has a moderate to moderately low quality. Visual simulation of this viewpoint was performed for three representative bridge concepts: Concept 1 – replication; Concept 2 – arches (representing Bridge Concepts 2 and 3); Concept 4A-extradosed with dual pylon (representing design expression of Concept 4) and Concept 5 – extradosed with single pylon, respectively, as described below.

Bridge Concept 1 – Main Span Replication (Figure 3.8-11) would be a replica of the existing bridge; most of the “new” elements would appear similar to the existing. The new railings would be slightly higher than the current, and the monuments at the center span and the archway tie-in points would reflect their former height and mass. As previously discussed, the arrangement of columns would differ from the existing by spacing the columns farther apart beginning at the railyards and continuing to each end of the viaduct, which would alter the balance and proportions found in the existing structure. The roadway would also be wider than existing to accommodate the wider outside lanes and center median.

Bridge Concept 2 – Parallel Tied Arches (Figure 3.8-12) includes a pair of arches on each side of the new bridge. The monuments at each of the four corners of the archways would be less massive than what would be included in the replication alternative. Other bridge elements (e.g., lights and railing) would be new. The roadway would also be wider than existing.

Bridge Concept 4A – Extradosed with Dual Pylons (Figure 3.8-13) has a series of dual pylons with cables located on each side of the new viaduct. The new structure would be wider than the existing, with a belvedere on each side of the bridge to provide a viewing platform. The pylons and cables would present a more modern image than the current steel truss arches.

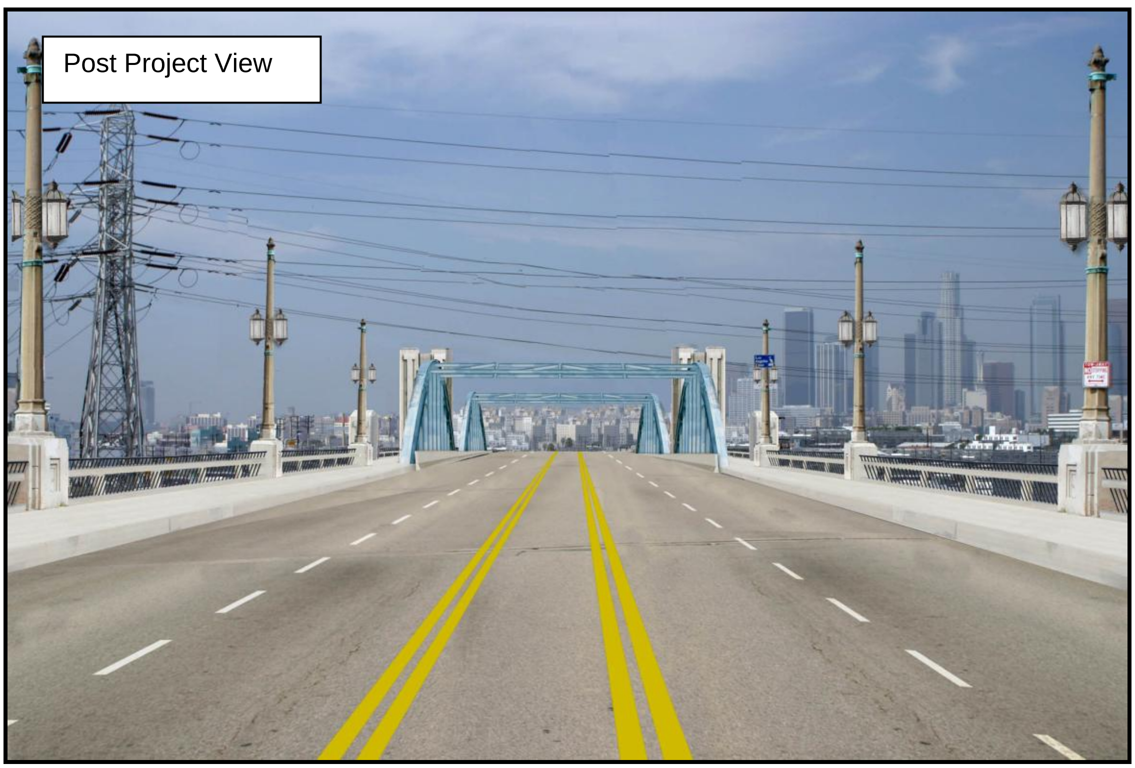

Figure 3.8-11 Viewpoint 4: Bridge Concept 1 – Replication

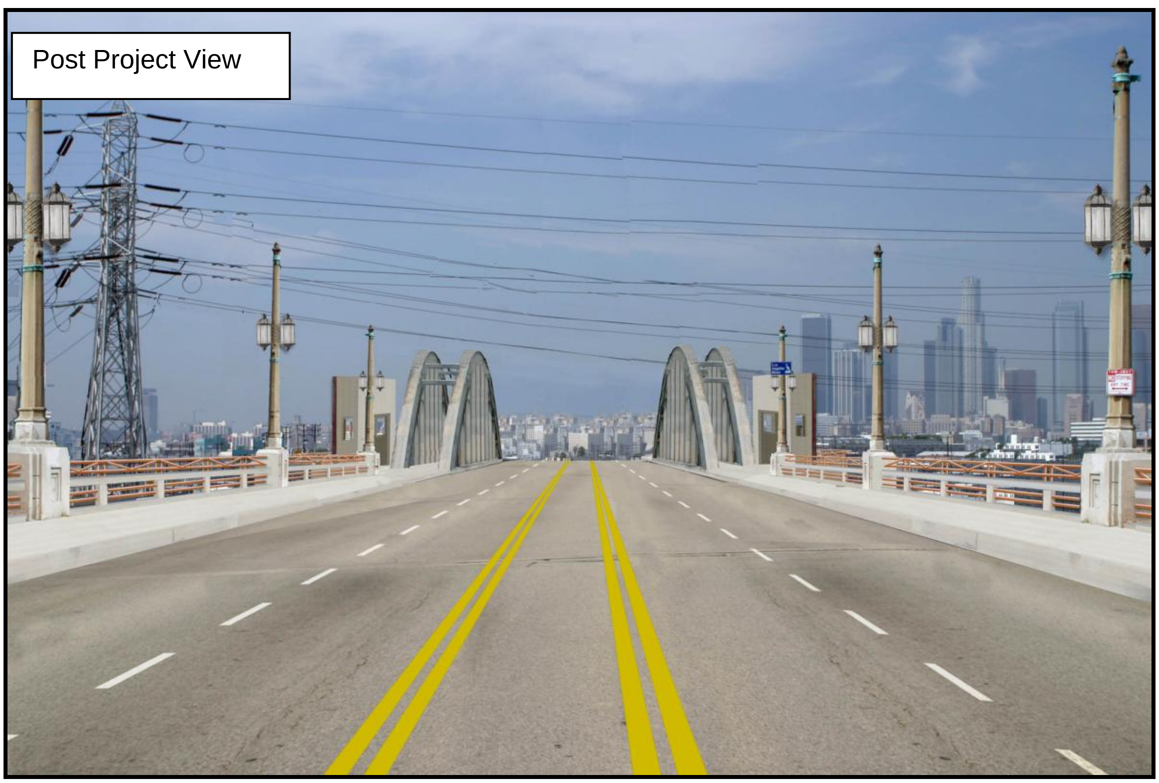

Figure 3.8-12 Viewpoint 4: Bridge Concept 2 – Parallel Steel Tied Arches

Figure 3.8-13 Viewpoint 4: Bridge Concept 4A – Extradosed with Dual Pylons

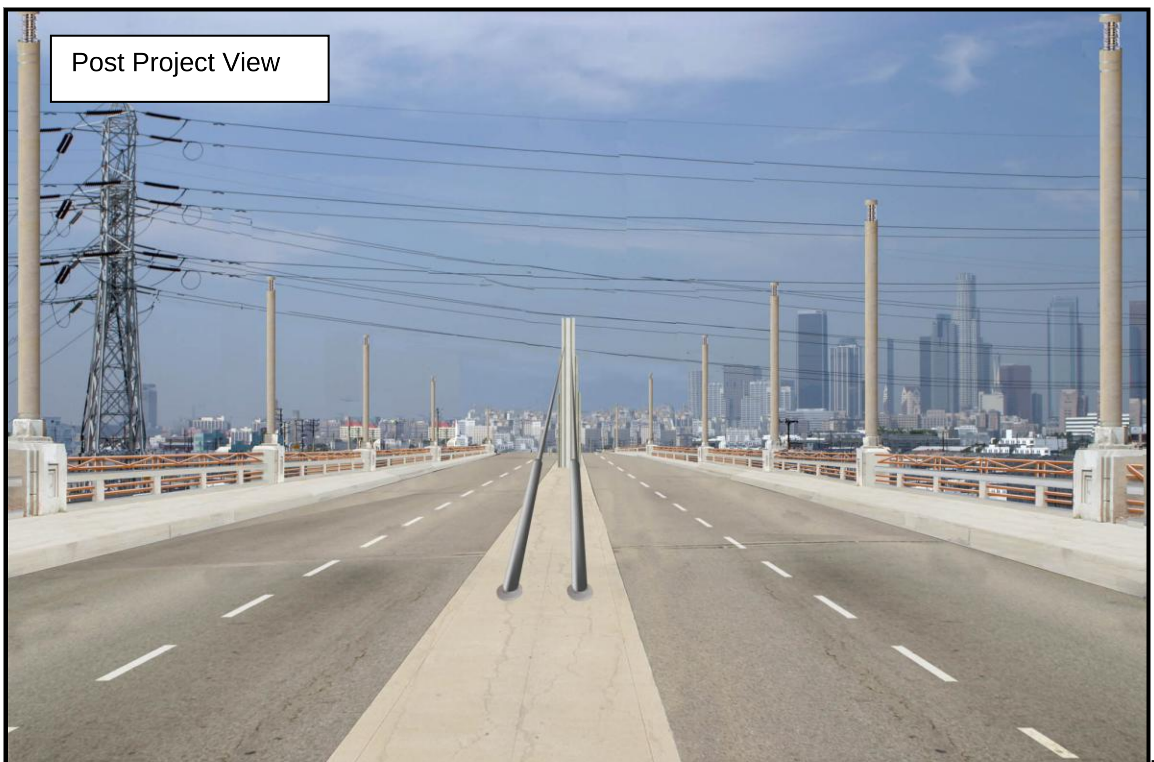

Figure 3.8-14 Viewpoint 4: Bridge Concept 5 – Extradosed with Single Pylon

Bridge Concept 5 – Extradosed with Single Center Pylon (Figure 3.8-14) has a series pylons with cables located in the raised median of the new viaduct. The new structure would be wider than the existing, but in this alternative, no outside elements, such as monuments or belvederes, would be located along the outside edge of the structure. The pylons and cables would present a more modern image than the current steel truss arches.

While the changes to the visual character resulting from Bridge Concept 1 – Replication would be minor at the center span, the effect of the longer spans on each side of the main span would alter the proportions and balance of the bridge and, therefore, the overall composition created by the main span and the equally proportioned remaining spans found on the existing viaduct. Other changes between the replication and the existing structure are related to the wider cross section and the elements that have been reintroduced (i.e., monuments and historic light standards). The visual quality of the structure would be expected to decrease slightly due to the changes to the proportions and balance in the replicated structure; however, the overall visual quality for the project area would not be expected to change.

A new Bridge Concept 2 would present a different visual character or experience than the existing, and the arch units on each side would be somewhat taller than the existing; however, the bridge components (i.e., steel arch, concrete monuments) are similar in character to the existing.

The resulting vividness of the structure would still be high with a memorable structure. The intactness and unity would remain the same.

Concepts 4 and 5 Bridges would differ greatly from the design of the existing structure. In place of the arches, there would be a series of cables and concrete pylons. The new design would be no less memorable, so the vividness of the new structure would not differ from the existing, but the character would be different. The unity and intactness of the view would remain the same as existing.

Those user groups (i.e., local residents, business employees and owners, and daily commuters) who have more frequent contact with the existing viaduct would be most likely to notice the subtle changes associated with the new replacement, but the overall response to Bridge Concept 1 would be anticipated to be positive for travelers on 6th Street.

For Bridge Concepts 2 and 5, residents, local business employees, and commuters on the bridge would be most likely to notice the changes in the visual environment because of their familiarity with the views to the existing structure. Some of these viewers could be expected to miss the historic feel of the old bridge, while others could be equally excited by the new bridge design.

Overall, since the new bridge design would still provide a memorable crossing point on the viaduct, the anticipated viewer response is expected to be positive.

While each alternative Concept, including the replication of the structure, would be expected to alter the existing views to varying degrees depending on the alternative selected, the most notable visual impact would be from the replacement of a historic structure with a new structure of different design, or appearance in the case of the replicated structure. However, each of the designs analyzed maintains the vividness (memorability), unity, and intactness experienced with the current viaduct structure.

3.8.3.3 Indirect Impacts

No indirect impacts on visual resources have been identified for Alternative 2 – Retrofit, Alternative 3 – Replacement, and Alternative 1 – No Action as long as the viaduct remains in service. In the event it was determined to be unserviceable, the City would have to seek emergency funding source to replace it. The indirect impacts under this circumstance would be the same as the impacts described under Alternative 3 - Replacement.

3.8.4 Avoidance, Minimization, and Mitigation Measures

To address potential adverse visual impacts to the proposed project area and community concerns over the change in the visual appearance of the bridge within the community, the following actions are recommended. With implementation of these mitigation measures, the visual impacts can be reduced, and the project would not result in a substantial change in overall visual quality for the area.

Alternative 1 – No Action

No specific mitigation measures are required as long as the viaduct remains in service. The eventual closure and replacement of the viaduct structure if it was determined to be unserviceable would require the same mitigation measures described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

No specific mitigation measures would be required.

Alternative 3 – Replacement

The following measures would help avoid, minimize, and mitigate impacts associated with visual resources.

- The City would establish an Aesthetics Advisory Committee (AAC) to provide input and advice throughout the design period of the project, including input on bridge aesthetics for the new structure and associated roadways under improvement within the scope of this project. The AAC would participate in design review meetings and provide input on selected design elements including, but not limited to, colors, textures, lighting, railings, and community/City gateway monumental elements.

- The City would participate in relevant meetings with the LABOE Los Angeles River Project Office (LARPO) to develop a plan to implement elements of the LARRMP to improve the area near the 6th Street Viaduct to be consistent with the LARRMP goals. In addition to LARPO, meetings would include, but not be limited to, the Planning Department, the Recreation and Parks Department, and the Community Redevelopment Agency.
- The City would provide improvements to enhance the aesthetics and pedestrian safety of 10 out of 13 affected intersections along the proposed detour routes that could not be mitigated (see Section 3.7.3.1). Types of improvements would be developed with public input and using context-sensitive design solutions, and may include but not be limited to decorative crosswalk with community theme and raised median with hardscape treatment where space allows.

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3.9 Cultural Resources

This section addresses potential impacts associated with archaeological and historic architectural resources within the designated Area of Potential Effects (APE). The information is excerpted from the Historic Property Survey Report (HPSR)[46], which contains two technical reports, including the Archaeological Survey Report (ASR)[47] and the Historical Resources Evaluation Report (HRER)[48].

3.9.1 Regulatory Setting

"Cultural resources," as used in this document, refers to all historic architectural and archaeological resources, regardless of significance. The following laws and regulations deal with cultural resources.

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the ACHP, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations (36 CFR 800) streamlining the Section 106 process and delegating certain responsibilities to Caltrans. FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be subject to Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from significant historic sites. See Appendix B for the Section 4(f) Evaluation for the proposed project.

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet NRHP listing criteria. It further specifically requires the Department to inventory state-owned structures in its ROWs. Sections

[46] Historic Property Survey Report for 6th Street Viaduct Seismic Improvement Project. January 2008; validated February 2011.
[47] Archaeological Survey Report for 6th Street Viaduct Seismic Improvement Project. July 2008; validated February 2011.
[48] **Historical Resources Evaluation Report for 6th Street Viaduct Seismic Improvement Project. October 2007; validated** February 2011.

5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks

3.9.2 Affected Environment

A study to identify potential historic properties in the APE of the project and to evaluate the eligibility of any identified properties for inclusion in the NRHP was conducted in October 2007. An Historic Property Survey Report (HPSR) and Historical Resources Evaluation Report (HRER) were prepared in accordance with the Section 106 PA. An intensive pedestrian survey by architectural historians during May, June, and July 2007 determined that there were 145 properties within the area of potential effects (APE). Of those, one (1) resource (6th Street Viaduct) was previously determined eligible for listing in the NRHP. Five (5) other properties, the Iron Mountain/1340 E. 6th Street building (comprising 2 parcels) and the Union Pacific Railroad (UPRR) (comprising 3 parcels), were previously evaluated for historic significance. The Iron Mountain/1340 E. 6th Street building was previously determined not eligible for listing in the NRHP. The UPRR was previously determined eligible for listing in the NRHP; however, the SHPO did not concur with the finding.

Upon investigation, 33 of the properties in the project APE were found to contain historic-era built resources (properties that pre-date 1957) that needed to be evaluated for historic significance. Based on the evaluation performed for this project, other than the 6th Street Viaduct no other properties within the APE are eligible for listing in the NRHP. See more details on historical architectural resource findings in Section 3.9.2.5.

One archaeological resource (Primary No. 19-003683) is located within the project APE. This site is a historic refuse deposit of artifacts dating from 1880 to 1930. The deposit was discovered during construction monitoring for another project; its historic significance is unknown, but it is assumed to be eligible for listing in the NRHP. See more details on archaeological resource findings in Section 3.9.2.4.

The 6th Street Viaduct was determined eligible for listing in the NRHP for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne steel and reinforced concrete design. Because the viaduct was determined eligible for listing in the NRHP, it is also eligible for the CRHR. It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California" as part of the Caltrans Statewide Bridge Inventory in 1987. In addition, the 6th Street Viaduct is designated as City of Los Angeles Historic-Cultural Monument (HCM) #905. Based on its NRHP eligibility, the 6th Street Viaduct is also a historic site protected under Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code [U.S.C.] 303.

In 2004, Caltrans established a survey population of 45 bridges within the City of Los Angeles (City of Los Angeles Monumental Bridges, 1900-1950).[49] Of the 45 bridges examined as part of this study, 29 appeared to be significant as City of Los Angeles monumental bridges. The study concluded that the bridges in Los Angeles that are significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the NRHP criteria which define a historic district as having a physical concentration of buildings, structures, objects, or sites with importance derived, in part, from that concentration of resources as a unified entity. The study determined the Los Angeles bridges are dispersed throughout the city and thus cannot be categorized as a historic district. Caltrans submitted this survey update to the SHPO.

During the Draft EIR/EIS preparation, concurrent Section 106 and PRC 5024.5 consultation with SHPO was undertaken. An HPSR, with supporting HRER and ASR, was submitted to the SHPO for review on September 9, 2008. No response was received from the SHPO within 30 days; therefore, Caltrans proceeded per stipulation VIII.C.5.a of the PA as documented in a November 12, 2008, e-mail from Gary Iverson, Caltrans District 7, to the SHPO. The Finding of Effect (FOE) was submitted to SHPO on January 27, 2009. A letter dated March 19, 2009, from SHPO to Caltrans concurred with the finding that the proposed project will have an adverse effect on historic property (i.e., 6th Street Viaduct).

During preparation of this Final EIR/EIS, the CRA/LA submitted a letter dated July 28, 2010, to the Project Development Team (PDT) indicating that an historic site survey of the Adelante Eastside Redevelopment Area was completed in July 2010. The letter included a map of a proposed "Historic District – Anderson Street" showing one building classified as "contributor" to the proposed Anderson Street District located within the 6th Street Viaduct APE (Building No. 17 on Figure 3.4-2). This building had previously been determined to be not eligible for the NRHP by Caltrans based on the 2007 HRER prepared for the 6th Street Viaduct Seismic Improvement Project.

In response to the CRA/LA letter, the PDT contacted CRA/LA staff to obtain detailed information about the survey and any planned local nomination/certification process for the proposed district. The CRA/LA provided an incomplete report entitled "Intensive Historic Resources Survey, Adelante Eastside Redevelopment Area, July 2008," and supporting

[49] JRP Historic Consulting for Caltrans, "City of Los Angeles Monumental Bridges, 1900-1950," May 2004.

California Department of Parks and Recreation (DPR) 523 forms related to the proposed Anderson District, in January 2011. This report contains different map as provided in the original letter (dated July 2010); it identifies property No. 17 and 14 (see Figure 3.4-2) as individually eligible but not as a district contributor. Similar to Building No. 17, Building No. 14 had previously been determined to be not eligible for the NRHP by Caltrans based on the 2007 HRER prepared for the 6th Street Viaduct Seismic Improvement Project. In addition, the report does not include any DPR forms for these two buildings that can be used as a basis to conclude that they are individually eligible.

Based on review of the available documents associated with the potential Anderson District mentioned above, there appear to be several inconsistencies and errors that require correction and finalization. Since the historic survey was prepared as a planning tool for CRA/LA, the methodology employed looked at a large number of properties at a reconnaissance level and made recommendations based on broad patterns of significance. This document does not provide sufficient data to make a determination of significance for the NRHP for the purposes of Section 106 of the NHPA or for CEQA.

3.9.2.1 Historical Architectural APE

The historic architectural APE was defined to include the area directly affected by construction and construction staging, as well as a buffer area immediately adjacent to the construction limits. Land uses within the historic architectural APE consist of industrial and commercial properties. Thirty-three (33) properties in the project APE contained historic-era built resources (i.e., buildings, structures, and/or objects that pre-date 1957) that needed to be evaluated for historic significance. Based on the evaluation performed for this project, other than the 6th Street Viaduct (Bridge #53C-1880) none of the resources within the APE are eligible for listing in the NRHP. The 6th Street Viaduct is therefore protected under Section 4(f) of the Department of Transportation Act. The impact to this Section 4(f) resource is analyzed in Appendix B2 of this EIR/EIS.

Two historic bridges are located within 0.5-mile from 6th Street Viaduct (outside the APE), including 4th Street Viaduct (0.2-mile to the north) and 7th Street Bridge (0.2-mile to the south). Both 4th Street Viaduct and 7th Street Bridge are determined eligible for listing in the NRHP, and are protected under Section 4(f). The discussion of these two resources relative to Section 4(f) is provided in Appendix B1 of this EIR/EIS.

3.9.2.2 Archaeological APE

The archaeological APE included all areas that would be subjected to subsurface ground disturbance under both build alternatives. One archaeological resource (Primary No. 19-003683) is located within the project APE. Its historic significance is unknown, but it is assumed to be eligible for listing in the NRHP, per Stipulation VIII.C.3 of the Section 106 PA. The areas near the existing and proposed viaduct footings are those subject to extensive ground disturbance. Other areas within the archaeological APE, including the building demolition areas, would be subject to shallow subsurface disturbance.

3.9.2.3 Research Methods

A cultural resources records search of the APE and the surrounding 1-mile radius was conducted on April 30, 2006, by staff at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. The SCCIC is the designated repository of the California Historical Resources Information System (CHRIS) and houses records concerning archaeological and historic resources and associated studies in Los Angeles County. During the records search, the following sources were consulted:

- National Register of Historic Places (NRHP)
- California Register of Historical Resources (CRHR)
- California Historic Resources Inventory (CHRI)
- California Historical Landmarks (CHL)
- California Points of Historical Interest (CPHI)
- Archaeological Determinations of Eligibility
- Archaeological site records
- Maps depicting site locations
- Historic USGS *Pasadena* 15' Topographic Quadrangle of 1896
- Historic USGS *Pasadena* 15' Topographic Quadrangle of 1900
- Historic USGS *Los Angeles* 6' Topographic Quadrangle of 1928
- Cultural resource studies and reports that covered areas within 1-mile of the APE

Seventy-three (73) historic architectural and archaeological resources surveys for other projects have previously been conducted within a 1-mile radius of the archaeological APE. Thirteen (13) of these studies include portions of the APE and covered approximately 90 percent of the proposed project. The records search revealed that 13 previously recorded archaeological resources and 54 historic architectural resources were identified within a 1-mile radius of the project APE. Of the 13 archaeological resources identified within the 1-mile search radius, only one resource, designated site 19-003683, is located within the proposed project's APE.

As part of the background research, the Native American Heritage Commission (NAHC) was contacted to request information on any known Native American cultural resources and for names of Native American individuals/organizations that may have knowledge of cultural resources in the project area. The NAHC responded on April 2, 2007, stating that their search of sacred land files revealed no indication of the presence of Native American sacred lands in the immediate project area; however, they also recommended that other Native American individuals/organizations be contacted to verify the findings of the NAHC. Notification letters were sent to the following Native American tribes on June 15, 2007:

- Ti'At Society
- Gabrielino Tongva Indians of California Tribal Council
- Gabrielino/Tongva Council/Gabrielino Tongva Nation
- Gabrielino/Tongva Tribal Council
- Tongva Ancestral Territorial Tribal Nation
- Fernando Tataviam Band of Mission Indians
- Los Angeles City/County Native American Indian Commission

Information regarding cultural resources was also sought from local government agencies, historical societies, and historic preservation groups. Letters were sent by U.S. Mail on June 1, 2007 to local government agencies and local historic preservation and historic preservation advocacy groups/societies requesting information on potential historic resources in the area of the proposed 6th Street Viaduct Seismic Improvement Project, including:

- United States Army Corps of Engineers (USACE), District Planning Section
- City of Los Angeles, Office of Historical Resources, Department of City Planning
- Los Angeles Conservancy
- Historical Society of Southern California
- California Historical Society
- American Society of Civil Engineers
- Boyle Heights Historical Society
- Chinese Historical Society of Southern California
- Jewish Historical Society of Southern California
- Los Angeles Railroad Heritage Foundation
- Society of Architectural Historians, Southern California Chapter

Comments received ranged from requests for additional research requests for additional consideration regarding the project alternative selection.

Other outlets for public involvement included public information meetings, stakeholder group meetings, Community Advisory Committee (CAC) meetings, and public scoping meetings. Refer to Attachment 2 in the HPSR prepared for this project for additional information, copies of all notices, and responses to comments received.

3.9.2.4 Archaeological Resource Findings

An archaeological field survey of the APE, using a combination of pedestrian and “windshield” techniques, was conducted by qualified archaeologists on May 21, 2007. Most of the APE is within existing roadways and/or adjacent to the banks of the Los Angeles River and has been subjected to extensive disturbance. The survey resulted in the finding of new location of site 19-003683, though visibility was obscured by the presence of road gravels and cargo containers. The site, consisting of historic period domestic refuse, is located within the southern APE parcel.

Furthermore, the long historic use of the area increases the likelihood of finding additional buried historic-era cultural resources as a result of excavations undertaken in association with project construction. The presence of historic-era cultural resources and the proximity of Native American cultural resources, as revealed through the NAHC search of the Sacred Lands Database and consultation with representatives of the Native American community, indicates a moderate to high likelihood that historic-era and/or Native American cultural resources may be encountered as a result of project construction.

Per 36 CFR 800.4(c)1 and the Section 106 PA, Stipulation VIII.C.2 [Caltrans PA 2003:4]), the previously identified cultural resource site (19-003683) present within the APE requires evaluation to determine NRHP eligibility and by extension eligibility for the CRHR, should it be subject to impacts from the project. However, per the Caltrans PA Stipulation VIII.C.3 (Caltrans 2003:4), “If archaeological properties within an undertaking’s APE are protected from any potential effects by establishment and effective enforcement of an Environmentally Sensitive Area (ESA), as described in Attachment 5 to this Agreement, the signatories agree that Caltrans may consider such properties to be NRHP eligible for the purposes of that undertaking without conducting subsurface testing or surface collection. …” In light of these factors, it was recommended by Caltrans to the SHPO that the area in and directly adjacent to archaeological site 19-003683 be placed in an ESA, and that the site be considered eligible for the NRHP and CRHR. The establishment of an ESA Action Plan would require fencing off the area from construction activities, monitoring by a qualified archaeologist and a Native American monitor during ground-disturbing activities, and training for construction workers; therefore, the area within the defined site limits would be protected from use as a construction staging area.

Under Caltrans guidelines, cultural resources should be avoided whenever possible. Given the moderate to high potential to encounter buried archaeological resources during ground disturbance, archaeological and Native American monitoring is warranted in areas where ground disturbance would occur. A cultural resources monitoring plan, which would include Native American consultation, would be developed prior to and implemented during ground-disturbing activities associated with the project.

If cultural resources are encountered, they would be treated as "Post Review Discoveries" under 36 CFR 800.13(b)(2) and conditions outlined in the Caltrans Environmental Handbook, Volume 2, Chapter 2, Section 2-4.4. General recommendations with regard to the identification and evaluation of previously undiscovered cultural resources within the project APE suggest that if previously identified cultural materials (e.g., stone artifacts, dark ashy soils or burned rocks, or old glass, metal, or ceramic artifacts) are unearthed during construction, then it is Caltrans' policy that work in that location should be halted in that area until a qualified archaeologist can assess the nature and significance of the find. Further disturbance in the area of the discovery is to be approved only by Caltrans and City of Los Angeles staff. Additional archaeological survey would be needed if project limits are extended beyond the present survey limits.

In accordance with 14 CCR Section 15064.5(e), in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the Los Angeles County Coroner must be notified of the discovery (California Health and Safety Code Section 7050.5), and all activities in the immediate area of the find must cease until appropriate and lawful measures have been implemented. If the coroner determines that the remains are not recent and of Native American origin, then the coroner will notify the NAHC in Sacramento within 24 hours to determine the Most Likely Descendent (MLD) for the area. The designated MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98.

3.9.2.5 Historic Architectural Resource Findings

An intensive pedestrian survey by architectural historians during May, June, and July 2007 determined that there were 145 properties within the project APE. Of those, one (1) resource (6th Street Viaduct) was previously determined eligible for listing in the NRHP. Five (5) other properties, the Iron Mountain/1340 E. 6th Street building (comprising 2 parcels) and the UPRR (comprising 3 parcels), were previously evaluated for historic significance. The Iron Mountain/ 1340 E. 6th Street building was previously determined not eligible for listing in the NRHP. The UPRR was previously determined eligible for listing in the NRHP, but the SHPO did not make concurrence with the finding.

Upon further investigation, 33 of the properties in the project APE contained historic-era built resources (properties that pre-date 1957) that needed to be evaluated for historic significance. Based on the evaluation performed for this project, other than the 6th Street Viaduct, no other properties within the APE are eligible for listing in the NRHP.

The 6th Street Viaduct was found to be eligible for the NRHP under Criteria A and C on October 19, 1986. Its eligibility under Criteria A and C is for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne design using steel and reinforced concrete. Its period of significance is from 1933, when it was completed, until 1957 (50-year cut-off), and its significance is at the state level. Because the viaduct has been determined eligible for listing in the NRHP, it is also eligible for the CRHR. It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California" as part of the Caltrans Statewide Bridge Inventory in 1987 (SHPO letter to Caltrans, Reply to FHWA 860919Z, January 12, 1987). The 6th Street Viaduct was proposed as a contributor to a potential NRHP-eligible "City of Los Angeles Monumental Bridges" historic district, a group of 29 bridges located within the City of Los Angeles;[50] however, SHPO did not concur with that eligibility recommendation and it remains only individually eligible for listing in the NRHP. In addition, the 6th Street Viaduct was determined to be a City of Los Angeles Historic-Cultural Monument (HCM) in January 2008, along with 10 other city bridges (6th Street Viaduct was designated HCM #905).

Of the Los Angeles River bridges, the 6th Street Viaduct was the last of the viaducts to be designed and constructed and is transitionally important in that it established the streamline moderne/art deco design principles of the following Works Progress Administration (WPA) bridges.. The 6th Street Viaduct is classified as a steel arch, and its largest spans are twin 150-ft steel through arches. The remainder of the structure, the total span of which is 3,546 ft, is comprised of T-girder spans. Called the "best expression of the modern phase" of the 25-year bridge building program, the viaduct is also "the last and grandest of the group."[51] The viaduct project was begun in 1926 when the City Council voted to acquire property, and the following year, adopted the name "6th Street Viaduct." The 6th Street Viaduct, which is the "longest and largest of the bridges spanning the Los Angeles River," was officially opened on June 16, 1933, at a cost of $2,383,271.[52]

Though the viaduct has been altered over the course of time, as described in the HRER,[53] the alterations have not affected the integrity or ability of the 6th Street Viaduct to convey its historic significance. It retains integrity of its location, design, setting, materials, workmanship, feeling, and association. The distinctive design, while modestly altered by the reduction in central pylon height, infilling of walls between columns, and construction of facilities beneath the bridge, remains recognizable. Although the original setting of the 6th Street Viaduct has been modified by channelization of the river and other changes over the past 64 years, it is still distinguishable to its original surroundings. The unique materials of the 6th Street Viaduct, including its dressed

[50] JRP Historic Consulting for Caltrans, May 2004.
[51] Historical Resources Evaluation Report for 6th Street Viaduct Seismic Improvement Project. October 2007.
[52] Ibid.
[53] Ibid.

concrete and painted steel arches, remain intact. The workmanship, including the board-formed reinforced concrete, steel rivets, and welds, remains evident. The feeling of the viaduct, or the quality that the historic property has in evoking its aesthetic and sense of a past period of time, is still present, whether traveling on the 6th Street Viaduct or viewing it from a distance. The direct link between the viaduct and the limited number of river crossings, in part for which it is significant, remains. Thus, the viaduct has an integral association with the construction of 12 significant Los Angeles River bridges.

The boundaries of the historic property include the entire bridge: its abutments, bents and piers, all approaches, the deck, all handrails, streetlight standards and luminaires, the river access tunnel, the steel and concrete arches, the spandrels, and the areas below the decks that contain bridge-related structures.

3.9.2.6 Criteria of Adverse Effect

Impacts to historic properties are determined based on the definition of effect contained within 36 CFR Part 800: "*Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." An adverse effect occurs "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative."[54] Examples of adverse effects may include, but are not limited to, the following:

i. Physical destruction of or damage to all or part of the property;
ii. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
iii. Removal of property from its historic location;
iv. Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;
v. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
vi. Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

[54] 36 CFR 800.5(a)(1).

vii. Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.[55]

3.9.3 Environmental Consequences

3.9.3.1 Construction Impacts

Alternative 1– No Action

The No Action Alternative proposes no changes or construction on the 6th Street Viaduct or the surrounding area as long as the viaduct remains in service. The 6th Street Viaduct would be maintained and inspected by the City of Los Angeles. Thus, there would be no impacts to historic properties under this alternative, resulting in a finding of no historic property affected pursuant to the definition of adverse effect contained within 36 CFR Part 800.

In the event the viaduct was determined to be unserviceable due to ASR and/or earthquake damage, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Construction impacts to cultural resources would be the same as that described under the permanent impact section of Alternative 3 – Replacement.

Alternative 2 – Retrofit

Archaeological resource 19-003683 is located within the project APE as a candidate area for construction equipment staging; however, the defined site limits would be protected from potential impacts through the establishment of an Environmentally Sensitive Area (ESA) Action Plan. The ESA Action Plan would establish a construction monitoring program, require training of construction workers, and stipulate the archaeology site and adjacent area be fenced off to prevent construction activities from occurring on this site.

In addition, given the moderate to high archaeological sensitivity of the project area, there is the potential to encounter buried archaeological materials during ground disturbance; therefore, archaeological and Native American monitoring is warranted. Through implementation of the ESA Action Plan to protect the archaeological resource (Site 19-003683), construction impacts would be avoided and/or mitigated, resulting in a finding of no adverse effect to the historic property pursuant to the definition of adverse effect contained within 36 CFR Part 800.

Alternative 2 would result in an adverse effect to the 6th Street Viaduct as defined by CFR Part 800.5(a)(2), and would result in construction impacts.

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[55] 36 CFR 800.5(a)(2)(i through vii).

Alternative 3 – Replacement

Construction impacts to cultural resources would be the same as that described under the permanent impact section for Alternative 3 – Replacement.

3.9.3.2 Permanent Impacts

Alternative 1 – No Action

Under the No Action Alternative, no ground disturbance would occur; therefore, archaeological resource 19-003683 would not be affected as long as the viaduct remains in service. Alternative 1 would not result in a permanent impact on the archaeological resource and would result in a finding of no adverse effect to the historic property pursuant to the definition of adverse effect contained within 36 CFR Part 800.

Under this scenario, the viaduct would not be seismically retrofitted. The City would provide ongoing maintenance and inspection to the viaduct. Therefore, this alternative would result in a finding of no historic property affected pursuant to the definition of adverse effect contained within 36 CFR Part 800.

In the event the viaduct was determined to be unserviceable due to the ASR and/or earthquake damage, the viaduct would need to be replaced. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Construction impacts to cultural resources would be the same as described under the permanent impact section of Alternative 3 – Replacement.

Alternative 2 – Retrofit

Archaeological resource 19-003683 would be protected from permanent impacts through the establishment of an ESA Action Plan, including fencing off the area from construction activities, monitoring by a qualified archaeologist and a Native American monitor during ground-disturbing activities, and training for construction workers. Therefore, Alternative 2 would result in no adverse effect to the historic property with standard conditions pursuant to the definition of adverse effect contained within 36 CFR Part 800.

Under Alternative 2, the viaduct's columns would be retrofitted by encasing them with steel, and infill walls would be constructed between selected columns. In addition, new foundations, grade beams, retrofitting of bent caps, and closure of some expansion joints in the superstructure would be constructed in combination with the column retrofits.

The Retrofit Alternative would alter and/or destroy the historic materials, features, and spatial relationships that characterize the viaduct. Encasing the columns with steel would increase the size of the columns, and infill walls would be constructed between the columns. In addition, construction of new foundations, grade beams, retrofitting of bent caps, and closure of some expansion joints would alter the spatial relationship of the historic features of the viaduct and the historic character of the viaduct through the introduction of new structural and visual elements, and it would result in an adverse effect on a historic property (6th Street Viaduct) pursuant to the definition of adverse effect contained within 36 CFR Part 800.

Implementation of Alternative 2 would also result in the use of a Section 4(f) historic resource (6th Street Viaduct). The Section 4(f) Evaluation is provided in Appendix B of this EIR/EIS document.

Alternative 3 – Replacement

Archaeological resource 19-003683 would be protected from permanent impacts through the establishment of an ESA Action Plan, including fencing off the area from construction activities, monitoring by a qualified archaeologist and a Native American monitor during ground-disturbing activities, and training for construction workers. Therefore, Alternative 3 would result in no adverse effect to the historic property with standard conditions pursuant to the definition of adverse effect contained within 36 CFR Part 800.

This proposed alternative would demolish the 6th Street Viaduct to build a new structure. The existing viaduct would be replaced with one of six bridge concept designs on one of the three alternative alignments under consideration. Implementation of any alignment alternative and bridge concept under Alternative 3 would destroy the historic elements, features, and spatial relationships that characterize the 6th Street Viaduct as an individual resource eligible for listing in the NRHP and the CRHR, and as a designated City of Los Angeles HCM #905, along with 10 other city bridges. Therefore, implementation of Alternative 3 would result in a finding of adverse effect on a historic property (6th Street Viaduct) pursuant to the definition of adverse effect contained within 36 CFR Part 800.

In addition, implementation of any alignment alternative and bridge concept under Alternative 3 would result in the use of a Section 4(f) resource (6th Street Viaduct). The Section 4(f) Evaluation is provided in Appendix B of this EIR/EIS document.

3.9.3.3 Indirect Impacts

As stated earlier, ASR is a chemical reaction that cannot be reversed; deterioration of concrete components of the 6th Street Viaduct from the ASR reaction will continue even though the City would provide ongoing maintenance and inspection to keep the viaduct in service. As long as the viaduct remains standing, there would be no effect to this historic resource. In the event it was determined to be unserviceable, the City would have to seek emergency funding source to replace it. The indirect impacts under this circumstance would be the same as the impacts described under Alternative 3 - Replacement.

No indirect impacts have been identified under Alternatives 2 and 3 analyzed in this EIR/EIS.

3.9.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Mitigation measures outlined under Alternative 3 – Replacement would apply to minimize impacts to cultural resources as a result of this alternative scenario.

Alternative 2 – Retrofit

The following mitigation measures would be implemented to minimize impacts to archaeological resources.

- An ESA Action Plan, which would include fencing off the area from construction activities, monitoring by a qualified archaeologist and a Native American monitor during ground-disturbing activities, and training for construction workers, would be developed prior to and implemented during ground-disturbing activities associated with the project.
- A qualified archaeological monitor to be present at the site during ground-disturbing activities would be provided. If cultural resources are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- A Native American monitor(s) to be present at the site during ground-disturbing activities would be provided.
- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbance and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC who will then notify the MLD. At this time, the person who discovered the remains will contact Mr. Gary Iverson of Caltrans District 7 so that they may work in the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Pertaining to impacts to the historic architectural resource, Caltrans and the City consulted with the SHPO regarding the effects of the proposed project on the 6th Street Viaduct and potential measures to resolve adverse effects prior to construction. In this regard, the 6th Street Viaduct was previously recorded as part of the Historic American Engineering Record (HAER) program in 1996. Prior to any viaduct demolition or construction activities, Caltrans and the City would contact the National Park Service (NPS) Historic American Buildings Survey (HABS)/HAER program to determine the degree of additional recordation required for the property beyond that provided in 1996 (HAER No. CA-176).

The Draft EIR/EIS anticipated that the following measures could resolve the adverse effects on the 6th Street Viaduct pursuant to 36 CFR Part 800, as incorporated in a Memorandum of Agreement (MOA) with the SHPO and other consulting parties. If this alternative were selected, the MOA would be prepared and executed by SHPO and Caltrans with concurrence of the City of Los Angeles. Potential measures to resolve the adverse effect of Alternative 2 could include the following:

- The City would incorporate all applicable Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) into the design of retrofitting components.
- The City would install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced. Additionally, the City would install a Cultural Heritage plaque at each end of the bridge on the interior bridge rails in accordance with the City of Los Angeles' Cultural Heritage Monument program.
- The 6th Street Viaduct was previously recorded as part of the HAER program in 1996. Prior to any viaduct demolition or construction activities, Caltrans and the City would contact the NPS HABS/HAER program to determine the degree of additional recordation required for the property beyond that provided in 1996 (HAER No. CA-176). Unless otherwise agreed to by the NPS HABS/HAER, Caltrans and the City would ensure that all documentation is completed and accepted by HABS/HAER before the viaduct is altered or demolished.

Since Alternative 2 is not the preferred alternative for this proposed project, an MOA was not executed for this alternative.

Alternative 3 – Replacement

Mitigation measures under this alternative would be the same as with Alternative 2 for archaeological resources.

Caltrans and the City consulted with the SHPO regarding measures to resolve adverse effects of the proposed project, viaduct replacement, on the NRHP-eligible 6th Street Viaduct prior to construction. The MOA has been executed and is included in Appendix O of this Final EIR/EIS. The following stipulations pertaining to treatment of historic properties set forth in the MOA (Stipulation II) would be implemented by Caltrans and the City, and included in the Mitigation Monitoring and Reporting Program (see Appendix F).

- Prior to the start of any work that could adversely affect any characteristics that qualify the 6th Street Viaduct (Bridge No. 53C-1880 and 53-0595) as a historic property, contact the

National Park Service Western Region Office (NPS) in Oakland, California, to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, 6th Street Bridge, HAER No. CA-176," dated May 7, 1996. The City shall provide NPS 30 days to respond to their additional recordation determination request. If additional documentation is required, Caltrans shall ensure that the additional documentation is completed and accepted by NPS before the viaduct is altered and/or demolished. The City shall prepare draft and final reports to be reviewed by NPS.

- Upon completion, copies of the documentation prescribed above, consisting of an acid-free xerographic copy of the report, prepared on standard 8.5-inch by 11-inch paper, shall be retained by Caltrans District 7, deposited in the Caltrans Transportation History Library in Sacramento, and offered by the City to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, City of Los Angeles Office of Historical Resources, and the California Office of Historic Preservation.
- The City shall work with the Los Angeles Public Library to place the historical information from the HABS/HAER report on a City Web site with a link to a public library Web site, such as the Los Angeles Public Library Web site, available to the public for a minimum period of 2 years. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their Web site.
- The City shall produce a documentary (i.e., motion picture or video) that addresses the history of the Los Angeles River Monument bridges and their importance and use within the broader contextual history of the City of Los Angeles. The motion picture or video shall be of broadcast quality, between 30- and 90-minute duration, and made available to local broadcast stations, public access channels in the local cable systems, and requesting schools/libraries; one copy shall be submitted to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento.
- The City shall produce and publish a booklet on the Historic Los Angeles River Bridges that addresses the history of the monumental concrete bridges of Los Angeles and this bridge's place in that history. The booklet shall be similar in general format to the "Historic Highway Bridges of California" published by Caltrans (1991) and shall include high-quality black-and-white images of the Los Angeles River Bridges, historic photographs or drawings, as appropriate, and text describing each of the bridges' location, year built, builder, bridge concept, significant character-defining features, and its historic significance. The City shall post an electronic version of the booklet on a City Web site and produce paper copies for distribution to local libraries, institutions, and historical societies. One copy shall be

submitted to the Caltrans Transportation Library and History Center in Sacramento. The City shall maintain the camera-ready master booklet and produce additional copies if there is demand.

- The City shall install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the viaduct, its engineering features and characteristics, and the reasons it was replaced.
- The City shall offer artifacts removed from the viaduct during demolition to local museums or other suitable facilities to be determined by the City. The accepting institutions shall arrange their own transportation to deliver the artifacts to designated locations.

In addition, the following stipulations for project document reviews (Stipulation III) shall be implemented by the City and the SHPO:

- The City shall submit to the SHPO for review and comment design development drawings, and 30, 60, and 90 percent construction documents for work on the 6th Street Viaduct.
- The SHPO will review the project documents included in each consultation package submitted by the City to determine whether the Project Documents conform to the criteria cited in paragraph A of this stipulation. SHPO will provide comments on each submittal to the City within 30 calendar days of receipt. If the SHPO does not comment within the time provided, the City may assume that the SHPO concurs that the package conforms to the criteria cited.
- The City will incorporate SHPO comments into the Project Documents to the fullest extent. If the City revises the Project Documents in response to the SHPO comments, then no further review is required for that submittal. The City will promptly notify SHPO in writing that it has revised the Project Documents in accordance with SHPO comments.
- Should the City object to incorporating any SHPO comments into the Project Documents, the City will provide SHPO with written explanation of its objection. Promptly after receiving a written objection from the City, the City and SHPO shall consult to resolve the objection. If the objection is not resolved, the administrative provision stipulation pertaining to resolving objections (Stipulation IV.C.) shall be implemented.

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PART II – PHYSICAL ENVIRONMENT

3.10 Hydrology and Floodplains

This section addresses potential impacts to stormwater drainage systems and floodplains that could result from implementation of various alternatives of the the proposed project. The information presented in this section is excerpted from the Hydrology/Hydraulics Report[56] and Location Hydraulic Study[57] prepared as part of this project.

3.10.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

3.10.2 Affected Environment

3.10.2.1 Overall Hydrologic Conditions

The proposed project is located within the Los Angeles River Basin in hydrologic subarea 405.15 (Figure 3.10-1). The watershed contributes flow to the Los Angeles River Basin. The basin covers an area of approximately 830 square miles, with its upper reach (approximately 200 square miles) covered by forest and open space and the lower portion made up of highly developed industrial, commercial, and residential land uses. The river is approximately 50 miles long and collects stormwater runoff from the watershed, some outcropping groundwater located within the Glendale Narrows, and tertiary treated effluent from wastewater treatment plants. The

[56] Hydrology/Hydraulics Report for 6th Street Viaduct Seismic Improvement Project. November 2008; updated February 2011.
[57] Location Hydraulic Study for 6th Street Viaduct Seismic Improvement Project. March 2009; updated February 2011.

river is paved with a concrete lining along the lower reach of the basin and outlets into the Queensway Bay in the Los Angeles/Long Beach Harbor.

EPA recently determined that the entire Los Angeles River is a navigable waterway; however, the United States Coastal Guard (USCG) determined that the only part of the Los Angeles River that is navigable from the USGC's perspective is from the river mouth to Pacific Coast Highway in the City of Long Beach.

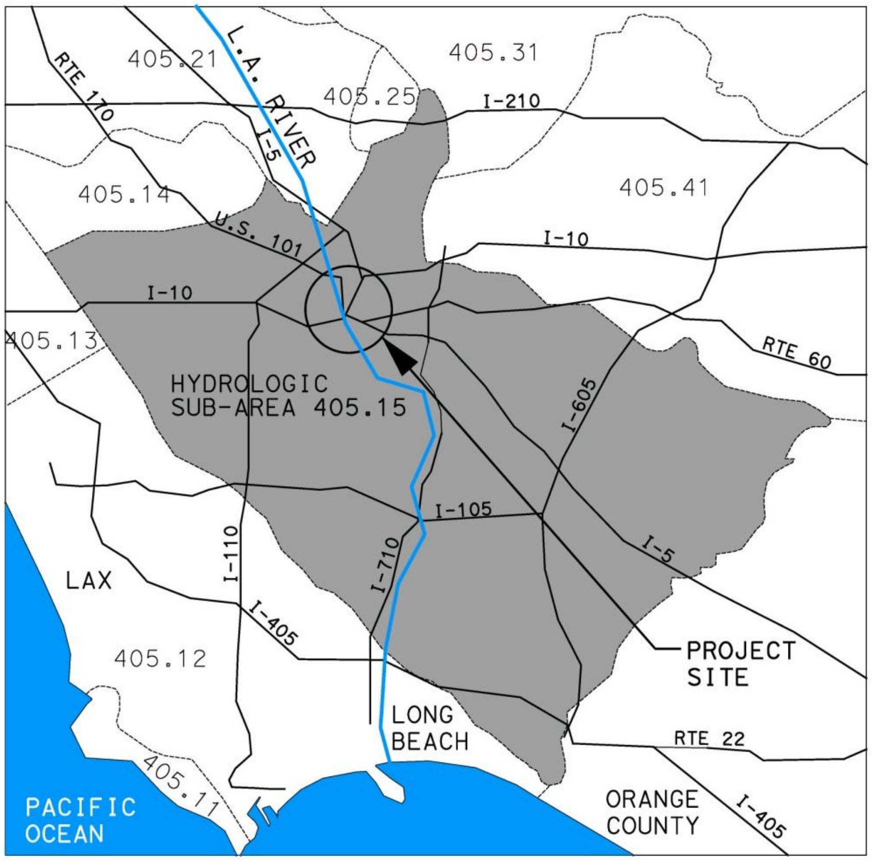


Figure 3.10-1 Watershed Map – Hydrologic Subarea 405.15

The climate for this region is generally dry in summer with mild, wet winters. The average annual rainfall for Los Angeles is approximately 15.5 inches, with most precipitation occurring during the winter months between November and March.

The project is located in a heavily urbanized land-use area zoned commercial and industrial. A very high percentage of the surrounding project area is impervious, consisting primarily of buildings and paved surfaces. The only substantial pervious areas are the rail yards on each bank of the river and a few small areas of unimproved land adjacent to and beneath the existing viaduct on the east side of the river. The small amount of pervious land that does exist has moderate infiltration rates when thoroughly wetted and consists chiefly of moderately well to well-drained sandy loam. Site topography ranges from 250 ft to 300 ft above mean sea level throughout the 4,000-ft project alignment.

3.10.2.2 Existing Drainage System

The existing project site, which includes the local streets below the viaduct, is drained by several separate storm drain systems. The area surrounding the viaduct site is drained by three primary drainage subareas. The first subarea (Subarea A) is located west of the Los Angeles River and extends south to 7th Street. The second subarea (Subarea B) is located east of the Los Angeles River and drains the area primarily northeast of 6th Street and west of Anderson Street. The third area (Subarea C) drains approximately the eastern third of the project north and south of 6th Street and west of US 101 (Figure 3.20-2).

Subarea A covers a large area west of Mateo Street and collects a smaller area north and south of 6th Street east of the Los Angeles River. In addition to this area, it also drains all of the viaduct runoff from Mateo Street east to US 101. This subarea is drained by a 97-inch-diameter storm drain flowing west on 6th Street and then turning south onto Mateo Street. The storm drain outlets into the west bank of the Los Angeles River on the south side of 7th Street.

Subarea B lies on the east bank of the Los Angeles River and drains an industrial area north of 6th Street bound by the UPRR yard on the west and Anderson Street on the east. A 30-inch-diameter storm drain flows south on Mission Road collecting stormwater on the east/west streets north of 6th Street. It then changes direction on Jesse Street, where it discharges into the river.

Subarea C includes a 62-inch-diameter city storm drain. It collects runoff from subarea C and also bypasses runoff from a small upstream watershed that extends east beyond US 101. As shown in Figure 3.10-2, a 45-inch-diameter storm drain outlets into the 62-inch drain. In addition to collecting stormwater from a small watershed east of US 101, the 45-inch drain was also designed with the intent to empty Hollenbeck Lake, which is located east of US 101. The storm drain runs through the intersection of Jesse Street and Clarence Street. The storm drain discharges into the Los Angeles River at 7th Street. As shown in Figure 3.10-2, a 138-inch-diameter Los Angeles County storm drain runs parallel to the 62-inch storm drain and discharges to the Los Angeles River at the south side of 7th Street. This large storm drain collects stormwater from a small watershed between 6th Street and 7th Street and a large watershed east of US 101.

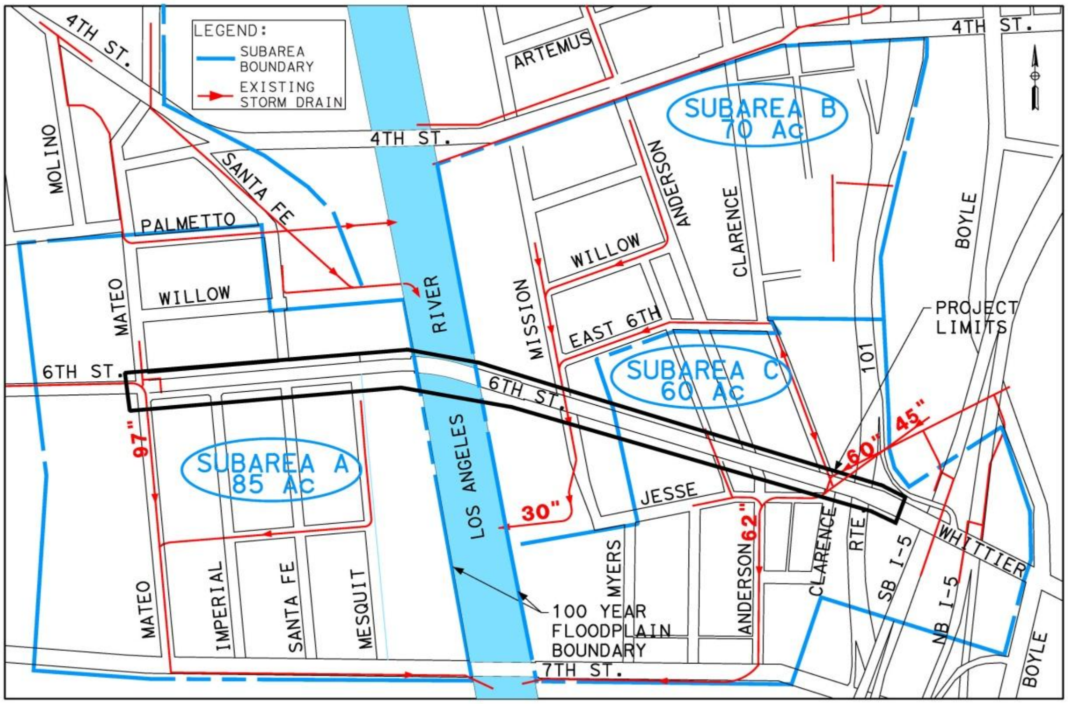


Figure 3.10-2 Subarea Map and Local Storm Drain Systems

It should be noted that Subareas A and C lie downstream of a larger subarea. Only portions of these subareas are shown that directly contribute flow to the associated storm drain that passes through the project site to the outfall. A summary of existing storm drain flows is presented in Table 3.10-1.

Table 3.10-1
Existing Storm Drain Flow Summary

Subarea	Area* (Acre)	Existing Outfall Pipe Size (inches)	Existing Pipe Capacity** (cfs)	Subarea Flow Rate (cfs)	Project Flow Rate*** (cfs)
A	85	97	296	83	4
B	21	30	25	20	3
C	71	62	138	69	3

Notes:
cfs = cubic feet per second
* Downstream area of reach subarea contributing to outfall
** Capacity based on pipe geometry and flowing full (no Hydrologic Study done)
*** Viaduct deck only; however, the flow is also included in subarea flow rate shown in Column 5.

Source: Hydrology/Hydraulics Report for 6th Street Viaduct Seismic Improvement Project, 2008, updated 2011.

3.10.2.3 Proposed Drainage System

Viaduct Runoff Management

In the existing condition, all runoff of the viaduct flows by gutter and is collected at Mateo Street. The viaduct was originally designed with drainage openings on the deck to allow stormwater to reach the ground level; however, these openings were sealed approximately 10 years ago during the bridge deck resurfacing. This current condition has created excessive runoff concentration during a major storm event, causing clogging at the inlets located at Mateo Street. The pipe size leading to the 97-inch-diameter storm drain on Mateo Street is a 36-inch-diameter pipe and has a design flow full capacity of 42 cubic feet per second (cfs). Since the work under the Retrofit Alternative would be confined within the existing viaduct footprint, no change to the storm drain system would be undertaken. Under the Replacement Alternative (all alignments and bridge concepts), it is proposed that the new viaduct structure would collect runoff approximately every 500 ft and direct it to ground level at convenient bent locations, where it could be collected and treated for water quality prior to being discharged into the local storm drain system. This approach would be consistent with current design practice and allow the runoff to be handled more efficiently.

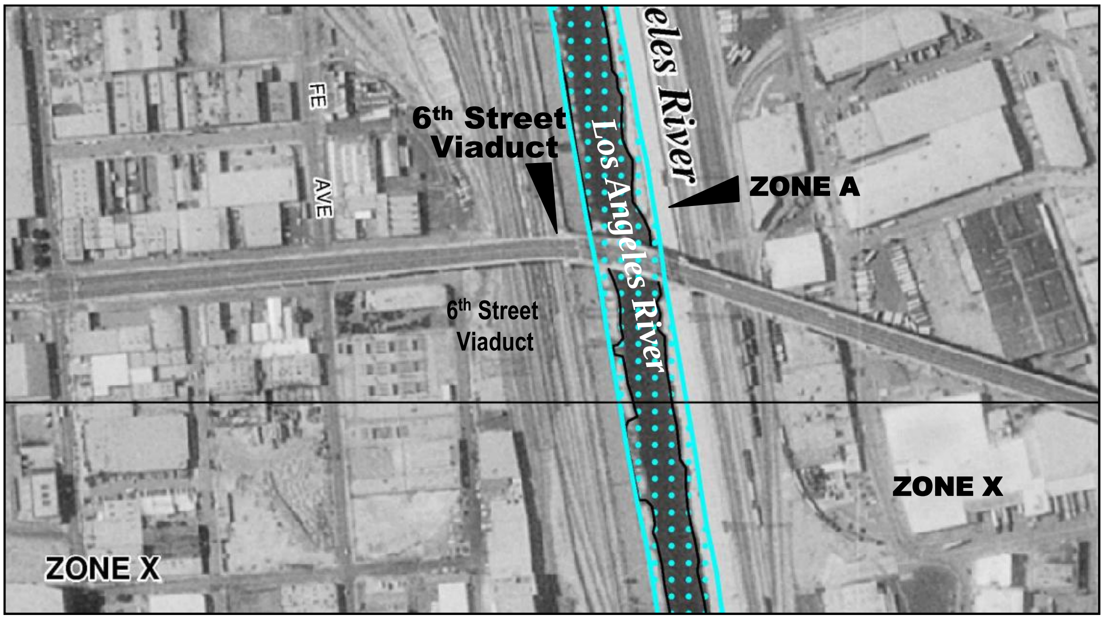
For draining the viaduct deck, it is estimated that approximately 7 deck/roadway drains on each side would be required for collecting onsite runoff along the full length of the viaduct. These would preferably be located at or near proposed viaduct bents or piers to allow conveyance through pipe outlets integrated into the columns. West of the river, new curb inlets (with vortex separators) located at Mateo Street would be utilized to collect and treat runoff prior to discharge into the existing storm drain. East of the river, the deck drains would outlet to an area that drains to a catch basin located east of the Los Angeles River east floodwall, Mission Road, and an alley east of Anderson Street and Clarence Street. This runoff would then be routed to the offsite storm drains via either extended detention basins or biofiltration swales. The proposed viaduct would intercept flow on the order of 5 cfs to the west of the river (in drainage area A) and 6 cfs to the east of the river (in drainage areas B and C).

Local Street Drainage System Modification

Modification to local street drainage system would be undertaken in and around the existing grade of the local streets. It is not the intent of the proposed project to reconstruct existing utility and infrastructure elements unless there is direct damage as a result of project construction. Due to right-of-way constraints, the existing outfall storm drains would not be modified as part of either Alternative 2 or 3. If replacement of any portion of the existing drainage system were found to be necessary due to conflict with other utilities, then that part would be replaced with the same material and size as the original.

3.10.2.4 Floodplain

The project site is included on the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map. It is in the Community of the City of Los Angeles. The Map Number is 06037C1636F, with an effective date of September 26, 2008. The Los Angeles River is a floodway shaded in color in the following floodplain map, which is cropped from the FEMA floodplain map 06037C1636F, and flood flows are confined within the levees. The remaining areas of the project site are located in Zone X, which are areas determined to be outside of the 500-year floodplain (Figure 3.10-3).



Source: FEMA Flood Insurance Rate Map, 2008.

Figure 3.10-3 Floodplain Map

3.10.3 Environmental Consequences

3.10.3.1 Construction Impacts

Alternative 1 – No Action

Storm Drain System

No impacts to the storm drain system would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. It is anticipated that a similar viaduct design as described under Alternative 3 – Replacement would be used. Impacts to the storm drain system would be the same as described under Alternative 3 – Replacement.

Floodplain

The stretch of the Los Angeles River at the 6th Street Viaduct is concrete lined, as shown in Figure 3.10-4.

Figure 3.10-4 Main Span of Center River Pier

To evaluate the impact to the river channel, an HEC-RAS hydraulic model developed by the United States Army Corps of Engineers (USACE) as part of the Los Angeles County Drainage Analysis (LACDA) was used to predict the baseline condition. The design discharge for this stretch of the Los Angeles River is 104,000 cfs,[58] which is determined by USACE based on risk and economical benefit analyses. The design discharge is higher than a 100-year storm event. The modeling results indicate that the design water level immediately upstream of the viaduct is 253.49 ft above the mean sea level (MSL) and that at the downstream edge of the bridge it is 242.82 ft. Based on the results of the model, it can be concluded that the pier of the 6th Street Viaduct restricts the flood flow and causes more than 10 ft of water surface backup upstream of the bridge under the existing condition.

In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Impacts to the floodplain would be the same as that described under Alternative 3 – Replacement.

[58] USACE, Los Angeles District. July 2005. Los Angeles County Drainage Area, Upper Los Angeles River and Tujunga Wash, HEC-RAS Hydraulic Models.

Alternative 2 – Retrofit

Storm Drain System

Construction activities for the Retrofit Alternative would be confined within the existing viaduct footprint. No impact to the existing storm drain system would occur as a result of construction activities.

Floodplain

The stretch of the Los Angeles River at the 6th Street Viaduct is concrete lined, as shown in Figure 3.10-4.

Based on the preliminary design information presented in the 6th Street Viaduct Final Seismic Retrofit Strategy Report (2004), no retrofit would be constructed at the center pier; therefore, the hydraulic conditions after the retrofit would be the same as those for the existing conditions, as presented in Alternative 1.

The USACE does not allow any construction work within the channel during the rainy season from October 15 through April 15; therefore, construction activities, including the use of falsework, would be limited to the dry weather season when the channel flow is very low. The minimum channel capacity conveyance would be preserved during construction, allowing the summer dry weather flow to pass through unobstructed. No impacts to flood flow due to construction activities are anticipated.

Alternative 3 – Replacement

Storm Drain System

Under this alternative the viaduct would be demolished and replaced. The construction period would take up to 4 years. The affected construction area is fully built; thus, no net increase in runoff flow is expected from the construction zone. Construction-related stormwater and nonstormwater discharges would be diverted into detention basins to be treated before discharging into the river or existing storm drain systems. Construction site sheet flows would be retained with sandbags and silk fences to prevent construction runoff.

Floodplain

Construction of the Replacement Alternative would require demolition of the existing viaduct and construction of the new structure. Four out of the six bridge concepts would have the center pier similar to the existing viaduct, including Bridge Concept 1 (Replication) and Bridge Concepts 4, 4A, and 5 (Extradosed Concrete Box Girder). The other two proposed concepts (Concepts 2 and 3) would not have a center pier. The USACE does not allow any construction work within the channel during the rainy season from October 15 through April 15; therefore, construction activities, including use of falsework, would be limited to the dry weather season when the channel flow is very low. The minimum channel capacity conveyance would be preserved during construction, allowing the summer dry weather flow to pass through unobstructed. No impacts to flood flow due to construction activities are anticipated.

3.10.3.2 Permanent Impacts

Alternative 1 – No Action

No permanent impacts to hydrology and floodplains would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Impacts to the storm drain system and floodplain would be the same as that described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Storm Drain System

The proposed Retrofit Alternative would not result in additional impervious area on and around the viaduct because the work would be confined within the existing viaduct footprint. Since the existing area around the viaduct has been built out, no net change in stormwater runoff would occur with implementation of the Retrofit Alternative. In addition, the Retrofit Alternative would not increase the volume of stormwater runoff discharging to the Los Angeles River; therefore, no impact to the river flow or floodplain would occur.

Floodplain

The Retrofit Alternative would not widen the main span of the viaduct; thus, there would be no extension to the center river pier. Since no retrofit would be constructed on the center pier, no change in the hydrology of the Los Angeles River would occur upstream or downstream of the 6th Street Viaduct. In addition, the Retrofit Alternative would not increase the volume of stormwater runoff discharging to the Los Angeles River; therefore, no impact to the river flow or floodplain would occur.

The project site is included on the FEMA Flood Insurance Rate Map. The Los Angeles River flood flows are confined within the levees. The remaining areas of the project site are located in Zone X, which are areas determined to be outside of the 500-year floodplain. The Retrofit Alternative would not have a longitudinal encroachment in the Los Angeles River floodplain. The Retrofit Alternative would not create additional risk to the current flood flow within the Los Angeles River compared to the existing condition. The Retrofit Alternative would not impact natural and beneficial floodplain values within the project area. The proposed action would not support any incompatible floodplain development within the City.

Alternative 3 – Replacement

Storm Drain System

The proposed new viaduct structure would have a wider roadway and sidewalk cross section, resulting in intercepting a proportional increase in runoff on the viaduct deck. The new viaduct structure would be designed to adequately collect and route stormwater runoff on the viaduct to a stormwater treatment system prior to discharging to the river.

Since the area around the viaduct has been built out and most of the area is impervious, the proposed new wider viaduct would not result in a net increase of the imperviousness of the project area. With no net change in the amount of stormwater runoff expected, no impacts to the existing storm drain system capacity would occur.

Note that construction of the new wider viaduct would require the removal of several buildings adjacent to the viaduct. Removal of the buildings could result in more open space, most of which would be landscaped, thus reducing stormwater runoff flowing to the existing storm drain system. Therefore, no impacts to existing storm drain system capacity are anticipated.

Floodplains

Hydraulic Analysis

The 6th Street Viaduct currently restricts the flood flow and causes more than 10 ft of water surface backup upstream of the viaduct under the design flow conditions (see Figure 3.10-5, Existing Condition). The HEC-RAS model setup for the existing condition was further modified to reflect the proposed bridge configuration and dimensions. As mentioned earlier, four out of the proposed six bridge concepts would have the center pier similar to the existing viaduct (Bridge Concept 1 [Replication] and Bridge Concepts 4, 4A, and 5 [Extradosed Concrete Box Girder]).

HEC-RAS model runs under the design flow condition were performed to determine the impact of various bridge concepts to the river hydraulics. The results of river hydraulic analysis are summarized in Table 3.10-2. As shown in Table 3.10-2, only Bridge Concepts 1 and 4A would result in a net reduction of the riverbed area at the bridge, which would be by 0.041-acre and 0.001-acre, respectively. Based on the preliminary design of the proposed bridge concepts, the center pier would be wider than existing for Bridge Concept 1 and narrower for Bridge Concepts 4, 4A, and 5. Bridge Concepts 1, 4, and 4A would have a slight net longitudinal encroachment in the riverbed to accommodate the wider bridge deck.

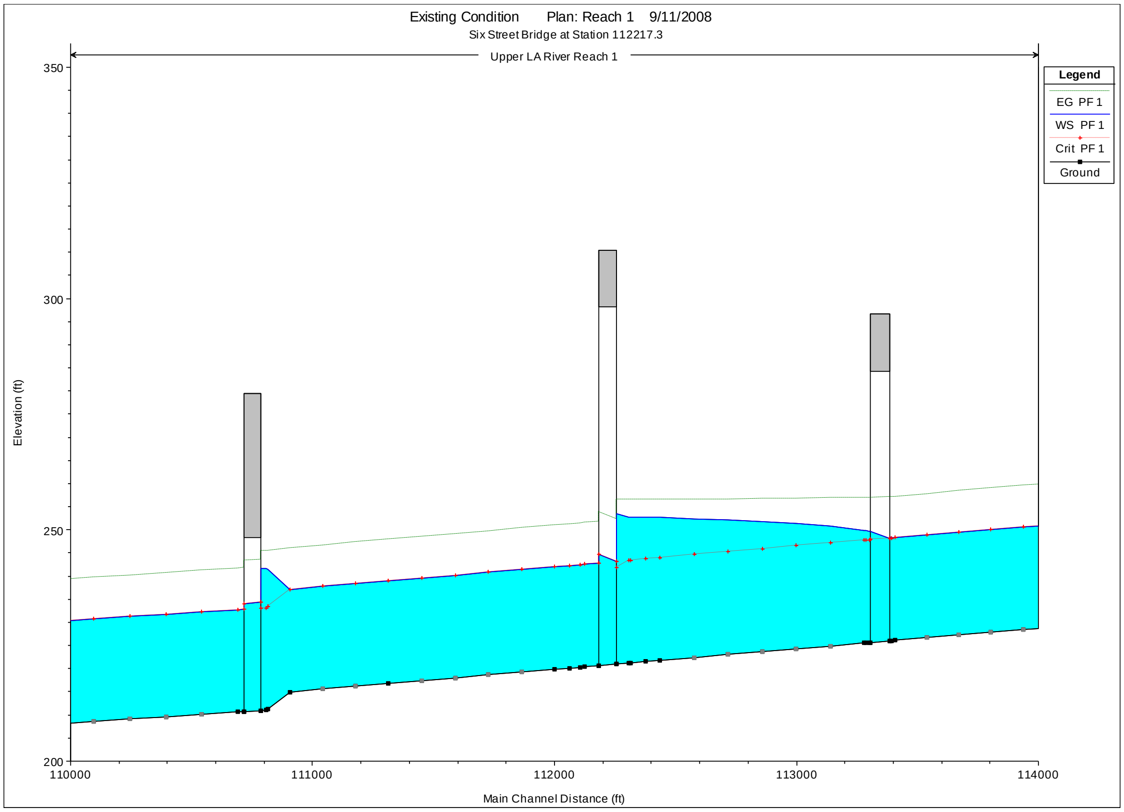


Figure 3.10-5 Water Surface Profile near 6th Street Viaduct

Table 3.10-2
Results of River Hydraulic Analysis

Alternative	Pier Length and Width (ft x ft)	Pier Footprint Area (acres)	Change in Footprint Area (acres)	Upstream of Viaduct		Downstream of Viaduct	
				Surface Water Elevation (ft, MSL)	Change in Water Elevation (ft)	Surface Water Elevation (ft, MSL)	Change in Water Elevation (ft)
1 – No Action	100 x 21	0.048	0.000	252.8	0.0	242.8	0.0
2 – Retrofit	100 x 21	0.048	0.000	252.8	0.0	242.8	0.0
3 – Concept 1	155.8 x 25	0.089	0.041	263.4	10.6	242.7	-0.1
3 – Concept 2	N/A	0.0	-0.048	234.9	-18.0	236.1	-6.7
3 – Concept 3	N/A	0.0	-0.048	234.9	-18.0	236.1	-6.7
3 – Concept 4	107.7 x 18	0.045	-0.004	251.3	-1.6	242.7	-0.1
3 – Concept 4A	118.6 x 18	0.049	0.001	251.3	-1.6	242.7	-0.1
3 – Concept 5	60.12 x 15	0.021	-0.028	234.9	-18.0	237.5	-5.4

Source: Hydrology/Hydraulics Report for 6th Street Viaduct Seismic Improvement Project, 2011.

Impacts to the surface water of the Los Angeles River based on the modeling results are summarized below:

- Bridge Concept 1 would have river piers 4 ft wider than existing ones with the west and east piers shifting closer to the center river pier of approximately 12.5 ft and 25 ft, respectively. Under the design flow, this design would result in the water level immediately upstream of the bridge to rise by approximately 10.6 ft above the existing condition, and the water level downstream of the bridge to decrease by approximately 0.1-ft below the existing condition. This bridge concept would have a negative impact on the floodway. This impact cannot be mitigated without a major redesign of the piers, which would be inconsistent with the concept.
- Bridge Concepts 2 and 3 would not have a center river pier. The backwater of the bridge would be eliminated. The water level upstream and downstream of the bridge would be lowered by 18.0 ft and 6.7 ft, respectively. This bridge concept would have a positive impact on the floodway.
- Bridge Concepts 4 and 4A would have a narrower center pier width compared to existing pier. This would result in the water level immediately upstream and downstream of the bridge to decrease by approximately 1.6 ft and 0.1-ft below the existing condition, respectively. This bridge concept would have a positive impact on the floodway.
- Bridge Concept 5 would also have a narrower center pier width compared to the existing pier. This would result in the water level immediately upstream and downstream of the bridge to decrease by 18.0 ft and 5.4 ft, respectively. This bridge concept would have a positive impact on the floodway.

In conclusion, only Bridge Concept 1 would have a negative impact on the stretch of the Los Angeles River floodplain at the 6th Street Viaduct; the other concepts would have negligible or beneficial impacts.

Risk Assessment

The project site is included on the FEMA Flood Insurance Rate Map. The Los Angeles River flood flows are confined within the levees. The Los Angeles River is a major floodway. The remaining areas of the project site are located in Zone X, which are areas determined to be outside of the 500-year floodplain. Encroachment is defined by FEMA as “construction, placement of fill, or similar alternation of topography in the floodplain that reduces the area available to convey floodwaters,” and by FHWA as “an action within the base floodplain.” FEMA Section 60.3 (d)(3) states that communities shall prohibit encroachments, fill, new development, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses that the proposed encroachment would not result in any increase in flood levels within the community of the base flood (100-year) discharge.

Based on the results of hydraulic analysis, Bridge Concept 1 would result in a higher water level in the Los Angeles River upstream of the 6th Street Viaduct based on hydraulic analyses under the design flood flow, which is higher than the 100-year flood flow; therefore, it would increase the flood risk. For all other bridge concepts, either entailing reduced pier size or absence of the center pier and bents located near the river banks, would increase flood flow conveyance. The hydraulic modeling results indicate that the water surface elevations both upstream and downstream of the viaduct would be lowered compared to the existing condition under the design flood flow; therefore, the floodplain values of the Los Angeles River would benefit from the proposed project. These replacement alternatives would not impact natural and beneficial floodplain values within the project area. Finally, the proposed action would not support incompatible floodplain development within the City.

In addition to the above, the Replacement Alternative would not have a longitudinal encroachment in the Los Angeles River.

3.10.3.4 Indirect Impacts

No indirect impacts to hydrology and floodplains have been identified for Alternative 2 – Retrofit, Alternative 3 – Replacement, and Alternative 1 – No Action as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would have to seek some emergency funding source to replace it. The indirect impacts under this circumstance would be the same as the impacts described under Alternative 3 - Replacement.

3.10.4 Avoidance, Minimization, and Mitigation Measures

No mitigation is required for the No Build Alternative and Retrofit Alternative.

No mitigation is required for the No Build Alternative and the Retrofit Alternative as long as the viaduct remains in service. If the viaduct was determined unserviceable and was subject to replacement, all construction-related work in the riverbed would be performed during the dry season to avoid any potential impacts to the river hydraulics. Furthermore, construction site best management practices (BMPs) would be implemented to collect all construction-related nuisance water discharges. This measure is also applicable to Alternative 3 – Replacement.

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3.11 Water Quality and Stormwater Runoff

This section addresses potential impacts associated with water quality that could result from implementation of the proposed project. The information presented in this section is excerpted from the Hydrology/Hydraulics Report prepared for this project by a registered engineer.[59]

3.11.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to waters of the United States (U.S.), from any point source, unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the State that the discharge will comply with other provisions of the Act. [Most frequently required in tandem with a Section 404 permit request. See below.]
- Section 402 establishes the NPDES, a permitting system for the discharge (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

USACE issues two types of 404 permits: standard and general permits. There are two types of general permits: regional permits and nationwide permits. Regional permits are issued for a

[59] Hydrology/Hydraulics Report for 6th Street Viaduct Seismic Improvement Project. Prepared September 2008, Revised February 2011.

general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of standard permits: individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a nationwide permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with the U.S. Environmental Protection Agency (EPA) Section 404 (b)(1) Guidelines (EPA CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. Per guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition every permit from USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (i.e., liquid, solid, or otherwise) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just Waters of the U.S., like groundwater and surface waters not considered Waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which are then state listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, then the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (i.e., point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including Municipal Separate Storm Sewer Systems (MS4s). EPA defines an MS4 as any conveyance or system of conveyances (i.e., roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that are designed or used for collecting or conveying stormwater. The SWRCB has identified the Department (or Caltrans) as an owner/operator of an MS4 by the SWRCB. This permit covers all Department ROWs, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit, under revision at the time of this update, contains three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control stormwater and nonstormwater discharges; and

3. The Department stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) and other measures.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing stormwater management procedures and practices, as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in stormwater and nonstormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures developed from the 2003 SWMP to address stormwater runoff or any subsequent SWMP version draft and approved.

Part of and appended to the SWMP is the Storm Water Data Report (SWDR) and its associated checklists. The SWDR documents the relevant stormwater design decisions made regarding project compliance with the MS4 NPDES permit. The preliminary information in the SWDR prepared during the Project Initiation Document (PID) phase will be reviewed, updated, confirmed, and if required, revised in the SWDR prepared for the later phases of the project. The information contained in the SWDR may be used to make more informed decisions regarding the selection of BMPs and/or recommended avoidance, minimization, or mitigation measures to address water quality impacts.

Since the proposed project is a local assistance project, the City of Los Angeles is responsible for obtaining a NPDES permit. The proposed project lies within the City and County of Los Angeles and is regulated by the RWQCB Los Angeles Region. The RWQCB has adopted NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein (Order No. 01-182). The City of Los Angeles is a permittee under this general permit. In addition, the Los Angeles County Department of Public Works (LACDPW) administers a Standard Urban Stormwater Mitigation Plan (SUSMP). This plan requires that various BMPs be implemented in an effort to help remove unwanted pollutants and trash from entering the existing storm drain systems.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1-acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1-acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1-acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than 1-acre.

The project is located within the jurisdictions of Caltrans' and the County of Los Angeles. Notification of Construction (NOC) is required for the portion of the project within Caltrans' jurisdiction, while Notice of Intent (NOI) is required for the portion of the project within the County of Los Angeles' jurisdiction, as described below. Caltrans' Statewide NPDES Permit requires Caltrans to submit an NOC to the RWQCB to obtain coverage under the Construction General Permit. Similarly, the County of Los Angeles NPDES Permit requires the City to submit an NOI to the RWQCB to obtain coverage under the Construction General Permit. Upon project completion, a Notification of Completion of Construction (NOCC) is required to suspend coverage. This process will continue to apply to Department projects until a new Caltrans Statewide NPDES Permit is adopted by the SWRCB. An NOC or equivalent form will be submitted to the RWQCB at least 30 days prior to construction if the associated DSA is 1-acre or more and an SWPPP is required. In accordance with the Caltrans' Standard Specifications, a WPCP is used for projects with DSA less than 1-acre. During the construction phase, compliance with the permits and the Caltrans' Standard Special Conditions requires appropriate selection and deployment of both structural and non-structural BMPs. These BMPs must achieve performance standards of Best Available Technology economically achievable/Best Conventional Pollutant Control Technology (BAT/BCT) to reduce or eliminate stormwater pollution.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water body must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Since the City of Los Angeles owns part of the 6th Street Viaduct, it will be responsible for obtaining all necessary permits, agreements, and approvals from resource and regulatory agencies prior to advertisement for construction; fully complying with the conditions of permits, achieving all performance standards, preparing all required reports, and providing a copy of each permit to the Caltrans District Local Assistance office for recording keeping purposes.

3.11.2 Affected Environment

The proposed project is located within the Los Angeles River Basin in hydrologic subarea 405.15. The basin covers an area of approximately 830 square miles. See the description of the affected environment in Section 3.10.2 above.

The proposed project lies within the City and County of Los Angeles and is regulated by the RWQCB Los Angeles Region. In addition, the Los Angeles County Department of Public Works (LACDPW) regulates a Standard Urban Stormwater Mitigation Plan (SUSMP). This plan requires that various best management practices (BMPs) be implemented in an effort to help remove unwanted pollutants and trash from entering the existing storm drain systems.

The 6th Street Viaduct is located in the Upper Los Angeles River Reach 3, which spans Arroyo Seco and Washington Boulevard. Existing designated beneficial uses for the Los Angeles River Reach 3, which are designated by the RWQCB, include Municipal and Domestic Supply, Industrial, Groundwater, Water Contact Recreation, Non-Contact Water Recreation, Warm Freshwater Habitat, and Wildlife Habitat. Designated beneficial uses for groundwater in this hydrologic unit include Municipal and Domestic Supply, Agricultural Supply, Industrial Service, and Industrial Process Supply. Table 3.11-1 summarizes the pollutants of concern in this reach of the Los Angeles River by source and their relative importance with regard to source control and treatment.

Table 3.11-1
Los Angeles River Reach 3 Pollutants of Concern

Pollutant	Source	Priority
Ammonia	Nonpoint/Point	High
High Coliform Count	Nonpoint/Point	High
Lead	Nonpoint/Point	High
Nutrients (Algae)	Nonpoint/Point	High
Odors	Nonpoint/Point	High
Oil	Nonpoint/Point	Low
Scum/Foam-unnatural	Nonpoint/Point	High
Trash	Nonpoint/Point	High

Source: Hydrology/Hydraulics Report, 6th Street Viaduct Seismic Improvement Projects, 2008.

The RWQCB Los Angeles Region has set water quality objectives, which are presented in the Basin Plan for the Coastal Watersheds of Los Angeles County. Currently, water quality objectives for the Los Angeles River (between Figueroa Street and the Los Angeles River Estuary) are 1,500 milligrams per liter (mg/L) total dissolved solids (TDS), 150 mg/L chloride, 8 mg/L nitrogen, and 350 mg/L sulfate. Water quality objectives set forth for the Central Groundwater Basin are 700 mg/L TDS, 250 mg/L sulfate, 150 mg/L chloride, and 1 mg/L boron. This section of the Los Angeles River has been listed as an impaired water body for nitrate, pH, and scum in accordance with the most recently posted 303(d) list. Note that the project area is not within a "significant ecological area" as defined by the Los Angeles County Department of Regional Planning.

3.11.3 Environmental Consequences

3.11.3.1 Construction Impacts

Alternative 1 – No Action

No construction impacts to water quality would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Construction of the new viaduct would result in the same impacts described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

The major pollutant expected from construction sites is erosion related, where sediment-laden water flows into storm drains. The proposed project covers an area of more than 1-acre; therefore, an NPDES Permit for stormwater discharges associated with construction activities would have to be obtained. The City of Los Angeles will file the Permit Registration Documents (PRDs) with the Los Angeles RWQCB for coverage under the Construction General Permit (CGP). Since the project area is situated within both Caltrans' ROW and local streets within the City of Los Angeles, it would gain coverage under Caltrans' General NPDES Permit and the County of Los Angeles' General NPDES Permit for stormwater discharge associated with construction activities, in which the City is one of the permittees. A SWPPP and Monitoring Program would be prepared and implemented prior to construction activities. The SWPPP would include erosion and sediment control; non-stormwater management; postconstruction stormwater management; waste management and disposal; maintenance, inspection, and repair of BMPs; employee training to perform inspections of the BMPs at the construction site; and a sampling and analysis plan for contaminated storm runoff. The SWPPP would describe structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind.

Table 3.11-2 lists various temporary BMPs that would be used to control stormwater runoff during demolition and construction periods prior to discharging to the surrounding storm drain system.

Table 3.11-2
Proposed Temporary BMPs

Series Designation	Category
SC-20…	Non-Stormwater Management
SC-30…	Vehicle and Equipment Management
SC-50	Over Water Activities
SC-60	General Stormwater Management
SC-70…	Municipal Field Program BMPs

Source: Hydrology/ Hydraulics Report, 6th Street Viaduct Seismic Improvement Projects, 2008.

Since the construction activities would occur over a waterway, special BMPs to minimize debris deposition into the river would be considered for implementation. These BMPs could include the following:

- Limit demolition and construction of the portions of the viaduct located over the river to the dry season (April to October).
- Employ non-shattering methods for demolition activities (e.g., wrecking balls would not be acceptable).
- Place platforms under/adjacent to the viaduct to collect debris.
- Provide watertight curbs or toe-boards on the viaduct to contain spills and prevent materials, tools, and debris from falling from the viaduct.
- Secure all materials on the viaduct to prevent discharges into the channel via wind.

- Use attachments on equipment, such as backhoes, to catch debris from small demolition operations.
- Stockpile accumulated debris and waste generated from demolition away from the channel.
- Isolate work areas within the channel from the river flow using sheet piling, k-rails, or other methods of isolation.
- Use drip pans during equipment operation, maintenance, cleaning, fueling, and storage for spill prevention. Place drip pans under all vehicles and equipment placed on the viaduct when expected to be idle for more than 1-hour.
- Keep equipment used in the channel leak-free.
- Direct water from concrete curing and finishing operations away from inlets and watercourses to collection areas for dewatering.
- Convey groundwater discharge from dewatering operations for pile installation into an acceptable sediment containment bin or basin. Test and treat the contained water prior to discharge as per requirements set forth by the RWQCB.

Alternative 3 – Replacement

Impacts to water quality pertaining to stormwater runoff under this alternative for any alignment and bridge concept would be similar to Alternative 2, but with a larger area of impact because of the large construction zone. Implementation of the temporary BMPs listed under Alternative 2 during the construction period would minimize water quality impacts from stormwater runoff.

3.11.3.2 Permanent Impacts

Alternative 1 – No Action

No permanent impacts to water quality would occur under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Impacts to water quality as a result of new viaduct construction would be the same as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Under this alternative, there would be no change to the viaduct and its vicinity after the construction is completed. Since there would be no permanent treatment BMPs installed under this alternative, as under the No Action Alternative, all stormwater runoff from the viaduct would be directly discharged to the river without being treated at the BMP devices.

Alternative 3 – Replacement

The level of impacts to aquatic resources and water quality would be the same for any alignment alternative and bridge concept.

Pollutants generated from streets, highways, and freeways that could be contained in stormwater runoff and reach the surface water body include heavy metals from vehicle exhaust, organic compounds (including petroleum hydrocarbons and rubber), windblown sediments, trash and debris, and oil and grease. Since the new viaduct under each alignment alternative would be wider than the existing viaduct, it would capture a higher volume of runoff during the storm event. The new viaduct would be designed to capture all of the anticipated runoff for treatment at the permanent BMPs that would be installed within the vicinity of the viaduct prior to discharging to the Los Angeles River. Permanent treatment BMPs that have been conceptually evaluated for the project alternatives include detention basins and biofiltration swales. Additional BMP alternatives, using Caltrans-approved BMPs, will be evaluated during final design. The selected BMPs would then be sized and installed to meet Caltrans, County, and City of Los Angeles guidelines. With the BMPs in place, no adverse impacts to surface water quality because of stormwater runoff are anticipated.

Implementation of Alternative 3 would involve working in the Los Angeles River, which is a jurisdictional waterway of the USACE. Disturbance to the river would include pier removal for Bridge Concepts 2 and 3 and removal and reconstruction of the river pier for Bridge Concepts 4, 4A, and 5 (Extradosed Concrete Box Girder). Coordination with USACE has been initiated through the Section 6002 coordination under SAFETEA-LU (see Section 5.3.4 of this EIR/EIS). A Section 404 permit would be obtained during the final design phase. Permanent impacts to aquatic resources (i.e., the water column) are those caused by the fill associated with construction of the viaduct pier. As shown in Table 3.10-2, only Bridge Concept 1 would have a net substantial impact to the Los Angeles River waterway, and Concept 4A would have a minor impact. The Los Angeles River in this area is concrete-lined channel, so there would be no soft-bottom habitat impact. Because no natural terrain or native vegetation exists in this portion of the channel or in the immediate vicinity, the project site does not provide suitable habitat for any special-status plant or wildlife species. The project site also does not contain any federally designated critical habitat. Due to the extremely limited biological value of the concrete-lined waterway, the minimal amount of fill for a bridge pier is not expected to degrade any local species habitats or other biological resources. No mitigation would be required beyond the standard conditions that may be included in the State Water Quality Section 401 Certification or Section 404 permit to be issued by USACE. Further discussion regarding the biological resources within the project area is provided in Part III of this EIR/EIS.

3.11.3.3 Indirect Impacts

The estimated acreages of direct impacts to waters by the project alternatives are provided in Table 3.10-2. The only potential indirect impact to waters would be the increased shadow area underneath the viaduct; however, because no aquatic/wetlands vegetation exists under the viaduct, there would be no indirect impacts to aquatic resources from any of the alternatives.

In the event the viaduct was determined to be unserviceable under the No Action Alternative, the City would have to seek some emergency funding source to replace it. The indirect impacts under this circumstance would be the same as the impacts described under Alternative 3 - Replacement.

3.11.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. With implementation of the SWPPP and respective BMPs required by current regulations to minimize stormwater pollution, as mentioned in Sections 3.11.3, no mitigation is required.

Alternative 2 – Retrofit

With implementation of the SWPPP and respective BMPs required by current regulations, as mentioned in Section 3.11.3, no additional mitigation is required.

Alternative 3 – Replacement

The CGP requires pollution control (minimization) efforts. With implementation of the SWPPP and respective BMPs required by current regulations to minimize stormwater pollution, as mentioned in Section 3.11.3, no mitigation is required.

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3.12 Geology/Soils/Seismicity

This section discusses geology, soils, and seismic hazard concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The Caltrans Seismic Design Criteria (2009) uses the next generation attenuation ground motion equations to determine probabilistic and deterministic ground motions.

The geologic and geotechnical conditions and subsequent conclusions presented in this section are based on the review of relevant geologic and geotechnical reports prepared for the site and the surrounding area, along with the geotechnical data collected and analyzed in the Final Project Report/Environmental Document Phase Foundation Report[60] prepared for this project during the preliminary design phase.

3.12.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under CEQA.

3.12.2 Affected Environment

3.12.1.1 Regional Geology

The project site is located at the northern margin of the Los Angeles Basin. The basin, lying between the Transverse and Peninsular Ranges of southern California, is bound to the north by the Hollywood and Santa Monica Faults, to the east by the Puente Hills and Santa Ana Mountains, and to the southwest by the Pacific Ocean. The Los Angeles Basin is a northwest-trending structural depression filled with Tertiary and Cretaceous age sedimentary formations and capped with Pleistocene and Holocene age alluvium. Currently, the tectonic regime is one of regional crustal compression oriented in a north-northeast direction, as indicated by geological structure, earthquakes, and land and space geodetic surveys.

3.12.1.2 Site Geology

The project area is underlain by non-indurated Quaternary age alluvial deposits of silt, sand, and gravel. The regional geologic map by Dibblee (1989) designates two Surficial units at the site: (1) Qg – youngest alluvium, active stream channel deposits of gravel, sand, and silt (less than 1,000 years old); and (2) Qa – Holocene alluvium, unconsolidated floodplain deposits of silt, sand, and gravel (1,000 to 10,000 years old).

[60] Final Project Report/Environmental Document Phase Foundation Report for Improvement of 6th Street Viaduct over Los Angeles River and U.S. Highway 101. May 2011.

During geotechnical investigations for the proposed project, the depth of alluvium was found to vary from approximately 20 ft in the river channel to 80 ft at the west abutment. The alluvium is mostly sand with silt and is brown, olive-brown, and yellow-brown in color. Within the Qg unit, gravels are generally 1 to 2 inches in diameter with rare boulders in excess of 10 inches in diameter.

Underlying the alluvium are the marine upper Pico Member (Tfsc) and Repetto Member of the Pliocene-age Fernando Formation (Tfr) (Dibblee referred to this as the Wheelerian Stage of the Fernando Formation). The Pico Member is made of sand with silt and gravel and is brown, olive-brown, and yellow-brown in color. The Repetto Member is made of dense to hard, dark gray to blue-gray, moderately to poorly bedded, silt, clay, silt with sand, and fine- to medium-grained sand. The Pico and Repetto Members also contain trace shell fragments and pea gravel with a slight to strong hydrogen sulfide (rotten egg) odor.

Precise depth of the Fernando Formation at this location is unknown; however, based on information from nearby oil wells, the depth is believed to be approximately 3,000 ft. Total depth of tertiary sedimentary units at this location is approximately 10,000 ft. Cretaceous age crystalline bedrock underlies the sedimentary units.

3.12.1.3 Seismicity

The project site is located within a seismically active region. Several active faults that could produce significant shaking are located near the site. Surface rupture at the project site is not anticipated because the site is not located within an Alquist-Priolo Special Study Zone[61]. Significant faults near the site include the Puente Hills Blind Thrust, Upper Elysian Park Blind Thrust, Newport Inglewood-Rose Canyon, Malibu Coast-Santa Monica-Hollywood-Raymond, Verdugo, Eagle Rock, and Whittier-Elsinore Faults, according to the Caltrans Seismic Hazard Map prepared by Caltrans in 2007.

Preliminary analyses using the 2009 Seismic Design Criteria (SDC) methods indicate that the controlling fault is the Puente Hills Blind Thrust Fault, which is approximately 2.1 miles from the project site and can generate a magnitude 7.3 earthquake on the Richter scale. A Richter magnitude 7.3 earthquake would cause a peak ground acceleration (PGA) of 0.72 g at the project site.

3.12.1.4 Groundwater Conditions

Several drillings at the project site were undertaken in the past. In 1931, during a City investigation, groundwater was encountered at a depth of 35 ft below ground surface (bgs)

[61] CDMG. 2007. California Division of Mines and Geology. Special Publication 42, Fault Rupture hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps. Interim Revision.

(elevation 217.0 ft) west of the river near the West River Pier; at 15 ft bgs (elevation 211.0 ft) below the channel invert near the Center River Pier; and at 35 ft bgs (elevation 218 ft) east of the river near the East River Pier. The groundwater table was either not encountered or not recorded for the other borings performed.

During a City General Services investigation (1993), groundwater was encountered at a depth of 22 ft bgs (elevation 228.0 ft) east of the river near Bent 36; however, groundwater was not encountered in the other three borings performed on the east side of the river. The report concluded that a localized perched condition is likely to represent the groundwater conditions in the area.

During investigation by EMI in 2005[62], groundwater was encountered at a depth of 65.5 ft bgs (elevation 188.2 ft) west of the river near Bent 9; at 20.5 ft bgs (elevation 203.7 ft) below the channel invert near the Center River Pier; and between 53.5 and 56.3 ft bgs (elevation 196.0 and 197.1 ft) east of the river between Bents 16 and 34.

During the current investigation for the proposed project, groundwater was encountered at a depth of 62.0 ft bgs (elevation 189.0 ft mean sea level [msl]) between Bents 5 and 6; at 55.7 ft bgs (elevation 193.3 ft msl) at Bent 14; and at 61.2 ft bgs (elevation 188.8 ft msl) between Bents 20 and 21.

Based on the *Seismic Hazard Zone Report 029* for the Los Angeles 7.5-Minute Quadrangle prepared by the California Division of Mines and Geology (CDMG) in 1998, the historically highest groundwater within the project site is approximately 120 ft bgs. According to the existing boring information, the groundwater table was encountered at much shallower depths; therefore, the groundwater level encountered within the channel during the City investigation (1931) (15 ft bgs or elevation 211.0 ft) was assumed to be the design groundwater depth.

Groundwater notably might fluctuate due to seasonal variation, nearby construction, irrigation, or numerous other man-made and natural influences.

3.12.1.5 Liquefaction Potential

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave like a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow groundwater, (2) low-density sandy soils, and (3) high-intensity ground motion. Studies indicate that saturated, loose and medium-dense, near-surface cohesionless soils exhibit the highest liquefaction potential; while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. Effects of

[62] Earth Mechanic, Inc. (EMI). 2005. *Draft Geotechnical Report, 6th Street Viaduct over the Los Angeles River (Bridge No. 53C-1880), Los Angeles, California.* Prepared for PBS&J. October 14.

liquefaction on level ground include sand boils, settlement, and bearing capacity failures below structural foundations.

All previous geotechnical reports reviewed as part of the Foundation Report preparation stated that liquefaction potential at the bridge site is considered low due to the relatively deep groundwater table and dense to very dense granular soils encountered at the site; however, these reports all considered peak bedrock accelerations in the 0.4- to 0.7-g range, and most likely the groundwater table elevations that were encountered during the investigations (if any). Preliminary liquefaction analyses were performed using borings from the previous and current investigations, along with the revised seismic parameters and groundwater table elevation. Based on recent liquefaction analysis results for the proposed project, the subsurface soils indicated a low potential for liquefaction at the project location. This agrees with the CDMG *Seismic Hazard Zones Map of the Los Angeles Quadrangle*[63]. This map indicates that the project site is not located in an area where historical occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements such that mitigation would be required.

3.12.3 Environmental Consequences

3.12.2.1 Construction Impacts

Construction activities for any project alternative would not induce geologic hazards pertaining to ground rupture or ground motion.

3.12.2.2 Permanent Impacts

The project site is located within a seismically active area and is subject to ground rupture and ground shaking. Preliminary liquefaction analysis results for the subsurface soils indicate a low potential for liquefaction at the project location.

Alternative 1 – No Action

As long as the viaduct remains in service, there would be no impacts on geology, soils, and seismicity. The risk of the viaduct becoming unserviceable as a result of a seismic event (as discussed in Section 3.12.1.3) remains high.

Alternative 2 – Retrofit

Under this alternative, the existing viaduct would be retrofitted by steel casings and infill walls at various columns and bents that are moderately to severely damaged, as described in Section 2.4.2. With the retrofit alternative, there would be no impacts on geology, soils, and seismicity, however, the retrofit design would only be for the prevention of collapse under the

[63] CDMG, 1999. California Division of Mines and Geology. *Seismic Hazard Zones Map of the Los Angeles Quadrangle.*

design seismic event, and the damaged viaduct would likely have to be replaced after a major earthquake.

The retrofit design life expectancy (i.e., the period of time that a bridge is expected to be in operation) to prevent seismic collapse is approximately 30 years. The actual life will depend on several factors, including exposed conditions of the structure to the environment, quality of materials, design and construction, and level of maintenance performed and the continuous deterioration of material due to ASR; therefore, the Retrofit Alternative would minimize the potential for collapse of the 6th Street Viaduct in a major earthquake.

Alternative 3 – Replacement

Under this alternative, the existing viaduct would be replaced by a new structure that would be designed to meet Caltrans seismic design criteria. Implementation of this alternative would minimize the potential to collapse and would likely have repairable damage under the design seismic event for approximately 75 years. The replacement alternative would not have impacts on geology, soils, and seismicity. The level of impacts pertaining to geology/soils/seismicity would be the same for any bridge concept or alignment alternative.

3.12.2.3 Indirect Impacts

No indirect impacts were identified.

3.12.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

The 6th Street Viaduct is subject to collapse in a major earthquake. The City and Caltrans would continue inspection and maintenance of the viaduct until it is determined unusable due to advanced ASR deterioration. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. No mitigation measures would be required.

Alternative 2 – Retrofit

The City and Caltrans would continue inspection and maintenance of the viaduct until it is determined unusable due to advanced ASR deterioration. The expected life of this alternative is 30 years and would likely require action in the future for replacement. No mitigation measures would be required.

Alternative 3 – Replacement

In general, the viaduct would be designed to meet current Caltrans seismic design criteria. Once the viaduct is open for public use, the City and Caltrans would perform regular inspection and maintenance per the standard requirements. No mitigation measures would be required.

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3.13 Paleontology

This section presents an overview of the efforts conducted to identify and evaluate the potential for impacts caused by the proposed project on significant paleontological resources. The information presented in this section is excerpted from the Paleontological Identification Report[64] conducted for this project.

3.13.1 Regulatory Setting

Paleontology is the study of fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 U.S.C. 431-433], Federal-Aid Highway Act of 1960 [23 U.S.C. 305]), and the Omnibus Public Land Management Act of 2009 [16 U.S.C. 470aaa]). Under California law, paleontological resources are protected by CEQA.

3.13.2 Affected Environment

3.13.2.1 Paleontological APE

The paleontological study area includes all locations that would be subjected to subsurface ground disturbance under both build alternatives of the proposed project. The paleontological study area is the same as the project construction area. The areas near the existing viaduct footings are those subject to extensive ground disturbance. Other areas within the paleontological study area, including building demolition, would be subject to shallow subsurface disturbance.

3.13.2.2 Research Methods

The following tasks were conducted to compile stratigraphic and paleontologic resource inventories of the 6th Street Viaduct study area by rock unit:

- Reviewed surficial geologic maps covering the study area and vicinity to determine the underlying fossil-bearing rock units and their respective areal distribution therein.
- Conducted an archival search at the Natural History Museum of Los Angeles County, Vertebrate Paleontology Department, to document the occurrence of any previously recorded fossil site and the types of fossil remains from each of these rock units in and near the study area.
- Reviewed published and unpublished geologic paleontologic literature for additional information on these and other fossil sites from the same rock units in and near the study area.

[64] Paleontological Identification Report. February 2009, validated February 2011.

No field survey was conducted because the study area is fully developed.

3.13.2.3 Findings

While no paleontological sites have been found in the study area, paleontological sites have been found nearby. The older alluvium has yielded fossilized bones and teeth at many fossil sites in the Downtown Los Angeles vicinity. Because of these fossil occurrences, the older alluvium is classified as being of high importance because of its demonstrated high potential for containing scientifically important fossil remains that might be exposed by earth-moving activities (see Figure 3.13-1 for the location of older and younger alluvium within the project area.)

The younger alluvium has also yielded fossilized bones and teeth at many fossil sites in Downtown Los Angeles and its immediate vicinity. Several remains have been found at sites within a 1.6-mile radius of the study area. Mammoth remains have been found as shallow as 8 ft below previous grade. Holocene plant remains more than 5,000 years in age were encountered at depths as shallow as 20 ft below previous grade. Horse remains have been found at a depth of 43 ft below previous grade. Because of these fossil occurrences, the younger alluvium is classified as being of high importance at depths greater than approximately 5 ft below current grade because of its demonstrated high potential for containing scientifically important fossil remains that might be exposed by earth-moving activities. The younger alluvium is classified as being of low importance at depths less than 5 ft below current grade. Accordingly, any remains found at such shallow depths would likely be too young to be considered fossilized or scientifically important.

3.13.3 Environmental Consequences

Alternative 1 – No Action

No impacts to paleontological resources would occur under this alternative.

Alternative 2 – Retrofit

Excavation and other earth-moving activities associated with retrofit construction might result in the loss of paleontological resources. These losses might include (1) an undetermined number of unrecorded fossil sites in the older alluvium and, at depths greater than 5 ft below current grade, the younger alluvium; (2) scientifically important fossil remains; (3) associated fossil specimen data and corresponding geologic and geographic site data; and (4) the fossil-bearing strata.

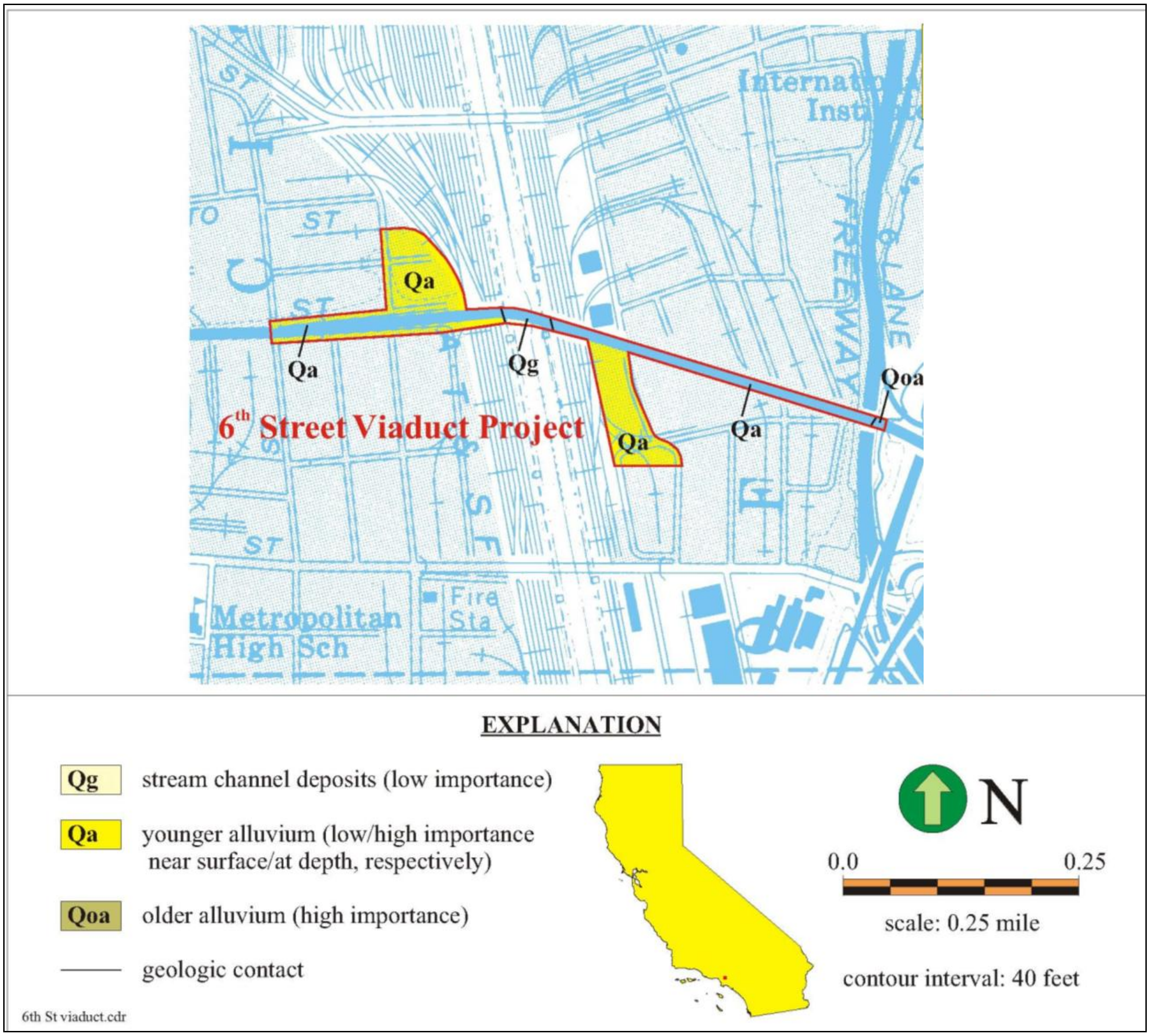

Figure 3.13-1
Surficial Geologic Map Showing Paleontologic Importance of Rock Units Underlying 6th Street Viaduct

Alternative 3 – Replacement

Impacts to paleontological resources would be the same as for Alternative 2, but at a larger extent. The level of impacts to paleontological resources would be the same for any bridge concept or alignment alternative.

3.13.4 Avoidance, Minimization, and Mitigation Measures

Implementation of the following mitigation measures would minimize potential impacts to paleontological resources during earth-moving activities.

- A qualified Principle Paleontologist would be retained prior to the start of construction to develop and implement a Paleontological Monitoring Plan (PMP). The PMP would include obtaining a written storage agreement with a recognized museum repository; presenting preconstruction meeting instructions for construction personnel on environmental awareness; instructions on fossil remains handling requirements for archiving; archival requirements for remains prior to transfer to the repository for permanent storage and maintenance; instructions on fossil remains handling requirements; a discussion of bulk sample requirements of fine-grained sediment from fossiliferous or potentially fossiliferous strata; and preparation of a report summarizing the findings of the work conducted under the PMP.
- A Paleontological Monitor would be onsite on a full-time basis to inspect new exposures created by earth-moving activities in areas underlain by the older alluvium (area east of US 101) and at depths greater than 5 ft below current grade for the younger alluvium.
- If fossil remains are discovered, then earth-moving activities at the fossil site would be halted or diverted temporarily to allow the monitor to recover the fossil remains.

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3.14 Hazardous Waste/Materials

Hazardous materials are generally substances that, by their nature and reactivity, have the capacity for causing harm or health hazards during normal exposure or an accidental release or mishap. They are characterized as being toxic, corrosive, flammable, reactive, an irritant, or a strong sensitizer. The term “hazardous substances” encompasses chemicals regulated by both U.S. Department of Transportation (DOT) “hazardous materials” regulations and the U.S. Environmental Protection Agency’s (EPA) “hazardous waste” regulations, including emergency response. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment.

This subsection discusses potential human health hazards due to exposure to existing and possible future sources of hazardous materials and wastes because of project construction and operation.

3.14.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the laws listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal RCRA and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

3.14.2 Affected Environment

An Initial Site Assessment (ISA) covering the project study area was prepared in October 2005, and selected sites were reassessed in February 2007 (approved 2008), and validated in February 2011.[65] The ISA was prepared in accordance with American Society for Testing and Materials (ASTM) E-1527-00 guidelines and Caltrans *Project Development Procedures Manual*. The scope of the ISA included site reconnaissance; historical research related to use, storage, disposal, or release of hazardous materials or petroleum hydrocarbons; review of environmental databases; and report of findings.

Following the Phase I study, a site investigation covering the proposed project alignment (except for Alignment 3B) was conducted in early 2008 and updated in February 2011.[66] A summary of findings is presented below.

3.14.2.1 Review of TrackInfo Services Environmental FirstSearch (EFS) Report

There are 183 sites within ASTM 1527-00 Standard search distances from the project site that have been identified in the environmental databases. These results are summarized in Table 3.14-1. Several facilities are listed in multiple databases. Only one Recognized Environmental Condition (REC) was identified for the project. REC means “the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.”

[65] Initial Site Assessment for 6th Street Viaduct Seismic Improvement Project. 2005; revised February 2007; validated February 2011.

[66] Site Investigation Report for 6th Street Viaduct Improvement Project over Los Angeles River and U.S. 101. July 2008; validated February 2011.

Table 3.14-1
Summary of Environmental Database Search Results

Database	Search Radius	Onsite	Within 1/8-Mile	Within 1/4-Mile	Within 1/2-Mile	Greater than 1/2-Mile	Not Mapped	Total
NPL	1.00	0	0	0	0	0	0	0
CERCLIS	0.50	0	0	0	0	--	0	0
NFRAP	0.12	0	1	--	--	--	0	1
RCRA TSD	0.50	0	0	0	0	--	0	0
RCRA COR	1.00	0	0	0	0	1	0	1
RCRA GEN	0.25	2	13	10	--	--	1	26
RCRA NLR	0.12	0	4	--	--	--	0	4
ERNS	0.12	0	0	--	--	--	1	1
NPDES	0.25	0	0	0	--	--	0	0
FINDS	0.25	1	24	12	--	--	1	38
TRIS	0.25	0	6	2	--	--	0	8
State Sites	1.00	0	1	0	5	5	2	13
Spills – 1990	0.12	0	1	--	--	--	0	1
SWL	0.50	2	0	0	2	--	1	5
Permits	0.25	0	0	0	--	--	0	0
Other	0.25	0	0	1	--	--	0	1
REG UST/AST	0.25	0	30	30	--	--	0	60
Leaking UST	0.50	1	2	2	7	--	0	12
Nuclear Permits	0.50	0	0	0	0	--	0	0
Federal Wells	0.50	0	0	0	0	--	0	0
HMIRS	0.12	0	0	--	--	--	2	2
NCDB	0.25	0	0	0	--	--	0	0
PADS	0.25	0	0	0	--	--	0	0
Soils	0.25	2	1	0	--	--	0	3
FIMAP	0.50	5	0	2	0	--	0	7
TOTAL:	--	13	83	59	14	6	8	183

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Information Systems
ERNS: Emergency Response and Notification System
FIMAP: Fire Insurance Map
FINDS: Facility Index System
HMIRS: Hazardous Material Incident Report System
NCDB: National Compliance Database System
NFRAP: No Further Remedial Action Planned
NPDES: National Pollutant Discharge Elimination System
NPL: National Priorities List
PADS: Polychlorinated Biphenyls Activity Data System
RCRA COR: Resource Conservation and Recovery Corrective Action Site
RCRA GEN: Resource Conservation and Recovery Generators
RCRA NLR: Resource Conservation and Recovery Sites
RCRA TSD: Resource Conservation and Recovery Treatment, Disposal, and Storage Site
REG UST/AST: Registered Underground Storage Tank/Aboveground Storage Tank
SWL: solid waste landfill
TRIS: Toxic Release Inventory System
UST: underground storage tank

Source: Initial Site Assessment for 6th Street Viaduct Seismic Improvement Project. February 2007.

The REC for the project is the BASF Corporation/Sun Chemical facility, located at 590 S. Santa Fe Avenue, Los Angeles, California, 90013, immediately north of the intersection of the 6th Street Viaduct and Santa Fe Avenue on the west side of the Los Angeles River (see Figure 3.14-1). This facility was identified in 6 different databases. This site consists of 2 land parcels totaling approximately 2.68 acres of land. Historically, the site has been used for chemical or paint manufacturing. The site was formerly under the oversight of the California RWQCB. The California RWQCB has overseen the site investigation and remediation since approximately 1986. Previous sampling activities have confirmed soil and groundwater contamination. Contaminants of concern identified in the groundwater and soil include benzene, 1,1-dichlorethane, 1,1-dichlorethene, 4-methyl-2-pentanone (MIBK), toluene, and total xylene. The toluene and xylene appear to be primarily located within the groundwater beneath the northern portion of the site, whereas the MIBK has been identified in the groundwater along the southwest corner of the site and may extend beyond the site boundary.

Figure 3.14-1 Location of Identified REC

3.14.2.2 Review of Sanborn Maps

A search of Sanborn® fire insurance maps was conducted for the project site as part of the ISA. Coverage was found for the following years: 1906, 1921, 1949, 1950, 1953, 1954, 1959, 1960, 1967, and 1970. A total of 21 maps were identified for the project area; however, only 17 maps included applicable data.

In 1906, the property on the east side of the Los Angeles River was primarily used for lumber storage. Almost half of the property on the west side of the Los Angeles River was unoccupied.

A church, a soap company, and other small manufacturing companies were identified on the west side of the Los Angeles River.

In 1921, on the east side of the Los Angeles River, a concrete pipe company and a machine shop were located adjacent to the north of the project property. Farther north of the project site, a locomotive repair facility was operational. Within the project site, a junkyard; lumber company; two small manufacturing companies; and belting, packing, and hose manufacturer were identified.

In 1949, the entire project site area on the east side of the Los Angeles River was occupied by manufacturing businesses including, but not limited to, cabinetry, food supplies, wood truss, furniture and upholstery, gypsum tile manufacturing, steel fence, laundry supplies, paint, rubber goods, and paper products.

In 1950, on the west side of the Los Angeles River, a larger portion of the project site was being used as machinery storage yards. A large bakery was identified. A few small manufacturing businesses, sandblasting areas, and auto garages were identified.

From 1950 until 1960, few changes were observed on the west side of the Los Angeles River from the 1959 map. One bakery was replaced by a metal fabricating company, and a new sheet metal shop was identified.

By 1967, the biscuit company building was converted to a parking lot; otherwise, the area remained primarily manufacturing businesses.

In 1970, on the east side of the Los Angeles River, wood truss and post companies were identified within the project area. Several other manufacturing businesses were also identified, including the large K-C Products Company and California Stuffed Toys & Cal-Fiber Company. A large refrigerating company is located at the corner of Myers Street and Jesse Street. The rest of the businesses identified were primarily small manufacturing businesses and food products businesses. On the west side of the Los Angeles River, most of the businesses were the same as they were in 1967. The area continues to be largely manufacturing businesses.

3.14.2.3 Site Reconnaissance

Site reconnaissance was conducted as part of the ISA preparation. Based on available information, hazardous substances are expected to have been used at the project site. During the site reconnaissance, obvious indications of hazardous substances were observed in the project site. Hazardous substance containers or unidentified substance containers were observed in the area underneath the 6th Street Viaduct. Several facilities within the survey area have hazard placards located on the buildings. Chemicals with serious and severe health hazards are present at these facilities. Access to these sites is restricted.

Based on available information, equipment and materials possibly containing polychlorinated biphenyls (PCBs) are suspected to have been used at the subject site. During the site reconnaissance, several power line poles were observed to have transformers. Several transformers have not been tested for PCBs; therefore, these transformers must be considered to contain PCBs until tests prove otherwise. No other equipment or materials possibly containing PCBs were observed.

Based on available information, asbestos-containing materials (ACMs) are expected to have been used at the subject site. A review of the historical aerial photographs indicates that several of the buildings within the survey area were built prior to 1928. As a result, ACMs are likely to be present in materials in the buildings; therefore, there is the potential for residual ACMs to be present in and around this site. No other instances of ACMs were observed in the project site.

During the site reconnaissance, several instances of solid waste were observed at the site. Shopping carts, mattresses, blankets, and other materials associated with homeless persons were observed under the viaduct and in the adjacent streets and alleyways. Evidence of dumping was observed inside the fenced area of the property located at the corner of Palmetto Street and Santa Fe Avenue. Based on available information, no portion of the project site is or was designated as a solid waste disposal site.

During the site reconnaissance and after a review of the historical aerial photographs, several of the buildings within the survey area appear to be built prior to 1928; therefore, there is a high probability of lead-based paint (LBP) in the buildings. As a result, there is the potential for residual LBP to be present in and around this site. Aerially deposited lead (ADL) is common in the immediate vicinity of freeways and highways. Since the project site is adjacent to US 101 and two Interstates (I-5 and I-10), the probability of ADL on the project site is high.

3.14.2.4 Site Investigation

Based on the findings of the ISA, a preliminary site investigation was conducted in 2008[67] to identify the potential impacts associated with hazardous waste and materials. A detailed site investigation will be conducted at the final engineering design phase. The preliminary site investigation consisted of collecting soil samples from 10 locations and groundwater samples from 4 locations along the proposed alignment under study, as summarized in Table 3.14-2 (see Figure 3.14-2). The soil samples were collected mostly from depths ranging from approximately

[67] Site Investigation Report for 6th Street Viaduct Improvement Project over Los Angeles River and U.S. 101. July 2008; validated February 2011.

5 ft to a maximum of 70 ft below ground surface (bgs). Samples were analyzed for California Code of Regulations (CCR) Title 22 metals, total petroleum hydrocarbon (TPH) as gasoline and diesel, pH, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). The detailed sample collection locations and analytical results can be found in the Site Investigation Report.[68]

Table 3.14-2
Summary of Locations and Sampling Depths

Borehole ID No.	Borehole Location	Sampling Depths (feet)
B-01	Southwest corner of 6th Street Viaduct and Mateo Street	5,10,15
B-02	Southwest corner of 6th Street Viaduct and Mateo Street	5,10,15
B-03	Northwest of 6th Street Viaduct between Mateo Street and Santa Fe Avenue	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70
B-04	Southwest of 6th Street Viaduct between Imperial Street and Santa Fe Avenue	5,10,15
B-05	Northwest of 6th Street Viaduct between Santa Fe Avenue and Mesquit Street	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60
B-06	East of Mesquit Street and west of Metrolink underneath 6th Street Viaduct	5,10,15
B-07	East of Los Angeles River and west of Mission Road	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55
B-08	East of Mission Road and underneath 6th Street Viaduct	5,10,15
B-09	East of Mission Road and west of Anderson Street	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55
B-11	Southeast corner of 6th Street Viaduct east of Boyle Avenue	5,10,15

Source: Site Investigation Report for 6th Street Viaduct Seismic Improvement Project, July 2008, validated February 2011.

The results of the laboratory analysis of soil and groundwater samples are summarized below.

- **Metals:** Low levels of metals were found in all 74 soil samples analyzed. Only one soil sample (B-02-5) had total lead concentrations that exceeded the total threshold limit concentration (TTLC) criteria. Deeper samples at the same location all reported low lead concentrations that were below the TTLC criteria. It appears that the soil sample where such a high lead concentration was encountered is an isolated case. The same soil sample also reported exceedance for lead and arsenic above the industrial preliminary remediation goal (PRG) criteria. None of the remaining detected metal concentrations were above any of the screening criteria.

[68] Ibid.

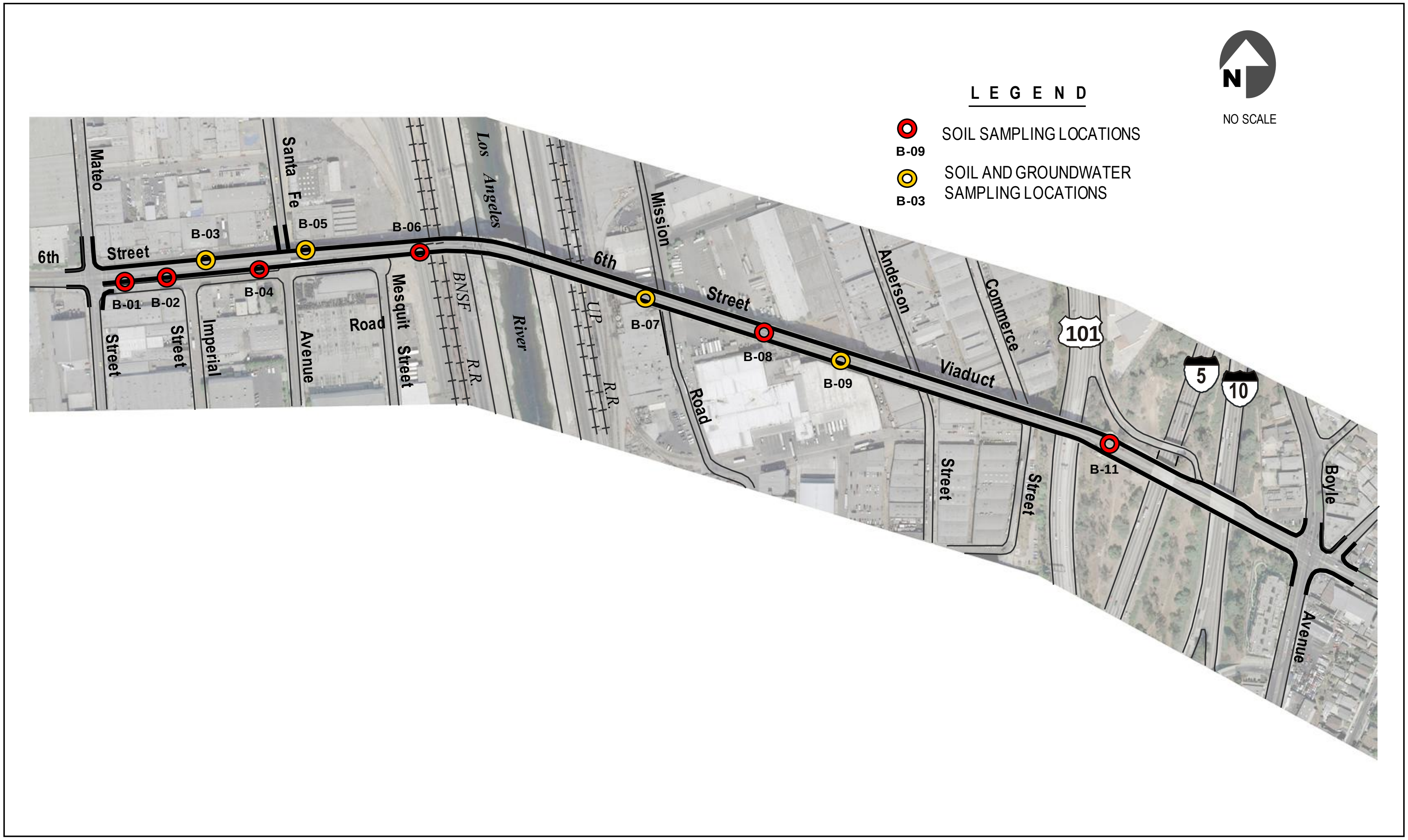

Figure 3.14-2 Sampling Locations

Low levels of metals were also detected in all five groundwater samples analyzed. The detected concentrations for most of the metals (i.e., arsenic, cadmium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc) exceeded the National Pollutant Discharge Elimination System (NPDES) permit requirements.

- **TPH-gas:** Low levels of TPH-gas (0.65-milligram per kilogram [mg/kg] to 8.3 mg/kg) were detected in 5 out of 74 soil samples analyzed. Low to high concentrations of TPH-diesel (7.5 mg/kg to 14,000 mg/kg at 5 ft bgs) were detected in 20 samples.

  TPH-gas and diesel were detected in only one (B-05-GW-1) out of five groundwater samples analyzed at concentrations of 7,100 micrograms per liter (µg/L) and 4,900 µg/L, respectively.

- **TPH-diesel:** Seventy-four (74) soil samples were analyzed for TPH-diesel. Concentrations of detected TPH-diesel oil ranged from 7.5 mg/kg in sample B-31-10 (duplicate of B-11-10) to 14,000 mg/kg in sample B-06-5. Most of the detected concentrations were at the 5-ft-depth samples.

  Only one out of five groundwater samples analyzed for TPH-diesel was reported to have concentrations above the laboratory reporting limit. TPH-diesel was detected in B-05-GW-1 at a concentration of 4,900 µg/L.

- **VOCs:** Low VOC analytes were detected in 7 out of 74 soil samples analyzed for VOCs. None of the detected concentrations exceeded any screening criteria.

  Only three out of five groundwater samples (B-04-GW-1, B-05-GW-1, and B-08-GW-1) analyzed for VOCs were reported to have detectable concentrations of VOCs. The concentration of the VOC 1,1-dichloroethane exceeded the NPDES permit requirement in both samples where it was detected (B-04-GW-1 and B-05-GW-1).

- **SVOCs:** No SVOCs were detected in any of the 74 soil and 5 groundwater samples collected at the site.

3.14.3 Environmental Consequences

3.14.3.1 Construction Impacts

Alternative – No Action

There would be no construction impacts associated with hazardous wastes/materials under the No Action Alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Impacts pertaining to hazardous materials and waste from demolition of the old viaduct and construction of the new viaduct would be the same as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Hazardous Waste Facilities

Based on the review of the environmental databases, site reconnaissance, and historical research, there are a number of hazardous waste sites within the required search distances of the proposed project limits (see Table 3.14-1). Based on the nature and status of the listings, most of these sites are not considered recognized environmental conditions for the proposed project.

The BASF Corporation/Sun Chemical facility, which is located at 500 S. Santa Fe Avenue, Los Angeles, California, 90013, is considered an REC for the proposed project that could cause groundwater contamination within the proposed project area. Results of the Site Investigation revealed potential metal, TPH-diesel, and VOC contamination in a few samples of soil and groundwater at the project site. Soil and groundwater analysis would be required prior to any soil disposal and groundwater dewatering activities to ensure proper handling and disposal of contaminated soil and groundwater. Costs associated with contaminated soil and groundwater remediation and disposal are estimated at $6 million.

Aerially Deposited Lead

Construction of Alternative 2 could involve limited excavation of exposed surface soil adjacent to paved areas within the project limits. Since most of the retrofitted area would be confined only within the existing viaduct footprint, which is totally paved, ADL-contaminated soil is not likely to occur; therefore, ADL testing would not be required.

Asbestos-Containing Materials and Lead-Based Paint Coatings

An ACM and LBP survey was conducted at various locations on the 6th Street Viaduct.[69] Both ACM and LBP were found on the viaduct and at the Maintenance Facility, located underneath the viaduct. Impacts from demolition of the viaduct and the existing buildings under the viaduct could present a health hazard to workers. Specifications for the removal of asbestos, suspected metals coated with LBP, and other hazardous substances would be included in the project construction documents. Costs associated with ACM and LBP removal and disposal for Alternative 2 implementation are estimated at $0.4 million.

Alternative 3 – Replacement

The level of impacts pertaining to hazardous materials and wastes would be the same for any alignment alternative and bridge concept. Implementation of Alignment 3B would require more

[69] Asbestos and Lead-Based Paint Survey for 6th Street Viaduct over Los Angeles River and U.S. 101 Freeway Bridge No. 53C-1880/53-0595, Prepared by CH2MHill, May 2009.

demolition work than Alignments 3A and 3C, causing slightly higher costs of hazardous material handling and disposal.

Hazardous Waste Facilities

As mentioned in the above section, results of the Site Investigation revealed potential metal, TPH-diesel, and VOC contamination in portions of soil and groundwater at the project site. Soil and groundwater analysis would be required prior to any soil disposal and groundwater dewatering activities to ensure proper handling and disposal of contaminated soil and groundwater. Costs associated with contaminated soil and groundwater remediation and disposal for any alignment under Alternative 3 are estimated at $2.7 million.

Aerially Deposited Lead

Construction of Alternative 3 would cover the area near US 101, which contains exposed soil. Soils in this area may contain ADL generated by motor vehicle exhaust; hence, it would be tested for ADL according to applicable standard hazardous material testing guidelines prior to commencement of the construction activities. In addition to testing for the presence of ADL, the contractor would be required to manage all excavated soils in accordance with all pertinent laws and regulations. Costs associated with ADL sampling and disposal for any alignment under Alternative 3 are included under the cost for contaminated soils and groundwater remediation above.

ACM and LBP Coatings

An ACM and LBP Survey was conducted at various locations on the 6th Street Viaduct. Both ACM and LBP were found on the viaduct and at the Maintenance Facility, located underneath the viaduct. Impacts from demolition of the viaduct and the existing buildings under the viaduct and nearby vicinity could present a health hazard to workers. Specifications for the removal of asbestos, suspected metals coated with LBP, and other hazardous substances would be included in the project construction documents to minimize this impact. Costs associated with ACM and LBP removal and disposal for any alignment under Alternative 3 are estimated at $0.8 million.

3.14.3.2 Permanent Impacts

Alternative 1 – No Action

There would be no permanent impacts associated with hazardous wastes/materials under the No Action Alternative. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Once construction is complete, there would be no permanent impacts associated with hazardous materials and wastes as a result of the implementation of any bridge concept or alignment alternative.

Alternative 2 – Retrofit

Once construction is complete, there would be no permanent impacts associated with hazardous materials and wastes as a result of the implementation of Alternative 2.

Alternative 3 – Replacement

Once construction is complete, there would be no permanent impacts associated with hazardous materials and wastes as a result of the implementation of any bridge concept or alignment alternative.

3.14.3.3 Indirect Impacts

During demolition of buildings or viaduct components under Alternative 2 – Retrofit and Alternative 3 – Replacement, workers and area residents could be exposed to some hazardous materials and waste. The impacts associated with exposure of workers and residents are considered to be low during the demolition of the structure, provided the minimization measures are implemented as described in Section 3.14.4.

Under the No Action Alternative, in the event the viaduct was determined to be unserviceable, the City would have to seek some emergency funding source to replace it. The indirect impacts pertaining to hazardous materials and wastes under this circumstance would be the same as described under Alternative 3 – Replacement.

3.14.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Measures to minimize impacts associated with hazardous materials and waste would be the same as Alternatives 2 and 3.

Alternative 2 – Retrofit

Impacts related to hazardous wastes/materials during demolition and construction of the project would be minimized by implementation of the following measures.

- Conduct soil profiling while handling soil at the project site during construction. If the soil contains contaminant concentrations that meet the definition of hazardous materials, then the contractor would be required to adhere to City Standard Specifications (known as the Greenbook), which address the management of various hazardous materials and wastes consistent with the federal and state of California requirements pertaining to hazardous materials and wastes management.

- Include current regulatory requirements for the removal of asbestos, suspected metals coated with LBP, and other hazardous substances according to the construction specifications.
- Obtain an NPDES permit for wastewater discharge if there is a potential for dewatering activities at the project site during construction.
- Dispose of any hazardous materials or wastes encountered before or during the demolition stage of the project according to current regulatory guidelines.

Alternative 3 – Replacement

In addition to the measures outlined under Alternative 2, soils within the project site near US 101 shall be tested for ADL prior to any excavation activities. If the soil contains ADL concentrations exceeding the current regulatory requirements, then the contractor must handle and dispose of the contaminated soil in accordance with the regulatory requirements.

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3.15 Air Quality

This section addresses the potential impacts to regional and local air quality associated with implementation of the proposed project. Air quality impacts were evaluated for short-term construction emissions and long-term operational emissions of the proposed project. Detailed analytical methodology and data input and output information can be found in the Air Quality Technical Report[70] prepared for this project.

The 6th Street Viaduct is located in Los Angeles, within the South Coast Air Basin (SCAB or Basin), which is an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The SCAB includes all of Orange County; Los Angeles County, with the exception of the Antelope Valley; and the non-desert portions of Riverside and San Bernardino counties. Its terrain and geographical location determine the distinctive climate of the Basin, as the Basin is a coastal plain with connecting broad valleys and low hills. Elevations range from sea level to more than 11,000 ft above msl. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over air quality issues within the SCAB. While the SCAB has some of the most unhealthy air quality in the nation, air quality within the basin continues to show improvement.

Many statutes, regulations, plans, and policies have been adopted that address air quality issues. The project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. Plans, policies, and regulations that are relevant to the proposed project are discussed in the following sections.

3.15.1 Regulatory Setting

The federal Clean Air Act (FCAA or CAA), as amended in 1990, is the federal law that governs air quality. The California Clean Air Act (CCAA) of 1988 is its companion state law. These laws and related regulations by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB or CARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called national ambient air quality standards (NAAQS). NAAQS and State ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns. The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3,) particulate matters (PM, broken down for regulatory purposes into particulates of 10 micrometers or smaller diameters – PM_{10} and particulates of 2.5 micrometers or smaller diameters – $PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen

[70] Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project. Prepared December 2008, updated March 2011.

sulfide (H_2S), and vinyl chloride. The NAAQS and State standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both State and Federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and State air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

FCAA Section 176(c) prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to a State Implementation Plan (SIP) for achieving the goals of the CAA requirements related to NAAQS. "Transportation Conformity Act" takes place on two levels: the regional, or planning and programming level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 CFR 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for CO, NO_2, O_3, PM (PM_{10} and $PM_{2.5}$), and in some areas SO_2. California has nonattainment or maintenance areas for all of these transportation-related criteria pollutants except SO_2, and also has a nonattainment area for Pb. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the FTIP. RTP and FTIP conformity is based on use of travel demand and air quality models to determine whether implementation of those projects would conform to emission budgets or other tests showing that requirements of the CAA and the SIP are met. If the conformity analysis is successful, then the regional planning organization, such as the Southern California Association of Governments (SCAG), which is the federally designated Metropolitan Planning Organization (MPO) responsible for transportation planning in the SCAB, FHWA, and Federal Transit Authority (FTA) make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project level also requires "hot spot" analysis if an area is "nonattainment" or "maintenance" for CO and/or PM. A region is a "nonattainment" area if one or more monitoring stations in the region measure violations of the relevant standard and EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently met the standard may be officially redesignated to attainment by EPA and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or PM analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot spot analysis. In general, projects must not cause the "hot spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or PM violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

3.15.2 Affected Environment

An air quality analysis was performed for the proposed project Alternative 3 to represent the worst-case scenario. Detailed methodologies, input and output data, and analytical results were presented in the *Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project,* which was reviewed and concurred by Caltrans' technical specialist in December 2008. The technical report was revised in March 2011 to update the information as a result of the change in construction years from 2011-2014 to 2014-2017, with 2018 as the opening year. Based on the results of the updated traffic study in February 2011, no significant change in traffic forecast volumes between the former opening year and the new opening year and between the former design year (2035) and the new design year (2038) would occur; therefore, the same traffic volumes were used in the Air Quality Technical Report update.

3.15.2.1 Climate/Meteorology

The project site is located in the City of Los Angeles within the SCAB. The southern California region lies in a semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Warm, dry summers, low precipitation, and mild winters characterize the overall climate in the SCAB. In the project area, the average daily winter temperature is 56 degrees Fahrenheit (^{o}F) (13.3 degrees Celsius [^{o}C]), and the average daily summer temperature is 74 ^{o}F (23.3 ^{o}C). More than two-thirds of the annual rainfall occurs from December through March, with 93 percent occurring between November and April. The mean annual precipitation in the Los Angeles Civic Center area over a 96-year period (1914-2010) was 14.8 inches. In nearly all months of the year, evaporation exceeds precipitation.

Topography is a major factor influencing wind direction over the project area. The predominant easterly daily winds in the Central Los Angeles area have an average speed ranging between 5.3 and 7 miles per hour (mph). There is little seasonal variability in this pattern. Occasionally during autumn and winter, "Santa Ana" conditions develop from a high-pressure zone to the east to bring dry, high-velocity winds from the deserts over Cajon Pass to the coastal region. These winds, which gust to more than 80 mph, can reduce relative humidity to below 10 percent.

The SCAB experiences frequent temperature inversions (i.e., increasing air temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, which allows vertical mixing with the lower layer. This phenomenon is observed in the mid to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid morning.

The greatest air pollution impacts throughout the Basin occur from June to September. This condition is generally attributed to the large amount of pollutant emissions, increased sunshine, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in the SCAB.

3.15.2.2 Criteria Pollutants

The CARB and SCAQMD maintain a network of more than 38 air quality monitoring stations throughout the SCAB to effectively monitor 38 source receptor areas (SRA) in the region. The proposed project site is located in SRA number 1, Central Los Angeles County. The nearest air monitoring station to the project site is the North Main Street monitoring station, which is located at 1630 North Main Street, approximately 2 miles north of the project site. All criteria pollutants are monitored at this station (i.e., O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$). Table 3.15-1 presents ambient air quality data recorded at this station for the past 4 years.

As Table 3.15-1 shows, exceedances of the California standards were recorded at the North Main Street station for O_3 (1-hour, California standard), PM_{10} (24-hour and annual), and $PM_{2.5}$ (24-hour and annual) on one or more occasions from 2006 through 2009. The national standards were exceeded for 8-hour O_3 (2008 standard) and $PM_{2.5}$ (24-hour and annual). No exceedances of either the state or national standards were recorded for SO_2, NO_2, or CO.

Table 3.15-1
Criteria Air Pollutants Data Summary (North Main Street Monitoring Station)

Pollutant	Averaging Time	Standard	2006	2007	2008	2009
Ozone (O_3)	1-Hour	Maximum Concentration (ppm)	0.108	0.115	0.109	0.139
		Days > CAAQS (0.09 ppm)	**8**	**3**	**3**	**3**
	8-Hour	Maximum Concentration (ppm)	0.079	0.103	0.090	0.100
		Days > NAAQS (0.075 ppm) [a]	**3**	**3**	**3**	**2**
		Days > CAAQS (0.07 ppm)	**7**	**6**	**6**	**5**
Particulate Matter (PM_{10})	24-Hour	Maximum Concentration ($\mu g/m^3$)	59	78	66	72
		Days > CAAQS (50 $\mu g/m^3$)	**18**	**31**	**12**	**24**
		Days > NAAQS (150 $\mu g/m^3$)	0	0	0	0
	Annual	National Annual Average (50 $\mu g/m^3$) [b,c]	30	33	31	32
		State Annual Average (20 $\mu g/m^3$) [c]	**30**	**33**	**31**	**32**
Particulate Matter ($PM_{2.5}$)	24-Hour	Maximum Concentration ($\mu g/m^3$)	56	64	78	62
		Days > NAAQS (65 $\mu g/m^3$)	**12**	**20**	**12**	**7**
		98th Percentile ($\mu g/m^3$) [d]	**38.9**	**51.2**	**40.3**	**42**
		3-year Average 98th Percentile ($\mu g/m^3$)	49	48	43	45
	Annual	AAM (15.0 $\mu g/m^3$)	**15.6**	**16.9**	**16.0**	**15.7**
Carbon Monoxide (CO)	1-Hour	Maximum Concentration (ppm)	3.5	3.2	2.9	n/a
		Days > CAAQS (20 ppm)	0	0	0	0
		Days > NAAQS (35 ppm)	0	0	0	0
	8-Hour	Maximum Concentration (ppm)	2.68	2.15	1.96	2.20
		Days > CAAQS (9.0 ppm)	0	0	0	0
Nitrogen Dioxide (NO_2)	1-hour	Maximum Concentration (ppm)	0.111	0.104	0.122	0.115
		Days > CAAQS (0.18 ppm) [e]	0	0	0	0
	Annual	Maximum Concentration (ppm)	0.029	0.030	0.027	0.028
		Days > NAAQS (0.053 ppm)	0	0	0	0
Sulfur Dioxide (SO_2)	24-hour	Maximum Concentration (ppm)	0.006	0.004	0.002	0.002
		Days > CAAQS (0.04 ppm)	0	0	0	0
		Days > NAAQS (0.14 ppm)	0	0	0	0
	Annual	AAM (0.03 ppm)	0.002	0.003	0.002	0.002

AAM – Annual Arithmetic Mean; $\mu g/m^3$ – micrograms per cubic meter; ppm – parts per million;
CAAQS – California ambient air quality standards; NAAQS – National ambient air quality standards

[a] The standard of 0.075 ppm (previously 0.08 ppm) was adopted on March 12, 2008, and became effective in June 2008..

[b] In 2006, EPA revoked NAAQS for annual PM_{10}, and tightened the 24-hout $PM_{2.5}$ standard from the previous level of 65 $\mu g/m^3$. The area designation based on the new standard became effective in October 2009.

[c] State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

[d] Attainment condition for $PM_{2.5}$ is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard (35 $\mu g/m^3$)

[e] NO_2 standard was amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The Office of Administrative Law approved the proposed amendments and the new standards became effective on March 20, 2008

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

3.15.2.3 Toxic Air Contaminants

Toxic air contaminants (TACs) consist of compounds that include metals, minerals, soot, and hydrocarbon-based chemicals. There are hundreds of different types of air toxics with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. TACs are a concern in the SCAB because of the large number of mobile sources and industrial facilities throughout the basin.

California regulates TACs through its Air Toxics Program, which is mandated in Chapter 3.5 of the Health and Safety Code – *Toxic Air Contaminants*, and Part 6 – *Air Toxics Hot Spots Information and Assessment* (H&SC Sections 39660 *et seq*. and 44300 *et seq*., respectively).

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than ambient air conditions to determine allowable emission levels from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a health risk and are termed “toxic hot spots.”

SCAQMD conducted the most comprehensive study on air toxics in the SCAB is the Multiple Air Toxics Exposure Study[71,72] (MATES-II [2000] and MATES III [2008]). The monitoring program measured more than 30 air toxics, including gaseous and particulate TACs. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region, based on emissions and weather data. MATES-II found that the maximum cancer risk in the region from carcinogenic air pollutants ranged from approximately 1,100 in a million to 1,750 in a million, with an average regional risk of approximately 1,400 in a million. The higher risk levels were found in the urban core areas in south central Los Angeles County, in Wilmington adjacent to the San Pedro Bay Ports, and near freeways. Overall, the study showed that airborne diesel particulate matter (DPM) contributed approximately 70 percent of the cancer risk. Mobile sources accounted for approximately 90 percent of the cancer risk, and industries and other stationary sources accounted for the remaining 10 percent.

The MATES III Study Final Report, a follow-up to the MATES II study, was released in September 2008. The results of the MATES III study indicate that:

- Across the Basin, the population-weighted risk was 853 in one million, approximately 8 percent lower compared to the MATES II period of 931 per million;

[71] SCAQMD, 2000. *Multiple Air Toxics Exposure Study (MATES-II) Final Report*, March 2000.

[72] SCAQMD, 2008. *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III) Final Report*, September 2008.

- The overall average lifetime risk from TACs in the Ports area experienced an approximate 17 percent increase. The 2005 average population-weighted air toxics risk in the Ports area was estimated to be approximately 1,415 per million, compared with 1,208 per million lifetime cancer risk as estimated for MATES II period (1998-1999);
- Mobile source toxics account for 94 percent of risk; and
- Diesel accounts for 84 percent of air toxics risk.

Based on the finding that DPM is a significant contributor to cancer risk in the region, SCAQMD has approved fleet rules to limit diesel exhaust emitted by municipal vehicle fleets, trash trucks, street sweepers, taxis, and buses in the region. That rule is one of many measures outlined in a comprehensive plan to reduce toxic air pollution from mobile and stationary sources. Other programs to reduce diesel emissions include SCAQMD grant programs for the conversion of diesel equipment to alternative fuels.

Asbestos

Asbestos is a toxic air contaminant. According to the California Division of Mines and Geology (CDMG), the proposed project location is not in an area of naturally occurring asbestos. Naturally occurring asbestos (NOA) areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. These types of rocks are found only in the Catalina Island portion of Los Angeles County, and they are not present in the project area.

3.15.2.4 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the demographic characteristics of occupants and users and the activities involved. Sensitive receptors include residential areas, hospitals, elder-care facilities, rehabilitation centers, elementary schools, daycare centers, and parks.

Residential areas are considered sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. Existing land uses immediately adjacent to the north, south, and west of the project alignment are industrial or commercial. No residential properties are located along the 6th Street Viaduct corridor (see Figure 3.15-1), and none of the adjacent buildings are known to be used for residential purposes. The closest residences to the project site are located approximately 600 ft and 400 ft north and east of the proposed project's eastern limit, respectively. Other potentially sensitive uses in the more distant area include schools, religious institutions, and hospitals. Figure 3.15-1 shows the locations of sensitive receptors and the representative Monitoring Station.

Figure 3.15-1 Sensitive Receptors and Monitoring Station Locations

The closest schools to the project site are the Santa Isabel Elementary School and the Soto Street Elementary School, which are located approximately 0.3-mile and 0.4-mile to the southeast of the project eastern limit, respectively. The nearest hospitals/medical clinics are Boyle Heights Industrial Medical Clinic and Promise Hospital of East Los Angeles, which are located approximately 840 feet southeast and 0.45 mile northeast of the proposed project's eastern limit, respectively. The nearest parks/sports centers are Hollenbeck Park and Boyle Heights Sports Center, which are located approximately 0.1-mile and 0.15-mile northeast of the proposed project's eastern limit, respectively.

3.15.3 Environmental Consequences

3.15.3.1 Conformity with Clean Air Act

Transportation Conformity Rule

The CAA mandates that the state submit and implement an SIP for each criteria pollutant that violates the applicable NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. Conformity to the SIP is defined under the 1990 CAAAs as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of these standards. The U.S. Environmental Protection Agency (EPA) has two types of SIP conformity guidelines: transportation conformity rules that apply to transportation plans and projects, and general conformity rules that apply to all other federal actions.

The Transportation Conformity Rule, as defined in 40 CFR Parts 51 and 93, was established by EPA and the DOT on November 30, 1993, to implement the Federal CAA conformity provisions. The CAA Amendments of 1990 require that transportation plans, programs, and projects that are funded by or approved under Title 23 U.S.C. or the Federal Transit Act, conform to state or federal air quality plans for achieving NAAQS. The SCAG is the federally designated Metropolitan Planning Organization (MPO) responsible for transportation planning in the SCAB. The transportation conformity process establishes the major connection between transportation planning and emission reductions from transportation sources. In addition, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 (revised in 1998 as TEA-21) linked compliance with conformity requirements to continued FHWA and Federal Transit Administration (FTA) funding of transportation plans, programs, and projects. These requirements were not changed with enactment of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) on August 10, 2005. Conformity with the CAA takes place on both regional and local levels.

3.15.3.2 Regional Conformity Determination

Regional conformity was demonstrated following the Caltrans Conformity Flowchart that is included in the Caltrans Standard Environmental Report document outlines.[73] In determining whether a project conforms to an approved air quality plan, agencies must use current emission estimates based on the most recent population, employment, travel, and congestion estimates determined by an area's MPO. The MPOs are required to develop and maintain long-range plans and programs, such as 20-year RTP and 4-year (or longer) Regional Transportation Improvement Programs (RTIP) that set out transportation policies and programs for the region. A conforming RTIP model outcome projects that the regulated pollutants will be reduced to acceptable levels within time frames that meet the NAAQS.

SCAG is the MPO for the project region and is responsible for developing the RTP and RTIP for the region, including Los Angeles, Orange, San Bernardino, Riverside, Imperial, and Ventura counties. The 2008 RTP was found to conform by SCAG on May 8, 2008, and FHWA and FTA adopted the air quality conformity finding on June 5, 2008.

The proposed project was determined to be "not regionally significant" by SCAG in response to the Notice of Preparation (NOP) for the Environmental Impact Report in June 2006. Pursuant to Federal Conformity Regulations [specifically, 40 CFR 93.105 (c)(1)(i)], a description of the proposed project was submitted by the City to SCAG for an intergovernmental review and comment (SCAG Clearinghouse No. I 20070475 6th Street Viaduct Seismic Improvement Project). The results of the review were provided in a letter dated August 13, 2007, to Mr. Wallace Stokes of the City of Los Angeles Bureau of Engineering. The following paragraph, quoted directly from the letter, is the result of SCAG's review:

> "*We have reviewed the 6th Street Viaduct Seismic Improvement Project, and have determined that the proposed Project is not regionally significant per SCAG Intergovernmental Review (IGR) Criteria and California Environmental Quality Act (CEQA) Guidelines (Section 15206). Therefore, the proposed Project does not warrant comments at this time.*"

Furthermore, the proposed project is in SCAG's *2008 RTP – Making the Connections* within the "Los Angeles County Strategic Plan Projects List" with ID *U1A0805*.

[73] Caltrans Web site: http://www.dot.ca.gov/ser/vol1/sec3/physical/ch11air/chap11.htm# Ch11ReportContent

The project is also listed in the Final 2008 RTIP, Page 48, on the Los Angeles Local Highway Projects list, under the conformity category "exempt" as follows:

- LA0G104; Bridge No. 53C1880,53, Sixth Street, Over Los Angeles River, E Santa Ana FWY. LSSRP Seismic bridge replacement.

The 2008 RTIP was federally approved on November 17, 2008. The design concept and scope of the proposed project is consistent with the project description in the Final 2008 RTIP and the assumptions in SCAG's regional emission analysis. As such, the project would not interfere with timely implementation of all Transportation Control Measures (TCMs) identified in the currently approved SIP. Because the proposed project is included in the list of projects exempt from the requirement to demonstrate conformity by the RTIP, the regional emissions contemplated by the Plan would not change due to implementation of the proposed project.

3.15.3.3 Project-Level Conformity

Basic elements of the federal CAA include NAAQS for criteria air pollutants, hazardous air pollutants (HAPs) emission standards, state attainment plans, motor vehicle emissions standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

The NAAQS have two tiers: primary standards to protect public health and secondary standards to prevent environmental degradation (e.g., damage to vegetation and property, visibility impairment). The CAA mandates that the state submit and implement a SIP for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 Amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require a demonstration of reasonable progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA that are most applicable to the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

Title I of the CAA identifies attainment, nonattainment, and unclassifiable areas with regard to the criteria pollutants, and it sets deadlines for all areas to reach attainment for the following criteria pollutants: O_3, NO_2, SO_2, particulates less than 10 microns in diameter (PM_{10}), CO, and Pb. The NAAQS were amended in July 1997 to include the 8-hour O_3 standard and an NAAQS for fine particulates less than 2.5 microns in diameter ($PM_{2.5}$).

Title II of the CAA contains many provisions with regard to mobile sources, including motor vehicle emission standards (e.g., new tailpipe emissions standards for cars and trucks and nitrogen oxides [NO_x] standards for heavy-duty vehicles), fuel standards (e.g., requirements for reformulated gasoline), and a program for cleaner fleet vehicles.

The EPA reviews the most up-to-date scientific information and the existing ambient standard for each pollutant every 5 years and obtains advice from the Clean Air Scientific Advisory Committee on each review. Based on these, EPA applies consideration to revise NAAQS accordingly. The NAAQS for particulate matter were amended in September 2006 to strengthen the 24-hour $PM_{2.5}$ standard. EPA had revised the O_3 standard in 1997, setting the 8-hour standard at 0.08 parts per million (ppm). On March 12, 2008, EPA strengthened the 8-hour O_3 NAAQS based on new scientific evidence about the effects of ground-level O_3 on public health and the environment. The new standard (primary and secondary) is 0.075 ppm. Furthermore, based on new scientific studies and several health risk assessment results, EPA revised the lead NAAQS to provide increased protection for children and other at-risk populations against adverse health effects, most notably including neurological effects in children. The revised standard level is 0.15 micrograms per cubic meter ($\mu g/m^3$) over a period of 3 months. The final rule was signed on October 15, 2008. The area designation/classification based on the new Pb standard became effective on November 16, 2010, and attainment demonstration SIPs will be due by late 2013.

The standards for all criteria pollutants are presented in Table 3.15-2; health effects that result from exposure to these pollutants are shown in Table 3.15-3. Nonattainment designations are categorized by EPA into seven levels of severity: basic, marginal, moderate, serious, severe-15[74], severe-17, and extreme. The SCAB is currently classified as a nonattainment area for O_3 and fine particulates (PM_{10} and $PM_{2.5}$). Based on 1990 CAAA, the SCAB nonattainment designations are as follows: nonattainment for $PM_{2.5}$, requiring attainment by 2015; and “severe-17” for 8-hour O_3, requiring attainment with the standard by 2021 (the former 1-hour O_3 standard was revoked by EPA on June 15, 2005; thus, it is no longer in effect for the state of California). The SCAB was in “serious nonattainment” status for PM_{10} until 2006. The Basin met the PM_{10} standards at all stations except for western Riverside, where the annual PM_{10} standard was not met as of 2006. The annual standard was revoked by EPA in December 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution. The 24-hour PM_{10} standard is retained at its existing value. Currently, the Basin meets the 24-hour average federal standard, and the only days that exceed the standard are associated with high wind natural events or exceptional events, such as wildfires.

[74] The “-15” and “-17” designate the number of years within which attainment must be achieved.

Table 3.15-2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a,c] Concentration	Federal Standards [b,c]	
			Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	—	—
	8 Hour	0.07 ppm (137 $\mu g/m^3$)	0.075 ppm (147 $\mu g/m^3$) [d]	—
Respirable Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary
	Annual Average (AAM)	20 $\mu g/m^3$	— [e]	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 $\mu g/m^3$ [f]	Same as Primary
	Annual Average (AAM)	12 $\mu g/m^3$	15 $\mu g/m^3$	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Average (AAM)	0.030 ppm (56 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Same as Primary
	1 Hour	0.18 ppm (338 $\mu g/m^3$)	—	
Sulfur Dioxide (SO_2)	Annual Average (AAM)	—	0.030 ppm (80 $\mu g/m^3$)	—
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)	—
	3 Hour	—	—	0.5 ppm (1,300 $\mu g/m^3$)
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	—	—
Lead (Pb) [g]	30-Day Average	1.5 $\mu g/m^3$		—
	Calendar Quarter	—	1.5 $\mu g/m^3$	Same as Primary
	3-month rolling[h]	—	0.15 $\mu g/m^3$	Same as Primary
Visibility-Reducing Particles	8 Hour	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles when the relative humidity is less than 70%.	No Federal Standards	
Sulfates	24 Hour	25 $\mu g/m^3$		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)		
Vinyl Chloride[f]	24 Hour	0.01 ppm (26 $\mu g/m^3$)		

[a] California standards for O_3, CO (except Lake Tahoe), SO_2 (1 and 24 hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to these reference conditions; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] The new standard of 0.075 ppm (previously 0.08 ppm) was adopted on March 12, 2008, and it became effective in June.

[e] The annual standard of 50 $\mu g/m^3$ was revoked by EPA in December 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution.

[f] Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of $PM_{2.5}$ from the previous level of 65$\mu g/m^3$. The updated area designation will become effective in early 2010.

[g] The California Air Resources Board (CARB) has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[h] Final rule for the new federal standard was signed October 15, 2008.

AAM – annual arithmetic mean; mg/m^3 – milligrams per cubic meter; $\mu g/m^3$ – micrograms per cubic meter; ppm – parts per million

Source: California Air Resources Board Web site: http://www.arb.ca.gov/aqs/ - Revised September 8, 2010..

Table 3.15-3
Health Effects Summary for Criteria Air Pollutants

Pollutant	Sources	Primary Effects
Ozone (O_3)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory diseases; irritation of eyes; impairment of pulmonary function; plant leaf injury.
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust; high temperature; stationary combustion; atmospheric reactions.	Aggravation of respiratory illness; reduced visibility; reduced plant growth; formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; and natural events, such as decomposition of organic matter.	Reduced tolerance for exercise; impairment of mental function; impairment of fetal development; impairment of learning ability; death at high levels of exposure; aggravation of some cardiovascular diseases (angina).
Particulate Matter (PM_{10} and $PM_{2.5}$)	Fuel combustion in motor vehicles, equipment, and industrial sources; construction activities; industrial processes; residential and agricultural burning; atmospheric chemical reactions.	Reduced lung function; aggravation of the effects of gaseous pollutants; aggravation of respiratory and cardio-respiratory diseases; increased cough and chest discomfort; soiling; reduced visibility.
Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ores; industrial processes.	Aggravation of respiratory and cardiovascular diseases; reduced lung function; carcinogenesis; irritation of eyes; reduced visibility; plant injury; deterioration of materials (e.g., textiles, leather, finishes, coating).
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction; behavioral and hearing problems in children.

Source: EPA Web site at www.epa.gov/air/oaqps/greenbk/. Accessed November 2006.

For CO, attainment demonstrations were previously submitted to EPA in 1992, 1994, and 1997 to bring the SCAB into attainment with the federal standard in 2000. In 2001, the CO standard was exceeded in the SCAB on 3 days, thus leaving the basin in nonattainment status. At that time, a request to EPA for an extension of the attainment date to 2002 was planned to be included in the revision to the 1997 Air Quality Management Plan (AQMP). Due to delays, the CO attainment demonstration provided in the 1997 AQMP amendments lapsed. In January 2005, the California Air Resources Board (CARB) declared CO attainment for the SCAB based on air quality data collected during 2001 through 2003. The redesignation was approved by the State Office of Administrative Law, and it became effective on July 23, 2004. The 2005 CO Redesignation Request and Maintenance Plan for SCAB was reviewed and approved by EPA, and the federal CO attainment status for SCAB became effective on June 11, 2007.

All nonattainment areas are subject to a “transportation conformity” measure, requiring local transportation and air quality officials to coordinate their planning to ensure that transportation projects do not hinder an area’s ability to reach its clean air goals. These requirements become effective 1-year after an area’s nonattainment designation.

Request for Reclassification of Basin’s 8-hour Ozone Status to Extreme Nonattainment

For a nonattainment area, the CAA provides voluntary reclassification of the area to a higher classification by submitting a request to EPA. The SCAQMD requested (as part of its 2007 AQMP submittal to EPA) a reclassification for the Basin from “severe-17’ to “extreme” nonattainment. On April 15, 2010, EPA's Region 9 Administrator signed a final rule to grant the reclassification request. This has extended the 8-hour O_3 attainment date to 2024 and allow attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improvement of existing control technologies.

California Ambient Air Quality Standards

The State of California began to set its ambient air quality standards, CAAQS, in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was enacted September 30, 1988, and it became effective January 1, 1989. The CCAA requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. Table 3.15-1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 3.15-2, the CAAQS are more stringent than the NAAQS for most of the criteria air pollutants. In general, California state standards are more health protective than the corresponding NAAQS. In addition, the CAAQS include standards for other pollutants recognized by the state. For example, California has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Moreover, on April 28, 2005, CARB approved a new 8-hour-average O_3 standard of 0.070 ppm to further protect California's most vulnerable population (i.e., children) from the adverse health effects associated with ground-level O_3. The standard went into effect in early 2006.

According to the CAAQS, the SCAB is classified as an extreme nonattainment area for O_3 and nonattainment area for PM_{10} and $PM_{2.5}$. The SCAB complies with the state standards for sulfates, hydrogen sulfide, and vinyl chloride, and is unclassified for the California standard for visibility-reducing particles. Table 3.15-4 provides the Basin's attainment status with respect to federal and state standards.

Project-level Conformity Determination

Project-level conformity is required for projects in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas. As discussed previously, a region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant CAAQS or NAAQS. Areas that were previously designated nonattainment, but have recently met the CAAQS or NAAQS, are called maintenance areas. In general, projects must not cause the standards to be violated, and in nonattainment areas, the project must not cause any increase in the number and severity of violations.

Table 3.15-4
South Coast Air Basin Attainment Status

Pollutant	Attainment Status Basis	
	National Standard	**California Standard**
Ozone (O_3), 1-hour average	Not Applicable	Extreme
Ozone (O_3), 8-hour average	Severe-17 [b]	Nonattainment
Carbon Monoxide (CO)	Attainment/Maintenance [c]	Attainment [c]
Nitrogen Dioxide (NO_2)	Attainment/Maintenance	Nonattainment [d]
Sulfur Dioxide (SO_2)	Attainment	Attainment
PM_{10}	Serious	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead (Pb)	Nonattainment [e]	Nonattainment
Sulfates (SO_4^{2-})	Not Applicable	Attainment

[a] The National 1-hour O_3 standard was revoked June 15, 2005.
[b] A request for reclassification status to "extreme" nonattainment was submitted to EPA in September 2007.
[c] The redesignation request for CO status to attainment-maintenance, as adopted by SCAQMD on March 4, 2005, and by CARB on February 24, 2006, was recently approved by EPA, and the redesignation became effective June 11, 2007.
[d] The State NO_2 standard was amended February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The Office of Administrative Law approved the proposed amendments and the new standards became effective on March 20, 2008.
[e] Area designation for California, based on the 2008 Pb NAAQS became effective on November 16, 2010.

Sources: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

In March 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM_{10} and $PM_{2.5}$ hot-spot impacts. Only projects that are considered "Projects of Air Quality Concern" (POAQC) are required to perform an analysis. POAQCs are defined generally, as: (1) new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, (2) projects affecting intersections that are Level of Service (LOS) D, E, or F with a significant number of diesel vehicles, (3) new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and (4) projects in or affecting locations, areas, or categories of sites that are identified in the PM_{10} or $PM_{2.5}$ applicable implementation plan as sites of possible violation.

Project-level transportation conformity was determined by conducting hot-spot analysis for CO, PM_{10}, and $PM_{2.5}$, for which the SCAB is designated as nonattainment or maintenance area. The hot-spot analyses were based on the Caltrans guidance document, *Transportation Project-Level Carbon Monoxide Protocol (CO Protocol)*[75], and the FHWA/EPA guidance document,

[75] Caltrans, 1998. California Department of Transportation. *Transportation Project-Level Carbon Monoxide Protocol* (UCD-ITS-RR-97-21, 1997).

Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidelines)[76].

The proposed project is not a new facility, and it does not include the addition of traffic lanes; therefore, no capacity enhancement or change in traffic pattern is anticipated. As such, the future (postconstruction) project traffic volumes and associated air pollutant emissions would be based on the ambient growth rate; the no-action and build traffic volumes and associated emissions data would be the same, and no significant impact from project implementation, with the exception of improved seismic safety, is expected to occur.

Table 3.15-5, which was derived from the project traffic study, summarizes the effect of project implementation during the construction years and for future/post-construction years, on traffic conditions along the adjacent roadways, which would be carrying additional detour traffic volume during the construction years. As shown, no change in truck percentages is expected to occur as a result of project implementation. The primary focus of this project-level air quality or hot-spot analysis is the operational impact on air quality created by the proposed improvement. The analysis is provided for CO, PM_{10}, and $PM_{2.5}$. The analysis years consist of the project's opening year (2018) and the design or horizon year (2038) referenced in the approved plan. The approach to the local analysis is tiered, and it is dependent on the SIP: the CO analysis can be qualitative or quantitative. The PM_{10} and $PM_{2.5}$ analysis is qualitative in scope.

CO Hot-Spot Analysis

The CO Protocol has a screening exercise that would determine whether the project requires a qualitative or quantitative analysis, or if none would be necessary. Below are the steps taken following Figure 1 of the CO Protocol (flow charts of Figures 1 and 3 in the CO Protocol are included in the Air Quality Technical Report).

3.1.1 Is the project exempt from all emissions analyses?

The proposed project is defined as "reconstructing of a bridge (6th Street Viaduct), with no additional travel lanes," in Table 1 of the Protocol, among the Safety projects that are exempt from all emission analyses; however, because the horizontal alignment of the new structure may be different from the existing viaduct (when the final design alternative is selected), this study proceeds with examining the potential CO hot-spot impact analysis; *continue to step 3.1.2.*

[76] EPA, 2006. United States Environmental Protection Agency. Publication EP420-B-06-902. *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas.* Accessed via Web site at www.epa.gov/air/oaqps/greenbk/. March.

Table 3.15-5
Peak-Hour Traffic Conditions along Local Roadway Segments for Existing Year, Opening Year, Detour Years, and Horizon Year

Year	Scenario	Peak Hour	Segments of 6th Street Viaduct														
			Soto Street to Boyle Avenue			Boyle Avenue to I-101 NB On-ramp			I-101 NB On-ramp to Mateo Street			Mateo Street to Alameda Street			Alameda Street to Central Avenue		
			EB v/c /LOS	WB v/c /LOS	Traffic Volume	EB v/c /LOS	WB v/c /LOS	Traffic Volume	EB v/c /LOS	WB v/c /LOS	Traffic Volume	EB v/c /LOS	WB v/c /LOS	Traffic Volume	EB v/c /LOS	WB v/c /LOS	Traffic Volume
2007	Existing	AM	0.15 /A	0.5 /A	1,538	0.09 /A	0.54 /A	1,521	0.11 /A	0.52 /A	1,532	0.14 /A	0.42 /A	1,329	0.17 /A	0.4 /A	1,368
		PM	0.44 /A	0.18 /A	1,490	0.38 /A	0.17 /A	1,326	0.4 /A	0.15 /A	1,322	0.38 /A	0.13 /A	1,229	0.35 /A	0.16 /A	1,234
2018	Opening Year - (Build and No Action)	AM	0.16 /A	0.53 /A	1,652	0.1 /A	0.58 /A	1,631	0.12 /A	0.56 /A	1,641	0.15 /A	0.45 /A	1,425	0.18 /A	0.43 /A	1,466
		PM	0.48 /A	0.19 /A	1,600	0.41 /A	0.18 /A	1,420	0.43 /A	0.16 /A	1,411	0.41 /A	0.14 /A	1,318	0.38 /A	0.17 /A	1,323
2014-2017	Detour Years	AM	0.11 /A	0.23 /A	822	—[a]	0.04 /A	103	—[a]	—[a]	0	0.04 /A	0.06 /A	252	0.13 /A	0.17 /A	718
		PM	0.26 /A	0.13 /A	924	—[a]	0.05 /A	120	—[a]	—[a]	0	0.04 /A	0.04 /A	202	0.19 /A	0.1 /A	682
2038	Horizon Year - (Build and No Action)	AM	0.19 /A	0.65 /B	2,030	0.12 /A	0.72 /C	2,010	0.15 /A	0.69 /B	2,020	0.18 /A	0.55 /A	1,750	0.22 /A	0.53 /A	1,800
		PM	0.58 /A	0.24 /A	1,970	0.5 /A	0.23 /A	1,750	0.53 /A	0.19 /A	1,740	0.5 /A	0.17 /A	1,620	0.47 /A	0.21 /A	1,630
			Segments of 4th Street with affected LOS [b]														
			Soto Street to I-5 NB Ramps			I-101 NB Off-ramp to I-101 SB Off-ramp			I-101 SB Off-ramp to I-101 SB On-ramp/Pecan			I-101 SB On-ramp to Alameda Street			Alameda Street to Central Avenue		
2007	Existing	AM	0.13 /A	0.55 /A	2,445	0.09 /A	0.72 /C	1,840	0.08 /A	0.69 /B	2,757	0.11 /A	0.67 /B	2,791	0.1 /A	0.66 /B	2,736
		PM	0.3 /A	0.47 /A	2,752	0.29 /A	0.21 /A	2,105	0.28 /A	0.21 /A	1,768	0.48 /A	0.19 /A	2,385	0.46 /A	0.25 /A	2,577
2018	Opening Year - (Build and No Action)	AM	0.15 /A	0.59 /A	2,657	0.1 /A	0.81 /D	2,156	0.09 /A	0.74 /C	2,982	0.19 /A	0.76 /C	3,416	0.11 /A	0.7 /B	2,934
		PM	0.34 /A	0.5 /A	3,027	0.31 /A	0.26 /A	2,399	0.32 /A	0.23 /A	1,967	0.61 /A	0.24 /A	3,071	0.5 /A	0.27 /A	2,762
2014-2017	Detour Years	AM	0.16 /A	**0.65 /B**	2,917	0.12 /A	**0.91 /E**	2,417	0.11 /A	**0.84 /D**	3,406	0.14 /A	**0.86 /D**	3,589	0.12 /A	**0.8 /C**	3,323
		PM	0.4 /A	0.51 /A	3,289	0.4 /A	0.29 /A	2,660	0.41 /A	0.25 /A	2,379	0.7 /B	0.27 /A	3,483	0.54 /A	0.3 /A	3,017
2038	Horizon Year - (Build and No Action)	AM	0.19 /A	0.73 /C	3,280	0.12 /A	1 /E	2,660	0.11 /A	0.91 /E	3,670	0.23 /A	0.94 /E	4,210	0.14 /A	0.87 /D	3,620
		PM	0.42 /A	0.62 /B	3,730	0.38 /A	0.32 /A	2,950	0.39 /A	0.28 /A	2,420	0.76 /C	0.3 /A	3,790	0.61 /A	0.33 /A	3,410
			Segments of 7th Street														
			Soto Street to Boyle Avenue			Boyle Avenue to Santa Fe Avenue			Santa Fe Avenue to Mateo Street			Mateo Street to Alameda Street			Alameda Street to Central Avenue		
2007	Existing	AM	0.11 /A	0.3 /A	989	0.18 /A	0.26 /A	1,057	0.16 /A	0.38 /A	1,293	0.22 /A	0.37 /A	1,437	0.19 /A	0.38 /A	1,355
		PM	0.16 /A	0.35 /A	1,217	0.36 /A	0.11 /A	1,128	0.4 /A	0.16 /A	1,346	0.36 /A	0.2 /A	1,347	0.32 /A	0.21 /A	1,273
2018	Opening Year - (Build and No Action)	AM	0.12 /A	0.33 /A	1,060	0.2 /A	0.28 /A	1,134	0.17 /A	0.41 /A	1,387	0.24 /A	0.4 /A	1,540	0.2 /A	0.4 /A	1,451
		PM	0.17 /A	0.37 /A	1,304	0.39 /A	0.12 /A	1,223	0.43 /A	0.18 /A	1,461	0.38 /A	0.22 /A	1,452	0.34 /A	0.23 /A	1,365
2014-2017	Detour Years	AM	0.19 /A	0.54 /A	1,741	0.28 /A	**0.66 /B**	2,247	0.23 /A	**0.7 /B**	2,216	0.3 /A	**0.69 /B**	2,370	0.23 /A	0.6 /A	2,000
		PM	0.38 /A	0.42 /A	1,931	0.67 /B	0.23 /A	2,154	0.64 /B	0.26 /A	2,157	0.59 /A	0.3 /A	2,149	0.38 /A	0.28 /A	1,600
2038	Horizon Year - (Build and No Action)	AM	0.14 /A	0.4 /A	1,300	0.24 /A	0.34 /A	1,400	0.21 /A	0.5 /A	1,710	0.3 /A	0.5 /A	1,900	0.25 /A	0.5 /A	1,790
		PM	0.21 /A	0.45 /A	1,600	0.48 /A	0.15 /A	1,500	0.53 /A	0.22 /A	1,800	0.47 /A	0.28 /A	1,790	0.42 /A	0.28 /A	1,690

Notes: LOS=level of service; v/c=vehicle to capacity ratio; ADT=average daily traffic volume; EB=eastbound; WB=westbound; NB=northbound; SB=southbound

The LOS and v/c data for segments of roadways that would be affected by the Viaduct closure during the detour years are shown in bold.

** Truck percentages remain unchanged along all shown segments for No Action, Build Alternatives, and CEQA Base year. The truck volume along the shown segments is either 5% or 6% of total traffic volume.*

a. No traffic flow due to Viaduct closure.

b. From 8 studied segments of 4th street, the 5 segments that were affected by the detour plan are presented.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

3.1.2 Is project exempt from regional emissions analyses?

Yes – The project is defined as exempt in the currently conforming RTP and RTIP (see Appendix D); in addition, see the response to the previous question; *continue to step 3.1.9.*

3.1.9 Examine local impacts – Proceed to Section 4 (Figure 3)

Section 4, local analysis: procedures delineated in the flow chart of Figure 3 of the CO Protocol were followed as described below.

Level 1. Is the project in a CO nonattainment area?

No – The project is located in the SCAB, which was approved and redesignated by EPA as a CO attainment/maintenance area as of June 11, 2007. *Proceed to Level 1a.*

Level 1a. Was the area designation "attainment" after the 1990 Clean Air Act?

Yes – See response to previous question. *Proceed to Level 1b.*

Level 1b. Has "continuous attainment" been verified with the local Air District, if appropriate?

The redesignation to attainment-maintenance was recently approved (June 11, 2007) by EPA; therefore, the annual review of monitoring data has not occurred. According to Section 4.1.3 of the Protocol, *proceed to Level 7.*

Level 7. Does project worsen air quality?

No – Based on the following discussion, as prescribed by the Protocol, the project is not likely to worsen air quality at the intersections or for the local project area.

Screening Analysis (Reference Section 4.7.1 of CO Protocol)

a. Does the project significantly increase (more than 2 percent) the percentage of vehicles operating in cold start mode?

An increase in percentage of vehicles in cold start mode is not anticipated because the project does not include areas such as parking lots where engine cold starts are expected to occur.

b. Does the project significantly increase traffic volumes? According to the Protocol, increases in traffic volume in excess of 5 percent are generally considered potentially significant. Increases less than 5 percent would be potentially significant, if a reduction in average speeds is anticipated.

The project is a bridge seismic improvement, non capacity-increasing project. The project does not include the addition of traffic lanes and would not change the fleet mix or traffic patterns; therefore, it would not result in a significant increase (if any) of daily traffic volumes.

c. *Does the project worsen traffic flow? For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersections, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.*

The proposed project provides seismic improvement for the safety of the viaduct. A replacement viaduct would provide the same number of traffic lanes, a median, shoulders, and sidewalks, but no additional traffic lanes. As such, the project would not cause changes in truck volume percent or AADT compared to the No Action Alternative. No adverse impacts from implementation of the project are expected to occur.

Based on the above analysis, it is concluded that the project is satisfactory for the screening level analysis, and no further qualitative or quantitative CO analysis is required.

Particulate Matter (PM_{10} and $PM_{2.5}$) Qualitative Hot-Spot Analysis

Pursuant to Federal Conformity Regulations [specifically, 40 CFR 93.105 (c)(1)(i)], an Interagency Review Form was prepared for the proposed project and was submitted to the SCAG Transportation Conformity Working Group (TCWG). The project Review Form was discussed among representatives at the TCWG meeting on July 22, 2008, to determine if the proposed project requires a project-level PM hot-spot analysis. The TCWG determined that the project is not a project of air quality concern; therefore, no further PM hot-spot analysis is required for the proposed project. A copy of the Project Review Form, as well as the TCWG conformity determination (from the minutes of the work group meeting) is provided in Appendix J.

3.15.3.4 Construction Impacts

Project-related air-contaminant emissions would be considered causing adverse air quality impacts if they result in emissions that either create a violation of the NAAQS (Table 3.15-2) or exceed Thresholds of Significance. Table 3.15-6 outlines the threshold criteria recommended by SCAQMD for use in evaluating the effects of project emissions, pertaining to CEQA, on existing air quality and potential violations of standards and plans.

Based on the guidelines of the *L.A. CEQA Thresholds Guide*[77], construction of the proposed project would have a significant air quality impact if any of the following would occur:

[77] City of Los Angeles, 2006. L.A. CEQA Thresholds Guide.

Table 3.15-6
SCAQMD CEQA Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Maximum Emission (lbs/day)**	
	Construction	**Operation**
NO_x	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and noncarcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [b]		
<u>NO_2</u> 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (338 μg/m^3) – state 0.030 ppm (56 μg/m^3) – state and 0.0534 ppm – federal	
<u>PM_{10}</u> 24-hour average annual average	10.4 μg/m^3 (construction)[c] and 2.5 μg/m^3 (operation) 1.0 μg/m^3	
<u>$PM_{2.5}$</u> 24-hour average	10.4 μg/m^3 (construction)[c] and 2.5 μg/m^3 (operation)	
<u>Sulfate</u> 24-hour average	25 μg/m^3	
<u>CO</u> 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (23,000 μg/m^3) – state 9.0 ppm (10,000 μg/m^3) – state/federal	

lbs/day – pounds per day; ppm – parts per million; μg/m^3 – microgram per cubic meter; ≥ – greater than or equal to
[a] Based on SCAQMD CEQA Handbook, 1993.
[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold based on SCAQMD Rule 403.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

- *<u>Regional Impact</u>*: Construction-related emissions of criteria pollutants exceed the SCAQMD Mass Daily Thresholds provided in Table 3.15-6.
- *<u>Local Impact</u>*: Proposed project construction emissions would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance summarized in Table 3.15-6.
- *<u>Toxic Air Contaminants</u>*: Project construction activities would emit carcinogenic or TACs that exceed the maximum individual cancer risk of ten in one million, or an acute or chronic hazard index of 1.0.
- *<u>Odor</u>*: Project construction activities would create objectionable odors at sensitive receptors.

Analysis Methodology

Construction impacts consist of (1) direct air pollutant emissions from onsite operation of heavy-duty construction equipment and earthwork activities (e.g., excavation, grading), as well as offsite emissions from haul trucks and construction workers commuting to and from construction site; and (2) indirect impacts from vehicular emissions due to traffic detours during the required closure of the viaduct (for the Replacement Alternative).

The SCAQMD guidance document, *CEQA Air Quality Handbook, November 1993* (Handbook), was used to calculate air pollutant emissions from construction of the proposed project. Mass daily emissions during different construction stages were forecast using the construction schedule and phasing provided by the proposed project's design engineers. The CARB OFFROAD 2007 emissions model was used to develop exhaust emission factors for the various types of off-road construction equipment to be used in the project construction activities. The EMFAC2007 emissions model was used to develop the emission factors for on-road trucks and employee vehicles. Fugitive dust emission factors were based on guidance from SCAQMD. The localized effects from the onsite portion of mass daily emissions were evaluated for each phase of construction using the dispersion model ISCST-AERMOD, consistent with procedures outlined in EPA's *1998 Guideline on Air Quality Models* and SCAQMD's *Localized Significance Threshold Methodology for CEQA Evaluations* guidance documents. The emission rates utilized in dispersion modeling analysis were developed from the peak daily onsite emissions divided by the 8-hour-per-day construction duration. Details of the construction schedule, the type and amount of equipment anticipated to be used in each phase, the emissions estimation model, and dispersion model input assumptions used in this analysis are presented in the Air Quality Technical Report[78] prepared for this project.

The SCAQMD document titled, *Final – Methodology to Calculate Particulate Matter (PM) 2.5 and $PM_{2.5}$ Significance Thresholds* (October 2006), provides appropriate guidance for analyzing $PM_{2.5}$ emissions. Because $PM_{2.5}$ emission factors for mechanical or combustion processes are not well developed, SCAQMD has recommended an indirect approach to calculating $PM_{2.5}$ emissions until more precise $PM_{2.5}$ emission factors are developed. Since $PM_{2.5}$ is a subset of PM_{10}, the current methodology for calculating $PM_{2.5}$ from fugitive dust sources (e.g., grading, demolition, unpaved roads, open storage piles) and combustion sources (i.e., stationary combustion sources, vehicle exhaust) is based on estimated PM_{10} emissions. Total suspended particulate matter emissions typically contain specific fractions of PM_{10} and $PM_{2.5}$ that can be measured. In general, particulate matter from fugitive dust-generating sources is primarily composed of PM_{10}, with a relatively small fraction of the fugitive particulate matter consisting of

[78] Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project. 2008; updated 2011.

$PM_{2.5}$. According to the report, fugitive dust contains approximately 21 percent $PM_{2.5}$. Alternatively, particulate matter from combustion sources is primarily composed of $PM_{2.5}$, with a small fraction consisting of PM_{10}. For off-road heavy-duty equipment, exhaust emissions consist of approximately 89 percent $PM_{2.5}$.

Alternative 1 – No Action

No air quality impacts would occur as long as the viaduct remains in service and no construction is warranted. At an unpredictable time in the future, the viaduct may be determined to be unserviceable. In this event, the City would have to seek funding sources to replace it. Under that circumstance, the viaduct would need to be closed to traffic until the new viaduct was completed. Impacts to air quality under this scenario would be similar to Alternative 3 – Replacement, except that there would be some changes to emission factors used in the calculation of the air pollutant emissions.

Alternative 2 – Retrofit

Direct Construction Impacts

Air pollutant emissions from construction equipment operation are calculated for the worst day during each phase of construction. Since the worst day of Alternative 2 could be similar to Alternative 3, the equipment mix of Alternative 3 is used for the calculation. Please see the Alternative 3 analysis below.

Indirect Construction Impacts

Since Alternative 2 construction would not require long-term viaduct closure (e.g., continuous closure lasting a week or longer), no traffic detours would occur; therefore, no vehicular emissions associated with traffic detours are anticipated.

Alternative 3 – Replacement

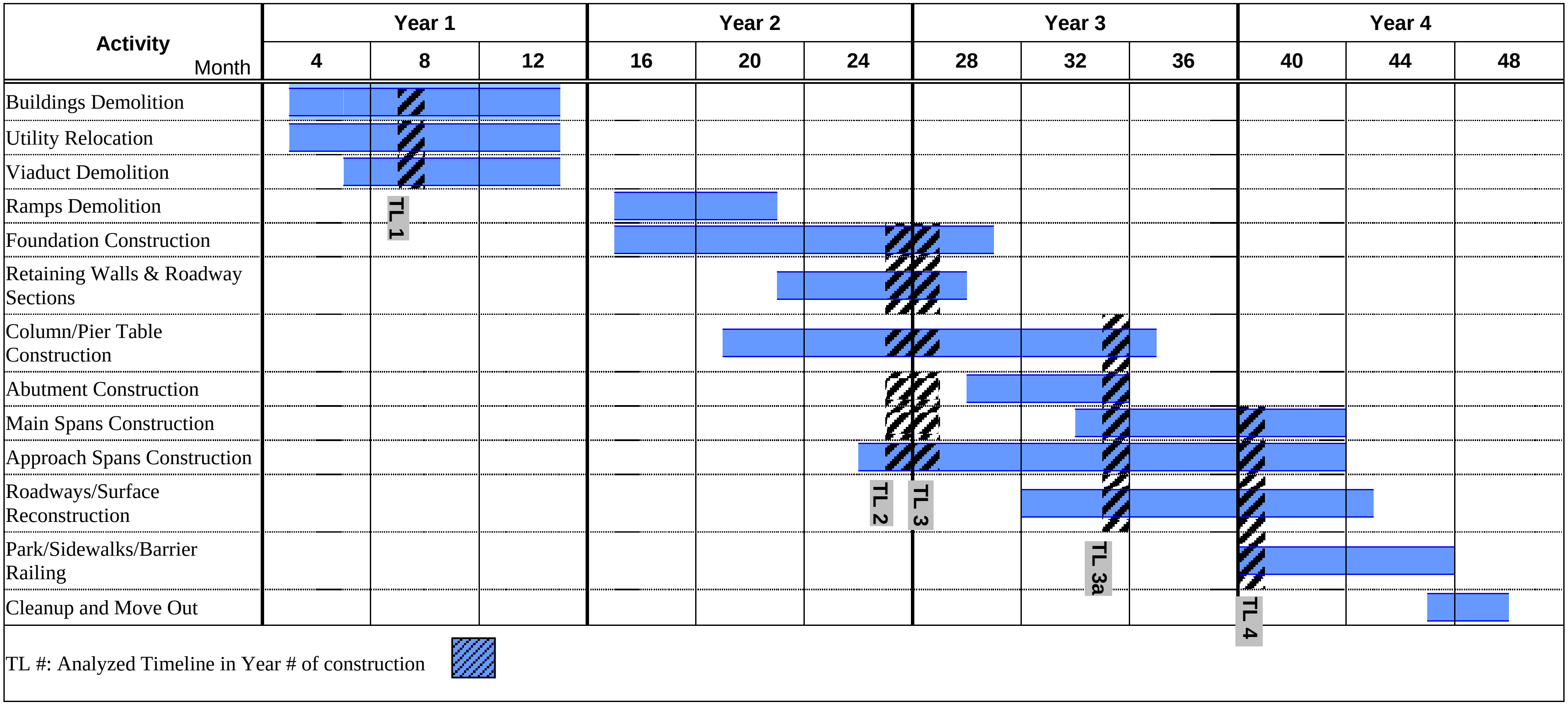
Regional Impacts

a. Direct Construction Impacts

In accordance with the SCAQMD Air Quality Handbook for CEQA impact analysis, emissions were calculated for a worst-case day (see Figure 3.15-2). The worst-case day represents the maximum emissions that can reasonably be expected and helps in determining the degree of potential air quality impact.

Table 3.15-7 summarizes the mass daily direct construction emissions for the proposed project for the worst-case days of each of the years 1 through 4 of the construction period. As shown for year 3 of construction, daily emissions for the 2 months with the most construction activities were estimated because 1 month would include most earthwork activities and another would contain the most overlapping phases. Emissions exceeding the threshold criteria are shown in **bold type.** As Table 3.15-7 shows, year 1 of construction activities would include the highest

Figure 3.15-2
Outline of Construction Schedule for Replacement Alternative



Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

Table 3.15-7
Estimate of Regional Direct Construction Emissions[a]
(lbs/day)

Construction Year	VOC	NO_X	CO	PM_{10}[b]	$PM_{2.5}$
YEAR 1					
Peak Concurrent Activities (Month 6)					
Onsite	42	332	184	81	28
Offsite[c]	<1	52	53	2	2
Total	42	**384**	237	83	30
Regional Daily Significance Threshold	75	100	550	150	55
Over/(Under) regional CEQA threshold	(33)	284	(313)	(67)	(25)
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 2					
Peak Concurrent Activities (Month 12)					
Onsite	21	169	101	21	11
Offsite[c]	1	13	18	<1	<1
Total	22	**182**	119	22	11
Over/(Under) regional CEQA threshold	(53)	82	(431)	(128)	(44)
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 3					
Peak Concurrent Activities (Month 1)					
Onsite	27	217	134	42	17
Offsite[c]	<1	15	22	1	<1
Total	27	**232**	156	43	17
Over/(Under) regional CEQA threshold	(48)	132	(394)	(107)	(38)
Exceed CEQA Threshold?	No	**Yes**	No	No	No
Peak Concurrent Activities (Month 8)					
Onsite	28	226	145	14	12
Offsite[c]	<1	5	13	<1	<1
Total	28	**230**	158	14	12
Over/(Under) regional CEQA threshold	(47)	130	(392)	(136)	(43)
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 4					
Peak Concurrent Activities (Month 1)					
Onsite	18	139	89	15	8
Offsite[c]	<1	10	17	<1	<1
Total	18	**149**	106	15	8
Over/(Under) regional CEQA threshold	(57)	49	(444)	(135)	(47)
Exceed CEQA Threshold?	No	**Yes**	No	No	No

[a] Compiled using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model. The equipment mix and use assumption for each phase is provided by the construction engineer.

[b] PM_{10} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

[c] Offsite emissions include motor vehicle emissions associated with construction equipment transport to the site, workers' commute, and debris-hauling activities.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

worst-case daily pollutant emissions. The calculation results indicate that unmitigated daily direct emissions of NO_X would exceed the SCAQMD regional significance threshold level during peak overlapping activities of each construction year. Maximum regional direct construction emissions would not exceed the SCAQMD daily significance thresholds for other criteria pollutants.

b. Indirect Emissions from Detour Traffic

Construction of the new viaduct would trigger traffic detours as a result of viaduct closure. The daily emissions of detoured vehicle traffic during the construction years were calculated using the peak-hour vehicle miles traveled (VMT) data and projected average vehicle speeds within the project study area. These data were obtained from the Traffic Analysis Report prepared for this project (originally prepared 2008 and validated 2011). Emission factors for the average travel speeds were obtained using the EMFAC2007 model.[79] Table 3.15-8 summarizes the results of air pollutant emissions from traffic estimates during the detour years. As shown, during the detour years, the net change of emissions between the viaduct opened (no detour traffic) and viaduct closed (with detour traffic) scenarios for all pollutants except NOx, would be negative. Regional NOx emissions would increase 0.5 lbs/day or less than 0.1 percent of total NOx emissions.

c. Total Regional Construction Emissions

The total direct and indirect construction emissions are subject to SCAQMD significance criteria for construction impacts. Table 3.15-9 presents the total regional emissions and comparison with the SCAQMD thresholds of significance.

As Table 3.15-9 shows, the regional emissions of NO_X would exceed the SCAQMD daily significance threshold during each of the four construction years, while emissions of other criteria pollutants would not exceed the thresholds.

[79] CARB, 2008. California Air Resources Board. Accessed via Web site at http://www.arb.ca.gov/aqs/ (revised February 22, 2007). May.

Table 3.15-8
Project Indirect Construction (Detour) Emissions during Detour Years (lbs/day)

Project Scenario/ Roadway Segments	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Year 2018 – Without Project (Viaduct Open)						
6th Street - Soto Street to Central Avenue	89.7	3.3	23.7	0.2	17.6	3.9
1st Street - Soto Street to Central Avenue	109.1	3.9	30.2	0.3	22.7	5.0
4th Street - Soto Street to Central Avenue	199.3	7.1	55.1	0.6	41.5	9.2
7th Street - Soto Street to Central Avenue	73.6	2.6	20.4	0.2	15.3	3.4
Central Avenue – 1st Street to 7th Street	37.3	1.4	9.8	0.1	7.3	1.6
Alameda Street – 1st Street to 7th Street	77.8	2.8	21.5	0.2	16.2	3.6
Mateo Street – 6th Street to 7th Street	3.7	0.1	0.9	<0.1	0.7	0.2
Santa Fe Avenue – 6th Street to 7th Street	7.7	0.3	1.9	<0.1	1.4	0.3
Boyle Avenue – 1st Street to 7th Street	45.6	1.7	12.0	0.1	9.0	2.0
Soto Street – 1st Street to SR 60 EB On-ramp	114.1	4.1	31.5	0.3	23.7	5.2
Total Year 2018 – No Action	**757.8**	**27.3**	**207.0**	**2.1**	**155.5**	**34.4**
Year 2018 – With Project (Viaduct Closed)						
6th Street - Soto Street to Central Avenue	14.0	0.5	3.7	<0.1	2.7	0.6
1st Street - Soto Street to Central Avenue	114.4	4.1	31.6	0.3	23.8	5.3
4th Street - Soto Street to Central Avenue	219.4	7.8	60.7	0.6	45.7	10.1
7th Street - Soto Street to Central Avenue	119.4	4.2	33.0	0.3	24.9	5.5
Central Avenue – 1st Street to 7th Street	32.2	1.2	8.5	0.1	6.3	1.4
Alameda Street – 1st Street to 7th Street	77.8	2.8	21.5	0.2	16.2	3.6
Mateo Street – 6th Street to 7th Street	4.4	0.2	1.1	<0.1	0.8	0.2
Santa Fe Avenue – 6th Street to 7th Street	7.7	0.3	1.9	<0.1	1.4	0.3
Boyle Avenue – 1st Street to 7th Street	45.5	1.7	12.0	0.1	8.9	2.0
Soto Street – 1st Street to SR 60 EB On-ramp	120.3	4.3	33.3	0.3	25.1	5.5
Total Roadway Traffic Emissions	**754.9**	**27.0**	**207.2**	**2.1**	**155.8**	**34.4**
Detour Emissions (Total Indirect Construction Daily Emissions)	**-2.9**	**-0.3**	**0.2**	**0.0**	**0.3**	**0.0**

Note: Emissions are calculated using emission factors from EMFAC2007, at the projected average speed, and VMT of each roadway segment within the study area (from Traffic Analysis Report). The calculation worksheets are included in the *Air Quality Technical Report.*
EB – eastbound

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

Table 3.15-9
Estimated Total Regional Construction Emissions of (lbs/day)

Scenario/Alternative	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Roadway Emissions – Year 2018 Viaduct Open – No Action	757.8	27.3	207.0	2.1	155.5	34.4
Roadway Emissions – Year 2018 Viaduct Closed – Alternative 3B	754.9	27.0	207.2	2.1	155.8	34.4
Detour Emissions – Alternative 3B	-2.9	-0.3	0.2	0.0	0.3	0.0
Direct Construction Emissions – Year 1	237	42	384	1	83	30
Total Regional Construction Emissions – Year 1	234	42	**384**	1	83	30
Direct Construction Emissions – Year 2	119	22	182	1	22	11
Total Regional Construction Emissions – Year 2	116	22	**182**	1	22	11
Direct Construction Emissions – Year 3	158	28	230	1	43	17
Total Regional Construction Emissions – Year 3	155	28	**230**	1	43	17
Direct Construction Emissions – Year 4	106	18	149	1	15	8
Total Regional Construction Emissions – Year 4	103	18	**149**	1	15	8
SCAQMD CEQA Significance Threshold	*550*	*75*	*100*	*150*	*150*	*55*

Notes:
Emissions exceeding the threshold criteria are shown in **bold type**.
- Roadway emissions are calculated using emission factors from EMFAC2007, at the projected average speed, and VMT of each roadway segment within the study area (from Traffic Analysis Report).
- The calculation worksheets are included in the *Air Quality Technical Report*.
- Direct construction emissions calculated using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

Localized Impacts

a. Direct Construction Emissions

The localized effects from onsite construction emissions constitute the direct construction emissions (i.e., emissions generated within the construction site). The localized effects from onsite construction emissions were evaluated to determine whether the proposed project construction would result in offsite ambient air pollutant concentrations that would exceed a SCAQMD threshold of significance. A screening analysis was conducted using the methodology promulgated by SCAQMD in its Localized Significance Threshold (LST) Methodology for CEQA Evaluations (SCAQMD, 2003). It was estimated that the project's maximum daily disturbed area during any construction phase would be 2.5 to 5 acres. This corresponds to the lookup tables in the LST document for projects that have maximum disturbance areas at any time of less than or equal to 5 acres. The project onsite construction emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ were compared with the threshold values in lookup tables C-1, C-2, C-4, and C-6 of the 2006-2008 LSTs, respectively.

The closest sensitive receptors to the construction site include the first row of single-family residences located approximately 600 ft and 400 ft north and east of the proposed project's eastern limit, respectively; Santa Isabel Elementary School; Soto Street Elementary School; and Boyle Heights Industrial Medical Clinic, approximately 0.3-mile, 0.4-mile, and 0.1-mile southeast of the project eastern limit, respectively. Year 1 of construction activities includes demolition of several buildings that are near the southernmost adjacent residences (approximately 200 ft from the nearest residence); as such, the active construction site boundary would be closer to the sensitive receptors during year 1 of construction. The construction site boundary during years 2 through 4 of construction are farther from these residences. Therefore, the LSTs used for year 1 are for receptors within 330 ft of the construction site boundary and for years 2 to 4 are for the receptors within 660 ft of the construction site.

The projected maximum daily localized emissions and the applicable LSTs are provided in Table 3.15-10. As shown, the screening analysis indicates that at the nearest sensitive receptors, the estimated localized mass daily emissions would exceed the SCAQMD daily significance thresholds for NO_X during the first and third years of construction and for PM_{10} and $PM_{2.5}$ during the first year. As such, potential impacts of localized NO_X and particulates emissions concentrations at the nearest sensitive receptors may be significant during these years of construction.

Based on the results of the screening analysis, a more refined dispersion modeling analysis using the EPA preferred AERMOD model was performed for NO_X and particulate matter (PM_{10} and $PM_{2.5}$) emissions during peak construction activities. The modeling was conducted for year 1 (the year in which most demolition activities would occur, resulting in the highest PM emissions and with highest NO_X emissions due to the type and quantity of equipment used for construction activities).

b. Indirect Emissions from Detour Traffic

The emissions from vehicle traffic along the roadways adjacent to the construction site constitute the indirect construction emissions and are evaluated in the air quality analysis. This is the traffic redirected to the detour route due to closure of the 6th Street viaduct during construction.

The effects of CO emissions from detour traffic are local in nature, and they are prominent at the intersections with potential for hot-spot generation; therefore, local CO concentrations were projected at selected intersections using the CALINE-4 traffic emission dispersion model. The analysis followed Appendix B of the CO Protocol and is consistent with procedures identified through SCAQMD's CO modeling protocol. The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when volume-to-capacity ratios are increased by 2 percent at

Table 3.15-10
Estimate of Unmitigated Peak Daily Localized Construction Emissions – Direct Construction Emissions

Analyzed Construction Stage/Phase	Maximum Onsite Pollutants Emissions (pounds/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Year 1	184	**332**	**81**	**28**
SCAQMD Localized Daily Significance Threshold – Year 1 [a]	*3,030*	*165*	*69*	*18*
Exceed Threshold?	No	**Yes**	**Yes**	**Yes**
Year 2	101	169	21	11
Year 3	145	**226**	42	17
Year 4	89	139	15	8
SCAQMD Localized Daily Significance Threshold – Years 2 through 4 [a]	*4,547*	*173*	*107*	*36*
Exceed Threshold?	No	**Yes**	No	No

Note: Exceedances from thresholds are shown in **bold** type.

[a] The nearest sensitive receptors include the single-family residences located approximately 600 ft north of the project alignment and west of US 101; Soto Street Elementary School, Soto Street Children's Center and Boyle Heights Medical Clinic, approximately 0.3-mile, 0.45-mile, and 0.1-mile southeast of the project eastern limit, respectively. The active construction site boundary during year 1 is closer, approximately 198 ft from the nearest residence; therefore, the LSTs for year 1 correspond to the receptors within 330 ft from the construction site.

[b] The project site is located in SCAQMD Source Receptor Area (SRA) No. 1. It was estimated that the project's maximum daily disturbed area during any construction phase would be 2.5 to 5 acres (see Appendix A). The localized significance thresholds (LST) in the table are from the lookup tables for a 5-acre site in the SRA No. 1, at 330 ft (year 1) and 660 ft (Years 2 through 4) distances; Tables C-1, C-2, C-4, and C-6 of the 2006-2008 lookup tables were used for LSTs of NO_X, CO, PM_{10}, and $PM_{2.5}$, respectively.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

intersections with an LOS of D or worse. The SCAQMD also recommends a CO hot-spot evaluation when an intersection declines in LOS by one level beginning when LOS changes from an LOS of C to D. As shown in Table 3.15-11, of the 31 studied intersections, 10 would be impacted by the detour traffic. Analysis of the affected intersections was performed for the base year (2007), as well as the detour year (2018). The ambient CO concentrations were estimated based on the CEQA Handbook and CO Protocol guidance and using SCAQMD projected future year 1-hour and 8-hour concentrations for the Central Los Angeles monitoring station area (SCAQMD, 2007). Receptor locations were 10 ft from each intersection corner. The results of local area CO dispersion analysis are presented in Table 3.15-12.

Table 3.15-11
Intersections Impacted by Traffic Diversion during Construction Years

Intersection	Peak Hour	Existing (Year 2007)		Year (2018)					
				Without Project (Viaduct Open)		With Project (Viaduct Closed)		V/C Increase	Exceeds SCAQMD Threshold [a]
		V/C	LOS	V/C	LOS	V/C	LOS		
4th Street - Pecan Street/ US 101 SB On-Ramp	AM	1.037	F	0.801	D	0.898	D	0.097	**Yes**
	PM	0.541	A	0.412	A	0.499	A	0.087	No
4th Street and US 101 SB Off-Ramp	AM	1.074	F	0.787	C	0.885	D	0.097	**Yes**
	PM	0.451	A	0.366	A	0.421	A	0.055	No
4th Street and US 101 NB Off-Ramp	AM	0.109	F	1.059	F	1.137	F	0.078	**Yes**
	PM	0.422	A	0.399	A	0.469	A	0.070	No
4th Street and Boyle Avenue	AM	0.718	C	0.804	D	0.899	D	0.095	**Yes**
	PM	0.595	A	0.669	B	0.771	C	0.102	No
4th Street and I-5 SB Ramps/ Gertrude Street	AM	0.731	C	0.719	C	0.809	D	0.090	**Yes**
	PM	0.87	D	1.040	F	1.127	F	0.087	**Yes**
4th Street and I-5 NB Ramps/Cummings Street	AM	0.67	B	0.801	D	0.877	D	0.076	**Yes**
	PM	0.647	B	0.755	C	0.773	C	0.018	No
4th Street and S. Soto Street	AM	0.102	F	1.115	F	1.205	F	0.090	**Yes**
	PM	0.142	F	1.542	F	1.591	F	0.048	**Yes**
7th Street and Santa Fe Avenue	AM	0.403	A	0.444	A	0.685	B	0.241	No
	PM	0.476	A	0.582	A	0.816	D	0.235	**Yes**
7th Street and Boyle Avenue	AM	0.339	A	0.371	A	0.836	D	0.465	**Yes**
	PM	0.334	A	0.365	A	0.645	B	0.280	No
7th Street and S. Soto Street	AM	0.557	A	0.605	B	0.712	C	0.107	No
	PM	0.67	B	0.725	C	0.826	D	0.101	**Yes**

LOS: level of service; NB: northbound; SB: southbound; v/c: vehicle to capacity ratio

[a] Based on SCAQMD recommendations, significant impacts occur when volume-to-capacity ratios are increased by 2 percent at intersections with LOS D or worse, or when an intersection declines in LOS by one level beginning when LOS changes from LOS C to D.

Source: Traffic Analysis Report, 2008; validated 2011.

Table 3.15-12
Detour Years Localized Carbon Monoxide Concentrations (Indirect Construction Emissions)

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		Existing [a] (2007)	Detour Year 2018		Existing (2007)	Detour Year 2018	
			Viaduct Open	Viaduct Closed		Viaduct Open	Viaduct Closed
4th Street and US 101 SB Off-Ramp	AM	8.0	6.1	6.4	6.0	5.3	5.5
	PM	6.7	6.1	6.2	5.5	5.3	5.4
4th Street and US 101 NB Off-Ramp	AM	7.9	6.1	6.3	5.9	5.3	5.4
	PM	7.1	5.6	5.7	5.6	5.0	5.0
4th Street and Boyle Avenue	AM	7.6	6.1	6.1	5.8	5.3	5.3
	PM	7.4	5.7	5.9	5.7	5.0	5.1
4th Street and I-5 SB Ramps/ Gertrude Street	AM	7.2	5.9	6.0	5.7	5.2	5.1
	PM	7.2	5.9	5.9	5.7	5.2	5.1
4th Street and I-5 NB Ramps/ Cummings Street	AM	7.4	5.8	5.8	5.7	5.1	5.1
	PM	7.5	5.8	5.8	5.7	5.1	5.1
4th Street and S. Soto Street	AM	8.7	5.8	5.9	6.4	5.1	5.2
	PM	10.3	5.8	5.9	6.8	5.1	5.2
7th Street and Santa Fe Avenue	AM	7.4	6.4	6.5	5.7	5.5	5.6
	PM	7.2	6.9	6.9	5.7	5.9	5.9
7th Street and Boyle Avenue	AM	6.8	5.8	6.0	5.5	5.1	5.2
	PM	7.0	5.7	5.9	5.5	5.0	5.2
7th Street and S. Soto Street	AM	7.7	5.6	5.9	5.8	5.0	5.2
	PM	7.9	5.7	5.9	5.9	5.0	5.2
State Standard (ppm)		20			9.0		
Federal Standard (ppm)		35			9.0		

NB – northbound; SB – southbound

4th Street - Pecan Street/ US 101 SB On-Ramp was not modeled due to its very close proximity to 4th Street and US 101 SB Off-Ramp.

Total CO concentrations include background 1-hour and 8-hour concentrations of 5.1 and 4.6 ppm, respectively, based on SCAQMD projected future concentrations for the Central Los Angeles monitoring station.

[a] Existing CO levels refer to 2007 and include worst-case background concentrations of 5.58 ppm, 1-hour average, and 5.02 ppm, 8-hour average. Background concentrations are based on a 3-year average of the highest 1-hour and 8-hour concentrations measured at the Central Los Angeles (Main Street) air monitoring station. This scenario presents conditions for CEQA thresholds.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

Table 3.15-12 indicates that during the detour years at the analyzed intersections, the 1-hour CO concentrations would range from 5.6 ppm to 6.9 ppm, and 8-hour CO concentrations would range from 5.0 ppm to 5.6 ppm. Therefore, the state 1-hour standard (20 ppm) and the federal/ state 8-hour standard (9.0 ppm) would not be exceeded; thus, the proposed project would not have a significant impact upon local CO concentrations at any intersections during the detour years. Since impacts would not occur at the intersections with the highest potential for CO hot-spots formation, sensitive receptors in the detour area would not be significantly affected by CO emissions generated by the additional/diverted traffic during the construction years.

c. Combined Direct and Indirect Construction Emissions Localized Impact

The combined direct and indirect construction emissions include onsite construction emissions (direct) and emissions from traffic along the detour route (indirect), including construction-related traffic. Local impacts from combined construction and detour traffic emissions of NO_X, PM_{10}, and $PM_{2.5}$ were evaluated using the AERMOD dispersion model. Table 3.15-13 presents the modeling results for years 1 and 3 of construction, which represent the worst-case construction emissions. For conservative estimates, the detour traffic of year 2018 was considered for both of the analyzed years.

Table 3.15-13
Estimate of Unmitigated Local Construction Impacts

Pollutant (Averaging Time)	Impact Criteria [a]	Maximum Ambient Pollutant Impact at Nearest Sensitive Receptors [b]					
		Residential		School	Medical	Daycare	Park
PM_{10} (24-Hour)							
Year 1	Maximum Increase (µg/m^3)	**11.2**	5.9	3.9	5.2	2.5	4.1
Threshold (µg/m^3)		*10.4*	*10.4*	*10.4*	*10.4*	*10.4*	*10.4*
Significant Impact		**Yes**	No	No	No	No	No
$PM_{2.5}$ (24-Hour)							
Year 1	Maximum Increase (µg/m^3)	8.4	4.8	1.1	1.7	1	2.4
Threshold (µg/m^3)		*10.4*	*10.4*	*10.4*	*10.4*	*10.4*	*10.4*
Significant Impact		No	No	No	No	No	No
NO_2 (1-hour) [c,d]							
Year 1	Concentration at Receptor (project + background) (µg/m^3)	266	229	264	279	272	249
Threshold (µg/m^3)		*338*	*338*	*338*	*338*	*338*	*338*
Adverse Concentration		No	No	No	No	No	No

[a] Exceedances of the thresholds are shown in bold. The thresholds for PM_{10}/$PM_{2.5}$ are incremental thresholds; therefore, only impacts of emissions from project construction are compared to the thresholds. The thresholds for CO and NO_2 are combined thresholds; therefore, impacts from project emissions plus background pollutant concentrations are compared to the thresholds.

[b] The nearest sensitive receptors include single-family residences located approximately 600 ft (182 meters) north of the project and west of US 101; Soto Street Elementary School, Soto Street Children's Center and Boyle Heights Medical Clinic, approximately 0.3-mile (482 meters), 0.45-mile (724 meters) and 0.25-mile (395 meters) southeast of the project eastern limit, respectively.

[c] NO_2 concentrations were calculated using the conversion rate from NO_X to NO_2 based on the distance of receptor from the emission source.

[d] Background concentrations: NO_2 =212 µg/m3;estimated based on ambient concentration trends and the last 4 years of monitored data at Main Street Monitoring Station; CO (2014 concentration):1-hour = 5,840 µg/m3 (5.1 ppm); 8-hour = 5,267 µg/m3 (4.6 ppm); projected future CO concentrations. http://www.aqmd.gov/CEQA/handbook/CO/.

Table 2-4. NO_2-to-NO_X Ratio as a Function of Downwind Distance

Downwind Distance (m)	NO2/NOx Ratio
20	0.053
50	0.059
70	0.064
100	0.074
200	0.114
500	0.258
1000	0.467
2000	0.75
3000	0.9
4000	0.978
5000	1

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Prepared 2008, Updated 2011.

As shown in Table 3.15-13, the potential increase in $PM_{2.5}$ emissions and the estimated potential NO_2 concentrations, when added to background ambient concentrations, would not violate their respective air quality standards at any of the sensitive receptor locations. As such, localized impacts with respect to these pollutant local concentrations during construction would not exceed CEQA thresholds.

The projected potential impacts represent worst-case conditions during demolition and site preparation, when earthwork activities occur close to the nearest residential units. The impacts would be reduced as these activities conclude near the northeast site boundary and move farther from the residential receptors. Table 3.15-13 also indicates that maximum PM_{10} concentrations could reach a level of 11.2 $\mu g/m^3$ at the nearest residence located north of the project site during the peak concurrent demolition/construction activities of year 1 (month 6). This increased concentration level would exceed the SCAQMD threshold, but the impacts could be minimized by applying mitigation measures.

3.15.3.5 Toxic Air Contaminants

The greatest potential for direct or onsite emissions of TACs would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. The indirect emissions of air toxics would be the MSAT emissions from the local roadways during detour years.

According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the construction schedule of 44 months, and considering that most grading and excavation activities would occur intermittently during different construction phases, the proposed project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions with no residual emissions after construction and corresponding individual cancer risk. As such, potential impacts related to TAC emissions during construction would be less than significant, and no mitigation measures are required.

Asbestos

The project area does not include naturally occurring asbestos; however, project construction activities may include the demolition of buildings constructed prior to 1980. These structures may contain friable ACMs, which are subject to regulations that require demolition activities to minimize asbestos released into the air. Primarily, this is accomplished through the observation of rules for asbestos management promulgated by the National Emission Standards for Hazardous Air Pollutants (NESHAP). EPA enforces the NESHAP rules through CARB and SCAQMD.

The NESHAP asbestos rule specifies work practices to be followed during demolition of all structures that contain, or may contain, asbestos (40 CFR 61, Subpart M [NESHAP]). These work practices have been designed to effectively reduce airborne asbestos to safe levels. The proposed project would be subject to the NESHAP asbestos rule; therefore, it would be required to comply with these specified work practices. Additionally, demolition activities would be subject to SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities; and Rule 301, Demolition and Renovation Project Fees. Consequently, airborne asbestos would not be generated in unhealthy amounts during demolition.

Therefore, adverse air quality impacts from asbestos are not anticipated, and no mitigation measures would be required.

3.15.3.6 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the CAAA, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants (HAPs). Mobile source air toxics (MSATs) are a subset of 188 air toxics that are the compounds emitted from roadway vehicles and non-road equipment. EPA has identified 7 compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA)[80]. The identified priority MSATs are benzene, formaldehyde, 1,3-butadiene, acrolein, naphthalene, diesel particulates and diesel exhaust organic gases (DPM), and polycyclic organic matter (POM). While FHWA considers these the priority MSATs, the list is subject to change and may be adjusted in consideration of future EPA rules.

Currently, neither EPA nor CARB have established regulatory concentration targets for the seven relevant MSAT pollutants appropriate for use in the project development process. For the same reason, states are neither required to achieve an identified level of air toxics in the ambient air nor identify air toxics reduction measures in the SIP. Developing strategies for reduction of MSATs is a cooperative effort between federal and local authorized agencies. Furthermore, the tools and techniques for assessing project-specific health impacts from MSATs are currently limited.

FHWA released an interim guidance on February 3, 2006, determining when and how to address MSAT impacts in the NEPA process for transportation projects[81]. The guidance document was updated on September 30, 2009 (FHWA, 2009)[82]. FHWA has identified three levels of analysis:

80 EPA, 1999. National Air Toxics Assessment: http://www.epa.gov/ttn/atw/nata1999/

81 FHWA, 2006. Federal Highway Administration. *Interim Guidance on Air Toxic Analysis in NEPA Documents.* February 3.

(1) No analysis for projects with no potential for meaningful MSAT effects;
(2) Qualitative analysis for projects with low potential MSAT effects; and
(3) Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSATs should be analyzed.

Based on FHWA's approach in the interim guidance update document, the proposed project would be considered to have no meaningful impacts on traffic volumes or fleet mix. The purpose of this project is to correct seismic deficiencies of the 6th Street Viaduct by replacing the viaduct with a seismically sound structure (Alternative 3) or by implementing a retrofit technique that would ensure the seismic safety of the viaduct for approximately 30 years (Alternative 2). The proposed project alternatives would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the existing conditions. As such, it can be concluded that this project would generate minimal air quality impacts for CAA criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs. The Air Quality Technical Report, prepared as part of the EIR/EIS preparation for this project, provides an analysis of project MSAT emissions for the purpose of comparison with CEQA baseline (year 2007), and for indirect construction emissions during detour years (consistent with criteria pollutant analysis). However, as described in Section 3.15.3.5, the effect of changes in MSAT emissions would be short term, the potential impacts related to MSAT emissions during construction are considered less than significant, and no mitigation measures are required.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. According to an FHWA analysis, even after accounting for a 145 percent increase in VMT, the Agency predicts a combined reduction of 72 percent in the total annual emission rate for the priority MSATs, from 1999 to 2050. This will reduce the background level of MSATs, as well as the possibility of even minor MSAT emissions from this project.

3.15.3.7 Permanent Impacts

The purpose of the proposed project is to correct seismic deficiencies of the 6th Street Viaduct by either retrofitting the existing structure or replacing the 6th Street Viaduct entirely. Under the replacement alternative, the proposed project would also correct geometric design and structural

[82] FHWA, 2009. Federal Highway Administration. *Interim Guidance Update on Air Toxic Analysis in NEPA Documents.* September 30.

detailing deficiencies of the existing viaduct by constructing the replacement to current standards set forth by AASHTO and the LADOT. No additional capacity to the viaduct or nearby roadways is proposed; therefore, there would be no permanent impacts to air quality under any of the alternatives considered in this EIR/EIS.

3.15.3.8 Indirect Impacts

There would be no indirect impacts to air quality if the viaduct remains in service (Alternative 1) or undergoes retrofit (Alternative 2). Construction of the new viaduct under Alternative 3 – Replacement would trigger traffic detours as a result of viaduct closure. Air pollutant emissions from detour traffic during construction years are calculated and presented in Section 3.15.3.4 above.

Note that under Alternative 1 – No Action, if the viaduct was determined unserviceable, the City would have to seek emergency funding sources to replace it. The viaduct would have to be closed and traffic detouring would occur. Air pollutant emissions during the detour years would be similar to Alternative 3, but for a longer period of time; however, exact calculation cannot be made because the timing and duration cannot be estimated.

3.15.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would identify funding sources to replace it. Minimization measures described under Alternative 3 – Replacement would apply under this scenario.

Alternative 2 – Retrofit

Construction of Alternative 2 is expected to be at a smaller scale than Alternative 3. In addition, no long-term traffic detour would be required. The contractor would be required to follow the requirements of existing SCAQMD rules and regulations. No additional mitigation measures would be required.

Alternatives 3 – Replacement

Tables 3.15-7 and 3.15-9 indicate that maximum construction emissions during peak construction activities would exceed the regional threshold of NO_X emissions during the construction period; and Table 3.15-13 shows that the maximum localized emissions would slightly exceed the localized PM_{10} localized significance threshold (LST) during the most intense demolition activities of year 1 (month 6) at the nearest residential receptor. Therefore, practices that would minimize air pollution must be employed during project construction.

Reduction of construction emissions would be achieved by two types of actions, including compliance with the requirements of existing SCAQMD rules and regulations and implementation of additional mitigation measures, as follows:

- In addition to SCAQMD Rule 403 requirements, the contractor shall water all excavation/ earth-moving activity areas as necessary to remain visibly moist during active operations.
- The contractor shall water the construction site three times daily, or apply nontoxic soil stabilizers, as needed, to reduce offsite transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.
- The contractor shall properly tune and maintain construction equipment in accordance with manufacturer's specifications.
- During construction, the contractor shall keep trucks and vehicles in loading/unloading queues with their engines off when not in use to reduce vehicle emissions. The contractor shall phase construction activities to avoid emissions peaks, where feasible, and discontinue during second-stage smog alerts.
- To the extent possible, the contractor shall use construction equipment that is powered by aqueous diesel or alternative fuel sources (e.g., methanol, natural gas, or propane).
- Where feasible, the contractor shall use diesel oxidation catalyst for heavy-duty construction equipment.

To further minimize the impacts associated with emissions of PM and air toxics from construction-related activities, the following mitigation measures would be implemented to the extent practicable.

Fugitive Dust Source Controls

The City would require the contractor to:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to active and inactive sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.

Mobile and Stationary Source Controls

The City would require the contractor to:

- Reduce use, trips, and unnecessary idling of heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable, and to perform at verified standards applicable to retrofit

technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

- Prohibit any tampering with engines and adhere to manufacturer's recommendations.
- Lease new and clean equipment meeting the most stringent of applicable federal and state standards, if practicable.
- Utilize EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of particulate matter and other pollutants at the construction site.

Administrative Controls

The City would:

- Require the contractor to prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Meet EPA diesel fuel requirements for off-road and on-highway and, where appropriate, use alternative fuels such as natural gas and electric power.
- Develop a construction traffic and parking management plan that minimizes interference and maintains traffic flow as part of the TMP.
- Require the contractor to identify sensitive receptors in the project area and specify the means to minimize impacts to these populations.

3.15.5 Climate Change

Climate change is analyzed in Chapter 4, Section 4.8. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change Web site: (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process – from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision making and improve efficiency at the program level, and it will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hour traveled.

❖ ❖ ❖

3.16 Noise

This section evaluates potential noise and vibration impacts on nearby noise-sensitive areas resulting from the proposed project. The detailed analysis, including input and output data, is contained in the Noise Study Report prepared for this project and Technical Memorandum prepared to validate the original Noise Study Report.[84]

3.16.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires a strictly baseline-versus-build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the federal 23 CFR 772 noise analysis; please see Chapter 4 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA [A-weighted decibels][85]) is lower than the NAC for commercial areas (72 dBA). Table 3.16-1 lists the NAC for use in the NEPA 23 CFR 772 analysis.

Figure 3.16-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

[84] Noise Study Report for 6th Street Viaduct Seismic Improvement Project. Prepared February 2009 and Noise Technical Report Technical Memorandum, February, 2011.
[85] See Section 3.16.2 - Fundamentals of Noise for a definition of various noise descriptors.

Table 3.16-1
Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	–	Undeveloped lands.
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR 772.

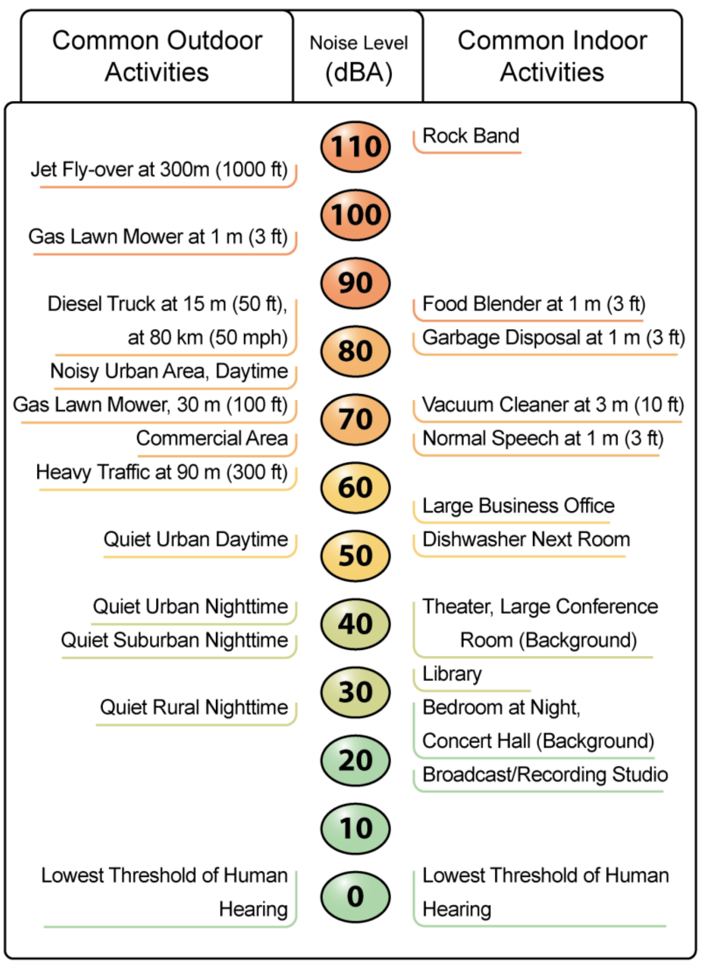


Figure 3.16-1 Noise Levels of Common Activities

In accordance with the Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

City of Los Angeles Noise Standards

The City's noise criteria/standards are applicable to construction and operation of the proposed project as described below.

Construction Noise Regulations. The City's noise ordinance sets forth noise limits for construction activities. Chapter XI, Article 2, Section 112.05, of the Los Angeles Municipal Code states that noise generated from construction and industrial machinery shall not exceed a maximum of 75 dBA at a distance of 50 ft, except where compliance is technically infeasible. "The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this section. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or any other noise-reduction device or technique during the operation of the equipment."

In addition, Section 41.40 of the Los Angeles Municipal Code restricts construction activities during different hours of the day. According to this code, no person shall perform any construction or repair work that makes loud noises that disturbs persons occupying sleeping quarters in any place of residence between the hours of 9:00 p.m. of one day and 7:00 a.m. of the following day. Furthermore, the code prohibits any person other than an individual homeowner engaged in the repair or construction of his single-family dwelling from performing any construction or repair work on land occupied by residential buildings, or within 500 ft of land so occupied, before 8:00 a.m. or after 6:00 p.m. on any Saturday or at any time on any Sunday. If a tight project construction schedule would necessitate construction activities to occur outside of the hours allowed by the City's noise ordinance, then a permit from the Police Commission is required.

Land-Use Noise Regulations. Table 3.16-2 lists the City's noise standards. A violation of these standards would occur if the ambient background noise were exceeded by more than 5 dBA. The ambient noise is measured when the alleged noise source of concern, or that which is to be introduced, is not operating. The standard sets the minimum ambient noise level at 50 dBA during daytime and 40 dBA at night in residential areas, unless measured higher.

Table 3.16-2
City of Los Angeles Noise Standards

Zone	Presumed Ambient Noise Levels, dBA	
	Day (7:00 a.m. to 10:00 p.m.)	Night (10:00 p.m. to 7:00 a.m.)
Residential, agricultural	50	40
Commercial, Public Use	60	55
Manufacturing	60	55
Heavy manufacturing	65	65

Notes:
Noise Limitation:
No equipment or machinery shall be operated in any manner as to create any noise that would cause the noise level at any occupied property to exceed the ambient noise level by more than 5 dB.

- At the boundary line between two zones, the presumed ambient noise level of the quieter zone shall be used.
- Adjustments to Noise Source:
  Where the sound alleged to be offending is of a type or character set forth below, the following decibel values shall be the sound level measurement of the offending noise:
  a. Add 5 dBA to any steady, pure tone with audible fundamental frequency or overtones above 200 Hz.
  b. Add 5 dBA from any repeated, impulsive noise.
  c. Subtract 5 dBA from any noise occurring 15 minutes or less in any period of 60 consecutive minutes between the hours of 7:00 a.m. and 10:00 p.m. of any day.

Source: City of Los Angeles. 2007. Los Angeles Municipal Code, Sixth Edition, Chapter XI – Noise Regulation.

In addition to the above-listed City noise standards, the City also uses the California General Plan's guidelines for using the community noise equivalent level (CNEL) to assess community noise in determining land use compatibility for future developments, as listed in the *Los Angeles CEQA Thresholds Guide* and shown in Table 3.16-3; however, due to the nature of this proposed project, where potential noise impacts would more likely stem from traffic diversion onto areas along nearby roadways during peak traffic hours from the construction period viaduct closure, Caltrans criteria and the City standards listed in Table 3.16-2, which also satisfy CEQA requirements, would be more appropriate.

Table 3.16-3
Land Use Compatibility Guidelines for Community Noise

Land Use Category	Community Noise Exposure CNEL, dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	Above 75
Multi-Family Homes	50 – 65	60 – 70	70 - 75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	Above 80
Transient Lodging – Motels, Hotels	50 – 65	60 – 70	70 – 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	--	50 – 70	--	Above 65
Sports Arena, Outdoors Spectator Sports	--	50 – 75	--	Above 70
Playgrounds, Neighborhood Parks	50 – 70	--	67 – 75	Above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	--	70 – 85	Above 80
Office Buildings, Business and Professional Commercial	50 – 70	67 – 77	Above 75	--
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	Above 75	--

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable: New construction or development would generally be discouraged. If new construction or development does proceed, then a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: City of Los Angeles, 2006. *Los Angeles CEQA Thresholds Guide.*

Under CEQA, a *substantial noise increase* may result in a significant adverse environmental effect and, if so, must be mitigated or identified as a noise impact for which it is likely that no or only partial abatement measures are available. Per the *Los Angeles CEQA Thresholds Guide*, proposed project operations would normally pose a significant noise impact if they cause the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the “normally unacceptable” or “clearly unacceptable” category, or any 5 dBA or greater noise increase (see Table 3.16-3).

3.16.2 Affected Environment

Fundamentals of Noise

Noise is defined as sound that is loud, unpleasant, unexpected, or undesired. A continuous sound can be described by its frequency (pitch) and its amplitude (loudness). The loudness of sound increases and decreases with increasing and decreasing amplitude. These units are called decibels (dB).

Because decibels are logarithmic units, sound pressure levels (L_p) cannot be added or subtracted by ordinary arithmetic means. When two sounds of equal L_p are combined, they will produce a combined L_p, which is 3 dB greater than the original individual L_p. In other words, sound energy must be doubled to produce a 3-dB increase. If two sound levels differ by 10 dB or more, the combined L_p is equal to the higher L_p; in other words, the lower sound level does not increase the higher sound level.

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear. In general, the healthy human ear is most sensitive to sounds between 1,000 Hertz (Hz) and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of L_p adjustments is usually applied to the sound level at different frequencies. These adjustments are referred to as a weighting network. The A-scale weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. Noise levels for traffic noise reports are typically reported in terms of dBA. In environmental noise studies, A-weighted sound pressure levels are commonly referred to as noise levels.

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns; others are random. Some noise levels fluctuate rapidly; others fluctuate slowly. Some noise levels vary widely; others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following is a list of the noise descriptors most commonly used in traffic noise analysis:

- **Equivalent Sound Level (L_{eq})** – L_{eq} represents an average of the sound energy occurring over a specified period. L_{eq} is, in effect, the steady-state sound level that, in a stated period, would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level, L_{eq} (h), is the energy average of the A-weighted sound levels occurring during a 1-hour period.
- **Percentile-Exceeded Sound Level (L_x)** – L_x represents the sound level exceeded for a given percentage of a specified period. For example, L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time.
- **Maximum Sound Level (L_{max})** – L_{max} is the highest instantaneous sound level measured during a specified period.

Existing Noise Environment

Noise measurement sites are locations where noise measurements are undertaken to determine existing noise levels and to verify or calibrate computer noise models. These sites are chosen as being representative of similar noise-sensitive receptor sites in the area. Noise-sensitive receptors are locations selected for determining noise impacts. These locations normally represent areas where frequent outdoor human-use occurs or is likely to occur in the foreseeable future (e.g., vacant property for which development plans have received final approval). Locations that are expected to receive the greatest noise impacts, such as the first row of houses from the noise source, are generally chosen. All measurement sites are selected so that there would not be any unusual noises from sources, such as dogs, pool pumps, or children, which could affect the measured levels. It is also desirable to choose sites that are free of major obstructions or contamination.

The 6th Street Viaduct is located in the area zoned for industrial use. Current uses along the corridor on the north and south sides of the viaduct are indoor manufacturing/commercial buildings and parking lots. No noise-sensitive receptors or sensitive land uses are located immediately adjacent to the viaduct. The closest residences to the project site are located approximately 600 ft northeast of the proposed project's eastern limit near 6th Street and Clarence Street (Figure 3.15-1). Therefore, existing noise measurements were conducted within the community east of the proposed project site, as shown in Figure 3.16-2. Noise measurements for the 6th Street project were conducted in conformance with Caltrans' *Technical Noise Supplement*[86] and the guidelines outlined in FHWA's *Measurement of Highway-Related Noise*, FHWA-DP-96-046,[87] as well as City procedures outlined in Chapter XI of the Los Angeles Municipal Code.

Table 3.16-4 summarizes the results of the ambient noise measurements at the selected locations. Measurements were conducted during peak traffic hours when traffic was observed to be free flowing; therefore, it was reasonable to assume that the worst hourly noise levels were recorded. Existing peak-hour noise levels were measured between 56 and 78 dBA at receptors that may be affected by traffic diversion resulting from the proposed closure of the 6th Street Viaduct during construction of Alternative 3. Note that these noise levels are generated primarily by existing traffic on respective streets.

[86] Caltrans, 1998. California Department of Transportation. *Technical Noise Supplement – A Technical Noise Supplement to the Traffic Noise Analysis Protocol.* October.

[87] FHWA, 1996. United States Department of Transportation, Federal Highway Administration. *Measuring of Highway-Related Noise.* FHWA-DP-96-046.

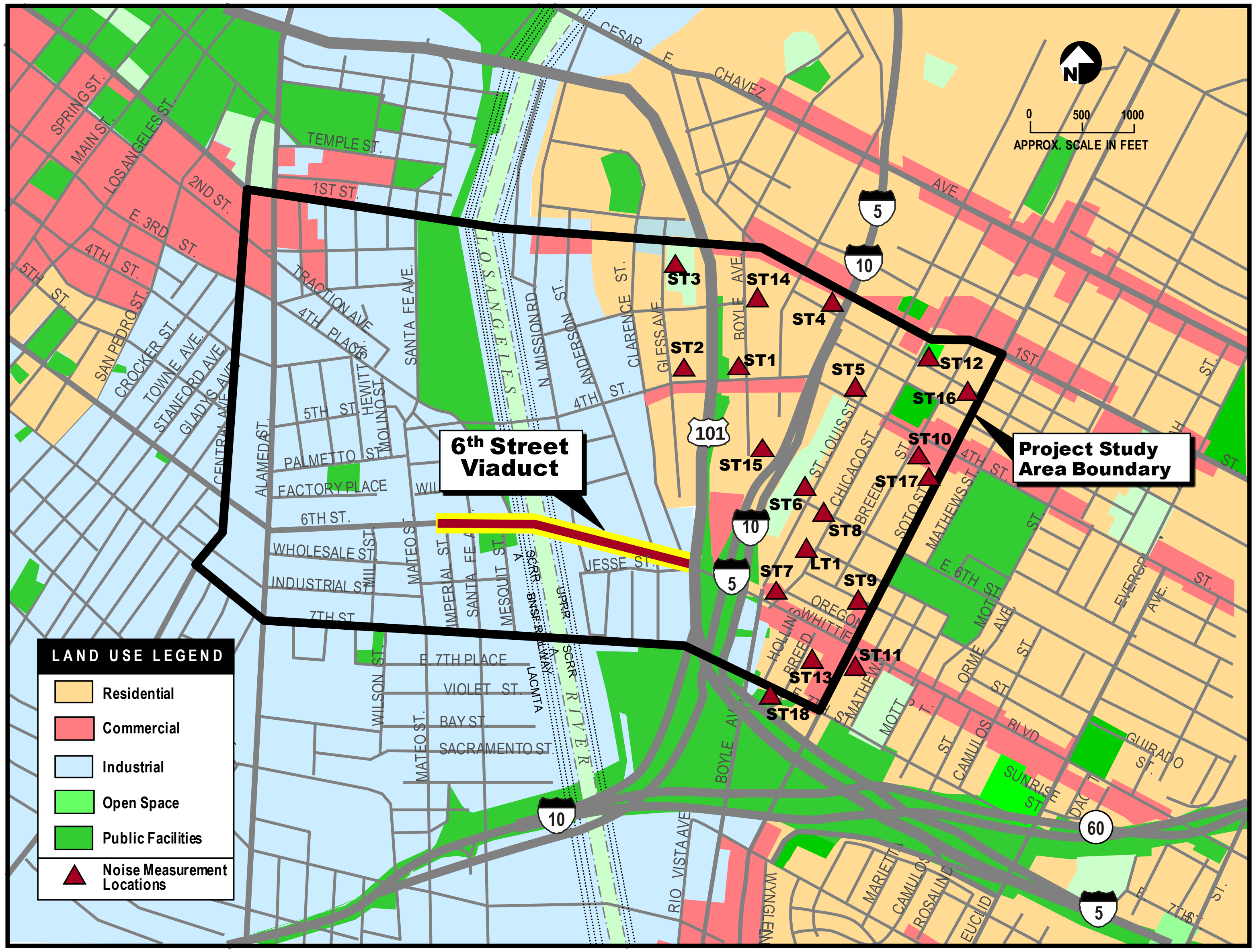


Figure 3.16-2 Noise Measurement Locations

Table 3.16-4
Noise Measurement Results

Site Number	Street Address, City	Land Use[1]	Measurement Date	Start Time	Measured L_{eq}[2], dBA
ST 1	Intersection of 4th Street and South Boyle Avenue	COM	9/12/2007	7:30 am	73
ST2	Intersection of 4th Street and Gless Street	SCH	9/12/2007	7:55 am	77
ST3	135 South Gless Street	SFR	9/12/2007	8:25 am	58
ST4	1939/1933 2nd Street	SCH	9/12/2007	9:00 am	61
ST5	300 South St. Louis Street	SFR	9/12/2007	9:30 am	72
ST6	600 South St. Louis Street	REC	9/12/2007	9:55 am	67
ST7	Intersection at Whittier Boulevard between South Boyle Avenue and Chicago Street	COM	9/12/2007	3:50 pm	76
ST8	2100 East 6th Street	MFR	9/12/2007	4:15 pm	62
ST9	700 South Soto Street	SFR	9/12/2007	4:45 pm	73
ST10	456 South Breed Street	MFR	9/12/2007	5:15 pm	62
ST11	919 South Soto Street	SCH	9/13/2007	7:10 am	73
ST12	2229 East 2nd Street	SFR	9/13/2007	7:55 am	56
ST13	963 South Breed Street	SFR	9/13/2007	9:05 am	61
ST14	212 South Boyle Avenue	MFR	9/18/2007	6:46 am	68
ST15	Intersection of South Boyle Avenue and I-5 ramp	MFR	9/18/2007	7:22 am	72
ST16	201 South Soto Street	MFR	9/18/2007	7:55 am	74
ST17	459 South Soto Street	SFR	9/18/2007	8:33 am	78
ST18	2422 East 7th Street	MFR	9/18/2007	9:30 am	66
LT1[3]	2112 Inez Street	SFR	9/12/2007	3:27 pm	59

Notes:
[1] *SFR – Single-Family Residential; MFR – Multiple-Family Residential; COM – Commercial; REC – Recreation; SCH – School*
[2] *All short-term measured noise levels were measured for periods of 20 minutes.*
[3] *Noise level shown is the actual peak-hour noise level during a 24-hour period.*
ST = Short Term Measurement
LT = Long Term Measurement

Source: Noise Study Report for 6th Street Viaduct Seismic Improvement Project, Prepared February 2009, validated February 2011.

3.16.3 Environmental Consequences

3.16.3.1 Construction Impacts

Construction noise is regulated by Caltrans Standard Specifications, Section 7-1.001, Sound Control Requirements. These requirements state that noise levels generated during construction should comply with applicable local, state, and federal requirements. Normally, construction noise levels should not exceed 86 dBA (L_{max}) at a distance of 50 ft (15 m). The City of Los Angeles construction noise limit for residences is 75 dBA, L_{eq}.

Noise impacts from construction activities for the proposed project are a function of the noise generated by construction equipment, location and sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. The degree of construction noise impacts could vary for different areas within the project site depending on the construction activities. For environmental impact analysis purposes, a construction equipment list for each phase of project construction was developed to calculate the expected level of noise to be generated from equipment operation. A construction noise impact is determined using the construction noise limits set forth by the City of Los Angeles Noise Ordinance (Table 3.16-2).

Alternative 1 – No Action

No construction noise impacts would occur as long as the viaduct remains in service. In the event the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. It is estimated that the time to construct a new viaduct would range between 5 and 7 years from the time it was declared out of service. Noise effects during construction of the new viaduct would be the same as Alternative 3 – Replacement. In addition, the viaduct would have to be closed during construction, resulting in traffic detours similar to Alternative 3, but potentially longer in duration. Traffic noise generated along the detour routes would be similar to the Replacement Alternative.

Alternative 2 – Retrofit

Construction Noise

Noise levels to be generated from the pool of equipment during each phase of construction were estimated based on the Alternative 3 (Replacement) list of equipment to represent the worst-case scenario. Noise impacts from retrofit activities would be confined to a relatively narrow corridor extending along both sides of the viaduct and corresponding to the construction sequence. Since the nearest commercial/industrial land uses are located immediately adjacent to the project corridor, the expected construction noise levels at the property lines of these land uses would likely exceed Caltrans recommended 86 dBA (L_{max}) at a distance of 50 ft on an occasional basis due to infrequent heavy equipment operations (i.e., only on occasions when the hydraulic hammer or diesel pile driver is operating); however, these commercial/industrial areas are not identified as “frequent human outdoor-use” locations; therefore, no adverse construction noise impacts to commercial/manufacturing uses along the 6th Street corridor are anticipated. Since the closest residences to the viaduct are located 600 ft away, no adverse noise impact would occur. (See calculation results under Alternative 3 – Replacement below to support this statement.)

Traffic Noise

Construction of the Retrofit Alternative would not require long-term permanent closure of the viaduct; therefore, noise would result primarily from construction equipment and material hauling activities. This impact is temporary and not unusual for a major public works construction project in an urban area. No adverse noise impacts from vehicular traffic are anticipated.

Alternative 3 – Replacement

Construction Noise

Construction of the proposed project is anticipated to occur over the 4-year construction period. Normally, construction noise differs with various construction activities, and each type of construction activity has its own noise characteristics based on the mix of construction equipment in use. The highest construction noise levels for this proposed project are expected to occur during construction phases involving foundation/substructure, superstructure, and wall and embankment construction activities because these phases of construction require the use of a noisier equipment fleet, such as impact pile drivers (see Table 3.16-5). Noise impacts from these activities would be confined to a relatively narrow corridor extending along both sides of the viaduct and corresponding to the construction sequence. Since the nearest commercial/industrial land uses are located immediately adjacent to the project corridor, the expected construction noise levels at the property lines of these land uses would likely exceed Caltrans recommended 86 dBA (L_{max}) at a distance of 50 ft on an occasional basis due to infrequent heavy equipment operations (i.e., only on occasions when the hydraulic hammer or diesel pile driver is operating); however, these areas are not identified as "frequent human outdoor-use" locations; therefore, no adverse construction noise impacts to commercial/manufacturing uses along the 6th Street corridor are anticipated.

Table 3.16-5
Estimated Construction Noise Levels (in dBA)

Construction Activity Equipment	Number of Equipment Vehicles	Daily Operation Hours	Sound Level at 50 ft	Effective Usage Factor	L_{eq}(h) at 50 ft	L_{eq}(h) at Closest Residences
Building Demolition						
Front End Loader	1	8	75	0.30	70	46
Dump Truck	2	8	80	0.60	78	54
Flat Bed Truck	1	8	81	0.30	76	52
Water Truck	1	8	78	0.30	73	49
Crane	1	8	81	0.30	76	52
Excavator with Hydraulic Hammer	1	8	81	0.30	76	52
Dozer	1	8	80	0.30	75	51
			Overall L_{eq} =		**84**	**60**
Existing Viaduct Demolition						
Hydraulic Pulverizer Claw	1	8	83	0.30	78	54
Crane	1	8	81	0.30	76	52
Front End Loader	1	8	75	0.30	70	46
Excavator with Hydraulic Hammer	2	8	90	0.60	88	64
Dump Truck	2	8	80	0.60	78	54
Excavator with Hydraulic Thumb	2	8	83	0.60	81	57
			Overall L_{eq} =		**89**	**66**
USACE Ramp Demolition						
Front End Loader	1	8	75	0.30	70	46
Dump Truck	10	8	80	3.00	85	61
Flat Bed Truck	1	8	81	0.30	76	52
Water Truck	1	8	78	0.30	73	49
Crane	1	8	81	0.30	76	52

Table 3.16-5
Estimated Construction Noise Levels (in dBA)

Construction Activity Equipment	Number of Equipment Vehicles	Daily Operation Hours	Sound Level at 50 ft	Effective Usage Factor	L_{eq}(h) at 50 ft	L_{eq}(h) at Closest Residences
Excavator with Hydraulic Hammer	1	8	90	0.30	85	61
Dozer	1	8	80	0.30	75	51
			Overall L_{eq} =		**89**	**65**
Foundation Construction –Option 1: Pile Driving						
Crane	1	8	81	0.30	76	52
Impact Piling Hammer	1	4	101	0.05	88	64
Crane – 40 ton	1	4	75	0.15	67	43
			Overall L_{eq} =		**88**	**65**
Foundation Construction –Option 2: Drilled Shaft						
Drill rig/Auger	1	8	80	0.30	75	51
Crane	1	8	81	0.30	76	52
Crane – 30 ton	1	4	75	0.15	67	43
Backhoe	1	4	75	0.15	67	43
Welder	1	4	73	0.15	65	41
Air Compressor	1	8	65	0.30	60	36
			Overall L_{eq} =		**79**	**56**
Footing Construction						
Crane – 30 ton	1	4	75	0.15	67	43
Backhoe	1	4	75	0.15	67	43
Concrete Pump	1	2	77	0.08	66	42
Ready-mix Concrete Trucks	2	2	85	0.15	77	53
			Overall L_{eq} =		**78**	**54**
Column Construction						
Crane	1	8	81	0.30	76	52
Crane – 30 ton	1	8	75	0.30	70	46
Backhoe	1	4	75	0.15	67	43
Electric Generators	4	8	70	1.20	71	47
			Overall L_{eq} =		**78**	**55**
Balanced Cantilever Erection						
Crane - 275 ton	2	8	84	0.60	82	58
Crane – 140 ton	3	8	81	0.90	81	57
Crane - 30	3	8	75	0.90	75	51
Electric Generators	2	8	70	0.60	68	44
Concrete Pump	2	2	77	0.15	69	45
Ready-mix Concrete Trucks	2	2	85	0.15	77	53
Backhoe	5	4	75	0.75	74	50
			Overall L_{eq} =		**86**	**62**
AC, Base, Curb & Gutter & Sidewalk Removal						
Front End Loader	1	8	75	0.30	70	46
Dump Truck	2	8	80	0.60	78	54
Flat Bed Truck	1	8	81	0.30	76	52
Water Truck	1	8	78	0.30	73	49
			Overall L_{eq} =		**81**	**57**
Wall and Embankment Construction – Option 1: Proprietary Wall and Embankment						
Backhoe	2	8	75	0.60	73	49
Front End Loader	2	8	75	0.60	73	49
Plate Compactor	4	4	75	0.60	73	49
Dump Truck	6	8	80	1.80	83	59
Water Truck	1	2	78	0.08	67	43
Hand Compactor – 5hp	2	2	75	0.15	67	43
Steel Roller – 20 ton	2	8	76	0.60	74	50
			Overall L_{eq} =		**84**	**61**
Wall and Embankment Construction – Option 2: Concrete Reinforcing Wall on Steel Pile Foundation						

Table 3.16-5
Estimated Construction Noise Levels (in dBA)

Construction Activity Equipment	Number of Equipment Vehicles	Daily Operation Hours	Sound Level at 50 ft	Effective Usage Factor	L_{eq}(h) at 50 ft	L_{eq}(h) at Closest Residences
Crane – 140 ton	1	4	81	0.15	73	49
Diesel Pile Hammer	1	4	101	0.05	88	64
Crane – 30 ton	1	4	75	0.15	67	43
Electric Generators	2	8	70	0.60	68	44
Concrete Pump	2	2	77	0.15	69	45
Read-mix Concrete Trucks	2	2	85	0.15	77	53
Backhoe	5	4	75	0.75	74	50
Dump Truck	6	8	80	1.80	83	59
Steel Roller – 20 ton	2	8	76	0.60	74	50
			Overall L_{eq} =		**90**	**66**
Wall and Embankment Construction – Alt 3: Concrete Reinforcing Wall on Drilled Shaft Foundation						
SoilMec Drill Rig	1	8	80	0.30	75	51
Crane – 40 ton	1	8	75	0.30	70	46
Concrete Pump	2	2	77	0.15	69	45
Ready-mix Concrete Trucks	2	2	85	0.15	77	53
Backhoe	1	4	75	0.15	67	43
Welder	1	4	73	0.15	65	41
Air Compressor	1	8	65	0.30	60	36
De-Sanding Unit	1	4	81	0.15	73	49
Dump Truck	6	8	80	1.80	83	59
Steel Roller	2	8	76	0.60	74	50
			Overall L_{eq} =		**85**	**62**
Superstructure Construction						
Diesel Pile Hammer	1	4	101	0.05	88	64
Welder	2	4	73	0.30	68	44
Crane – 30 ton	1	2	75	0.08	64	40
Backhoe	1	2	75	0.08	64	40
Crane – 140 ton	1	6	81	0.23	75	51
Electric Generator	4	8	70	1.20	71	47
			Overall L_{eq} =		**88**	**65**

Source: Noise Study Report for 6th Street Viaduct Seismic Improvement Project, Prepared February 2009, validated February 2011.

To assess noise impacts to the nearest residences from the 6th Street Viaduct, noise levels at these locations (6th Street/Whittier Boulevard and St. Louis Street) were calculated, as shown in Table 3.16-5. In computing the L_{eq} for equipment noise, it was assumed that the equipment would be operating at, or near, maximum sound levels 30 percent of the time during operation, except for the impact pile driver, for which 10 percent was assumed. All construction activities were assumed to be occurring daily during daytime hours , within which the construction noise limit is 75 dBA. It was assumed that no construction activity would occur on Sundays and holidays. If it became necessary to operate outside of the listed hours due to scheduling constraints, then a variance must be approved by the City.

Based on the results of construction noise prediction, overall noise levels expected at the closest residences, which are located to the east of the project site near 6th Street/Whittier Boulevard and St. Louis Street, during each of the construction phases/activities would range between 54 and 66 dBA. These expected noise levels would not exceed the City's construction noise limit of 75 dBA; therefore, adverse noise impacts from construction activities are not anticipated on residents living closest to the project site.

Construction of any alignment alternative or bridge concept would have similar noise effects on local businesses situated immediately adjacent to the bridge. Selection of different alignment alternatives may result in different levels of noise impacts to the remaining businesses depending on the distance between the construction zone and the first row of buildings; however, the area is industrial/commercial, and the impact from any alignment would not be substantial.

Traffic Noise

Implementation of the proposed replacement alternatives would require closure of the 6th Street Viaduct during the 4-year construction period between 2014 and 2017, and traffic diversion would occur on nearby roadways where residential communities are located. Noise impacts from anticipated traffic diversion were evaluated to satisfy CEQA requirements. Traffic noise modeling was conducted along major roadways where sensitive receptors could be potentially affected by the increased traffic noise levels. The street detour segments contained in the noise modeling area are bound by Central Avenue and Soto Street on the west and east, respectively, and 1st and 7th Streets on the north and south, respectively (see Figure 3.16-2). The expected traffic diversion distributions within the study area during the proposed project construction period are shown in Figure 3.7-1 of Section 3.7, Traffic and Transportation/Pedestrian Facilities, of this EIR/EIS.

Noise levels were modeled along various roadways throughout the study area for existing year 2007, opening year 2018, and future design year 2038, using the FHWA traffic noise model, TNM 2.5.[88] Comparisons of these noise levels would reveal any adverse noise effects on the community where traffic would be diverted during the construction period. The detailed traffic modeling input and output data are presented in the Noise Study Report[89] for this project.

Tables 3.16-6 through 3.16-8 present the modeled noise levels along various street segments throughout the study area for the existing condition, Year 2018, and Year 2038. Note that noise levels for Year 2018 were modeled two ways: (1) representing conditions with the viaduct open, which is equivalent to the No Action Alternative, and (2) conditions when the viaduct is closed, which is equivalent to the worst-case construction scenario (year 4 of construction) when volumes would be highest due to normal annual growth. Comparisons of these noise levels would reveal any adverse noise effects on the community where traffic from the proposed project construction would be diverted.

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[88] FHWA, 2004. United States Department of Transportation, Federal Highway Administration. *FHWA Traffic Noise Model.* TNM 2.5. February.

[89] Noise Study Report for Proposed 6th Street Viaduct Seismic Improvement Project. February 2009; validated February 2011.

Table 3.16-6
Traffic Noise Modeling Results – Year 2007 (Existing Condition)

Street	Segment and Intersection # (see Location of Intersection in Figure 3.7-1)	Land Use	Predicted Hourly Noise Level L_{eq} (dBA)
6th Street	Soto Street (6) to Boyle Avenue (22)	Commercial	68
	Boyle Avenue (22) to US 101 NB on-ramp (21)	Commercial	69
	US 101 NB on-ramp (21) to Mateo Street (7)	Industrial	69
	Mateo Street (7) to Alameda Street (4)	Industrial	68
	Alameda Street (4) to Central Avenue (30)	Industrial	70
1st Street	Soto Street (25) to Boyle Avenue (17)	Commercial	68
	Boyle Avenue (17) to US 101 NB on-/off-ramps (12)	Commercial	69
	US 101 NB on-/off-ramps (12) to SB on-/off-ramps (11)	Commercial	70
	US 101 SB on-/off-ramps (11) to Alameda Street (1)	Residential	72
	Alameda Street (1) to Central Avenue (27)	Commercial	71
4th Street	Soto Street (26) to I-5 NB on-/off-ramps/Cummings Street (20)	Commercial, Residential	72
	I-5 NB on-/off-ramps/Cummings Street (20) to SB on-/off-ramps (19)	Residential	72
	I-5 SB on-/off-ramps (19) to Boyle Avenue (18)	Residential	71
	Boyle Avenue (18) to US 101 NB off-ramp (15)	Residential	71
	US 101 NB off-ramp (15) to SB off-ramp (14)	Residential	72
	US 101 SB off-ramp (14) to Pecan Street/US 101 SB on-ramp (13)	Residential	72
	Pecan Street/US 101 SB on-ramp (13) to Alameda Street (2)	Residential	73
	Alameda Street to Central Avenue, EB: (29) to (3), WB: (2) to (28)	Residential	73
7th Street	Soto Street (16) to Boyle Avenue (23)	Residential	70
	Boyle Avenue (23) to Santa Fe Avenue (10)	Residential	70
	Santa Fe Avenue (10) to Mateo Street (8)	Residential	71
	Mateo Street (8) to Alameda Street (5)	Residential	71
	Alameda Street (5) to Central Avenue (31)	Residential	71
Central Avenue	1st Street (27) to 3rd Street (28)	Commercial	66
	3rd Street (28) to 4th Street (29)	Industrial	65
	4th Street (29) to 6th Street (30)	Industrial	67
	6th Street (30) to 7th Street (31)	Industrial	67
Alameda Street	1st Street (1) to 3rd Street (2)	Commercial	70
	3rd Street (2) to 4th Street (3)	Industrial	70
	4th Street (3) to 6th Street (4)	Industrial	70
	6th Street (4) to 7th Street (5)	Industrial	71
Mateo Street	6th Street (7) to 7th Street (8)	Industrial	62
Santa Fe Avenue	6th Street/Frontage Road (9) to 7th Street (10)	Industrial	65
Boyle Avenue	1st Street (17) to 4th Street (18)	Residential	66
	4th Street (18) to 6th Street (22)	Residential	68
	6th Street (22) to 7th Street (23)	Residential	68
Soto Street	1st Street (25) to 4th Street (26)	Residential	71
	4th Street (26) to 6th Street/Whittier Boulevard (6)	Residential	72
	6th Street/Whittier Boulevard (6) to 7th Street (16)	Industrial	69
	7th Street (16) to SR 60 EB on-ramp (24)	Residential	71
Note: Numbers in parenthesis denote the Study Intersection Number shown on Figure 3.17-1. EB: eastbound; NB: northbound; SB: southbound; WB: westbound			

Source: Noise Study Report for 6th Street Viaduct Seismic Improvement Project, Prepared February 2009; validated February 2011.

Table 3.16-7
Traffic Noise Modeling Results – Year 2018 (Viaduct Open and Closed Conditions)

Street	Segment and Intersection # (see Figure 3.7-1 for Location)	Land Use	Hourly Noise Level L_{eq} (dBA) Viaduct Open (Closed)	Noise Level Increase/ Decrease during Closed Condition
6th Street	Soto Street (6) to Boyle Avenue (22)	Commercial	68 (66)	-2
	Boyle Avenue (22) to US 101 NB on-ramp (21)	Commercial	70 (62)	-8
	US 101 NB on-ramp (21) to Mateo Street (7)	Industrial	69 (49)	-20
	Mateo Street (7) to Alameda Street (4)	Industrial	69 (61)	-8
	Alameda Street (4) to Central Avenue (30)	Industrial	70 (67)	-3
1st Street	Soto Street (25) to Boyle Avenue (17)	Commercial	69 (69)	0
	Boyle Avenue (17) to US 101 NB on-/off-ramps (12)	Commercial	69 (69)	0
	US 101 NB on-/off-ramps (12) to SB on-/off-ramps (11)	Commercial	71 (71)	0
	US 101 SB on-/off-ramps (11) to Alameda Street (1)	Residential	72 (73)	1
	Alameda Street (1) to Central Avenue (27)	Commercial	72 (72)	0
4th Street	Soto Street (26) to I-5 NB on-/off-ramps/Cummings Street (20)	Commercial, Residential	73 (73)	0
	I-5 NB on-/off-ramps/Cummings Street (20) to SB on-/off-ramps (19)	Residential	72 (73)	1
	I-5 SB on-/off-ramps (19) to Boyle Avenue (18)	Residential	72 (72)	0
	Boyle Avenue (18) to US 101 NB off-ramp (15)	Residential	72 (72)	0
	US 101 NB off-ramp (15) to SB off-ramp (14)	Residential	73 (73)	0
	US 101 SB off-ramp (14) to Pecan Street/US 101 SB on-ramp (13)	Residential	73 (73)	0
	Pecan Street/US 101 SB on-ramp (13) to Alameda Street (2)	Residential	74 (73)	-1
	Alameda Street to Central Avenue, EB: (29) to (3), WB: (2) to (28)	Residential	73 (74)	1
7th Street	Soto Street (16) to Boyle Avenue (23)	Residential	70 (72)	2
	Boyle Avenue (23) to Santa Fe Avenue (10)	Residential	70 (73)	3
	Santa Fe Avenue (10) to Mateo Street (8)	Residential	71 (73)	2
	Mateo Street (8) to Alameda Street (5)	Residential	71 (73)	2
	Alameda Street (5) to Central Avenue(31)	Residential	71 (72)	1
Central Avenue	1st Street (27) to 3rd Street (28)	Commercial	65 (65)	0
	3rd Street (28) to 4th Street (29)	Industrial	66 (65)	-1
	4th Street (29) to 6th Street (30)	Industrial	67 (67)	0
	6th Street (30) to 7th Street (31)	Industrial	67 (67)	0
Alameda Street	1st Street (1) to 3rd Street (2)	Commercial	70 (70)	0
	3rd Street (2) to 4th Street (3)	Industrial	70 (70)	0
	4th Street (3) to 6th Street (4)	Industrial	71 (71)	0
	6th Street (4) to 7th Street (5)	Industrial	71 (71)	0
Mateo Street	6th Street (7) to 7th Street (8)	Industrial	63 (63)	0
Santa Fe Avenue	6th Street/Frontage Road (9) to 7th Street (10)	Industrial	65 (65)	0
Boyle Avenue	1st Street (17) to 4th Street (18)	Residential	66 (66)	0
	4th Street (18) to 6th Street (22)	Residential	68 (68)	0
	6th Street (22) to 7th Street (23)	Residential	68 (68)	0
Soto Street	1st Street (25) to 4th Street (26)	Residential	72 (72)	0
	4th Street (26) to 6th Street/Whittier Boulevard(6)	Residential	72 (72)	0
	6th Street/Whittier Boulevard(6) to 7th Street (16)	Industrial	69 (70)	1
	7th Street (16) to SR 60 EB on-ramp (24)	Residential	71 (71)	0
Note: Numbers in parenthesis denote the Study Intersection Number shown on Figure 3.17-1. EB: eastbound; NB: northbound; SB: southbound; WB: westbound				

Source: Noise Study Report for 6th Street Viaduct Seismic Improvement Project, Prepared February 2009; validated February 2011.

Table 3.16-8
Traffic Noise Modeling Results – Year 2038 (Viaduct Open)

Street	Segment and Intersection # (see Location of Intersection in Figure 3.7-1)	Land Use	2007 Hourly Noise Level L_{eq} (dBA)	2038 Hourly Noise Level L_{eq} (dBA)
6th Street	Soto Street (6) to Boyle Avenue (22)	Commercial	68	69
	Boyle Avenue (22) to US 101 NB on-ramp (21)	Commercial	69	71
	US 101 NB on-ramp (21) to Mateo Street (7)	Industrial	69	70
	Mateo Street (7) to Alameda Street (4)	Industrial	68	69
	Alameda Street (4) to Central Avenue (30)	Industrial	70	71
1st Street	Soto Street (25) to Boyle Avenue (17)	Commercial	68	70
	Boyle Avenue (17) to US 101 NB on-/off-ramps (12)	Commercial	69	70
	US 101 NB on-/off-ramps (12) to SB on-/off-ramps (11)	Commercial	70	72
	US 101 SB on-/off-ramps (11) to Alameda Street (1)	Residential	72	73
	Alameda Street (1) to Central Avenue (27)	Commercial	71	73
4th Street	Soto Street (26) to I-5 NB on-/off-ramps/ Cummings Street (20)	Commercial, Residential	72	74
	I-5 NB on-/off-ramps/Cummings Street (20) to SB on-/off-ramps (19)	Residential	72	73
	I-5 SB on-/off-ramps (19) to Boyle Avenue (18)	Residential	71	73
	Boyle Avenue (18) to US 101 NB off-ramp (15)	Residential	71	73
	US 101 NB off-ramp (15) to SB off-ramp (14)	Residential	72	74
	US 101 SB off-ramp (14) to Pecan Street/US 101 SB on-ramp (13)	Residential	72	74
	Pecan Street/US 101 SB on-ramp (13) to Alameda Street (2)	Residential	73	75
	Alameda Street to Central Avenue, EB: (29) to (3), WB: (2) to (28)	Residential	73	74
7th Street	Soto Street (16) to Boyle Avenue (23)	Residential	70	71
	Boyle Avenue (23) to Santa Fe Avenue (10)	Residential	70	71
	Santa Fe Avenue (10) to Mateo Street (8)	Residential	71	72
	Mateo Street (8) to Alameda Street (5)	Residential	71	72
	Alameda Street (5) to Central Avenue (31)	Residential	71	72
Central Avenue	1st Street (27) to 3rd Street (28)	Commercial	66	66
	3rd Street (28) to 4th Street (29)	Industrial	65	67
	4th Street (29) to 6th Street (30)	Industrial	67	68
	6th Street (30) to 7th Street (31)	Industrial	67	68
Alameda Street	1st Street (1) to 3rd Street (2)	Commercial	70	71
	3rd Street (2) to 4th Street (3)	Industrial	70	71
	4th Street (3) to 6th Street (4)	Industrial	70	72
	6th Street (4) to 7th Street (5)	Industrial	71	72
Mateo Street	6th Street (7) to 7th Street (8)	Industrial	62	63
Santa Fe Avenue	6th Street/Frontage Road (9) to 7th Street (10)	Industrial	65	66
Boyle Avenue	1st Street (17) to 4th Street (18)	Residential	66	67
	4th Street (18) to 6th Street (22)	Residential	68	69
	6th Street (22) to 7th Street (23)	Residential	68	69
Soto Street	1st Street (25) to 4th Street (26)	Residential	71	73
	4th Street (26) to 6th Street/Whittier Boulevard (6)	Residential	72	73
	6th Street/Whittier Boulevard (6) to 7th Street (16)	Industrial	69	70
	7th Street (16) to SR 60 EB on-ramp (24)	Residential	71	72

Note: Numbers in parenthesis denote the Study Intersection Number shown on Figure 3.17-1.
EB: eastbound; NB: northbound: SB: southbound; WB: westbound

Source: Noise Study Report for 6th Street Viaduct Seismic Improvement Project, Prepared February 2009; validated February 2011.

As shown in Table 3.16-7, during the construction period, represented by year 2018 when the 6th Street Viaduct would be closed and traffic would be diverted to surrounding surface streets, the resulting noise levels are higher. Because the traffic would be dispersed along the proposed detour routes, the increase in noise levels along most affected street segments modeled was found to be not substantial – typically no more than 1 or 2 dBA; several would experience no increase; and only one segment, 7th Street between Boyle and Santa Fe Avenues, would be expected to incur a 3-dBA increase. Since the noise-level increase along the potentially affected roadways would be less than 5 dB (as allowed by City ordinance) no impact is expected to result from the detoured traffic dispersion during the anticipated 4-year construction period.

When comparing the predicted future (2038) noise levels associated with the proposed project to the existing noise levels, the noise level increase would not be more than 2 dB in all roadway segments under study. This would not constitute a "substantial increase" as defined under the Caltrans protocol (i.e., an increase of 12 dBA). Furthermore, the increases would be due to natural traffic growth, since there is no project-induced increase. In addition, since the projected noise-level increase along the potentially affected roadways would be less than 5 dB, as allowed by City ordinance, no adverse noise impact is expected to occur along City streets.

The level of traffic noise impacts would be the same for any bridge concept or alignment alternative.

Construction Vibration Impacts

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that diminish in strength with distance. Construction vibration varies greatly depending on the construction phases, type and condition of equipment used, and layout of the construction site.

Construction vibration levels are governed primarily by the heaviest pieces of equipment, such as impact pile drivers and pavement breakers. Table 3.16-9 lists the various types of construction equipment anticipated for this project and typical vibration levels of the equipment at various distances in peak particle velocity (PPV) levels. Since the construction equipment is mobile, the intensities of vibration perceived would vary greatly depending on the spatial relationship between the source and the receiver. The worst vibration impacts would generally occur during demolition and viaduct foundation construction activities involving pavement breakers and pile drivers, respectively.

Table 3.16-9
Typical Construction Equipment Vibration Levels

Construction Equipment	Peak Particle Velocity at Distance, PPV (inch/second)				
	25 feet (8 meters)	50 feet (15 meters)	75 feet (23 meters)	200 feet (61 meters)	350 feet (107 meters)
Concrete Pump	0.05	0.018	0.010	0.002	0.001
Crane	0.05	0.018	0.010	0.002	0.001
Excavator	0.107	0.038	0.021	0.005	0.002
Front End Loader	0.03	0.011	0.006	0.001	0.001
Impact Pile Driver	1.518	0.537	0.292	0.067	0.029
Pavement Breaker	0.622	0.22	0.120	0.028	0.012
Soil Auger	0.05	0.018	0.010	0.002	0.001

Source: Parsons, February 2009.

The Federal Railroad Administration (FRA) provides ground-borne vibration impact criteria for various types of building uses. FRA provides a vibration damage threshold criterion of 0.50-inch/second PPV for fragile buildings and 0.12-inch/second PPV for extremely fragile historic buildings for typical construction equipment.[90] FRA recommends that these criteria be used as a damage threshold for the fragile structures located near the right-of-way of a transit project.

With the current estimated construction equipment list, the highest vibration levels would be caused by the impact pile driver, which would be operational during substructure construction. Since no historic buildings are located within 50 ft of the proposed construction site, no adverse impacts from construction vibration are expected to occur even during impact pile driving activity, which would generate the highest vibration level among the various pieces of equipment during construction.

The level of vibration impacts would be the same for any bridge concept or alignment alternative.

3.16.3.2 Permanent Impacts

Alternative 1 – No Action

No long-term noise impacts would occur under this alternative as long as the viaduct remains in service. Traffic noise at the horizon year (2038) would be increased as a result of natural traffic growth, as shown in Table 3.16-8.

In the event the viaduct was determined to be unserviceable, the City would seek emergency funding to replace it. It is anticipated that the City would use a viaduct design similar to

[90] USDOT, 1998.

Alternative 3 – Replacement. Noise impacts under this scenario would be similar to Alternative 3.

Alternative 2 – Retrofit

No long-term noise impacts would occur once the retrofit construction is complete. Traffic noise at the horizon year (2038) would be increased as a result of natural traffic growth, as shown in Table 3.16-8.

Alternative 3 – Replacement

None of the alternative bridge concepts or alignments would add traffic lanes or increase operating capacity of the 6th Street Viaduct; therefore, noise levels for the 2038 design year would be essentially the same as Alternative 2, as shown in Table 3.16-8. If compared to the Caltrans requirements and NAC, noise levels along various surrounding roadway segments within the study area are expected to approach or exceed the NAC. It should be noted, however, that even under the existing condition, the noise levels are predominantly generated by traffic on the surrounding local streets that are not associated with the proposed project (see Table 3.16-4).

3.16.3.3 Indirect Impacts

There would be no indirect noise impacts as long as the viaduct remains in service (Alternative 1) or is undergoing retrofit (Alternative 2). Construction of the new viaduct under Alternative 3 – Replacement would trigger traffic detours as a result of viaduct closure. Traffic noise related impacts along the detour route are assessed in Section 3.16.3.1 above.

Under Alternative 1 – No Action, if the viaduct was determined to be unserviceable, the City would have to seek emergency funding to replace it. The viaduct would have to be closed and traffic detours would occur. Traffic noise related impacts along the detour route would be similar to Alternative 3, but for a longer period of time.

3.16.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Minimization measures during viaduct construction would be the same as for Alternatives 2 and 3.

Alternatives 2 and 3

Because no long-term traffic associated operational noise impacts are anticipated as a result of proposed project implementation, no abatement measures would be required.

No construction noise impacts have been identified for the proposed project; however, to be proactive in minimizing the noise and vibration effects of the construction activities, the following measures would be implemented at commercial/industrial land uses located immediately adjacent to the viaduct during periods of construction:

Equipment Noise Control

- Use newer equipment with improved noise muffling and ensure that all equipment has the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. (Newer equipment will generally be quieter in operation than older equipment.) All construction equipment should be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding).
- Utilize construction methods or equipment that would provide the lowest level of noise and ground vibration impact, such as alternative low-noise pile installation methods.
- Turn off idling equipment.

Administrative Measures

- Implement a construction noise and/or vibration monitoring program to limit noise effects.
- Comply with relevant noise ordinance sections of the City of Los Angeles. The City imposes a limit on noise generated by construction activities, as well as specific hours during which construction activities shall not occur.
- Limit construction activities to daytime hours. If nighttime construction is necessary, then the proper permits and variances would be obtained.
- Comply with the Traffic Management Plan (TMP) on designated construction routes to avoid or minimize impacts on noise-sensitive receptors located in areas of close proximity to the project site.
- Keep noise levels relatively uniform and avoid impulsive noises.
- Maintain good public relations with the community to minimize objections to the unavoidable construction noise. Provide frequent activity updates of all construction activities and schedules.
- A combination of the aforementioned abatement/mitigation techniques with equipment noise control and administrative measures could be selected to provide the most effective means to minimize the effects of the construction activity. Application of these abatement/mitigation measures would help reduce construction-related noise effects; however, a temporary increase in noise and vibration over the existing ambient levels may still occur.

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3.17 Energy

3.17.1 Regulatory Setting

The CEQA Guidelines, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

NEPA (42 U.S.C. Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

3.17.2 Affected Environment

California's major sources of energy include electricity, natural gas, and crude oil. Much of the energy consumed in the state is for residential, commercial, and transportation purposes. The California Energy Commission (CEC) tracks and forecasts energy use according to CEC forecast regions. Most of the electric energy used in southern California is imported to the region from coal-fire and hydroelectric generating facilities located elsewhere in California and out of state. Utilities in southern California participate in power-sharing arrangements with other entities throughout the western United States. Electric energy within the project area is provided by the LADWP distribution networks.

Energy consumption associated with transportation activities is almost entirely related to the consumption of fossil fuel (i.e., gasoline and diesel). The CEC has released the Transportation Energy Forecasts and Analyses for the 2009 Integrated Energy Policy Report in May 2010. According to this report, the total gasoline fuel consumption in California for Year 2007 was 15.7 billion gallons, and the diesel fuel consumption was 3.8 billion gallons. The current recession has had a significant impact on the state's transportation sector. California's average daily gasoline sales for the first 6 months of 2009 were 1 percent lower than the same period in 2008, continuing a reduction in demand observed since 2004. Daily diesel fuel sales for the first 6 months of 2009 were 8.4 percent lower than the same period in 2008, continuing a declining trend since 2007.

Between 2007 and 2030, CEC staff estimate that total annual gasoline consumption in California will fall 13.3 percent in the low-demand case to 13.57 billion gallons, largely as a result of high fuel prices, efficiency gains, and competing fuel technologies. In the high-demand case, the recovering economy and lower relative prices lead to a gasoline demand peak in 2014 of 16.40 billion gallons before consumption falls to a 2030 level of 14.32 billion gallons, 8.5 percent below 2007 levels. During the same period, CEC staff expect total diesel demand in California to increase 35 percent in the low-demand case to 5.138 billion gallons and 42 percent in the high demand case to 5.399 billion gallons.

3.17.3 Environmental Consequences

3.17.3.1 Construction Impacts

Alternative 1 – No Action

There would be no construction impact to energy resources under this alternative as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Under this circumstance, construction impacts related to energy would be the same as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Construction of this alternative would require one-time energy consumption to manufacture building materials for viaduct retrofit. This consumption would be required to improve public safety, and the consumption rate would not cause a substantial depletion in the supplies of nonrenewable energy resources.

Alternative 3 – Replacement

Construction of this alternative would require one-time energy consumption to manufacture building materials and construct the viaduct. This consumption would be required to improve public safety, and the consumption rate would not cause a substantial depletion in the supplies of nonrenewable energy resources.

3.17.3.2 Permanent Impacts

Alternative 1 – No Action

There would be no long-term impact to energy resources under this alternative as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Under this circumstance, long-term impacts related to energy would be the same as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

There would be no long-term impact to energy resources under this alternative.

Alternative 3 – Replacement

Additional lighting would be installed on the new viaduct. The electrical power required for this new lighting would be provided by LADWP, and the consumption rate would not cause a substantial depletion in the supplies of the nonrenewable resources.

The proposed replacement alternative would not add traffic lanes; therefore, no substantial increase in vehicular traffic volumes beyond natural growth is anticipated. No long-term effect to fuel consumption from Alternative 3 is expected.

3.17.3.3 Indirect Impacts

No indirect impacts were identified.

3.17.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required.

Alternative 2 – Retrofit

No mitigation is required.

Alternative 3 – Replacement

No mitigation is required.

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PART III – BIOLOGICAL ENVIRONMENT

This section discusses potential impacts to biological resources within the project area as a result of proposed project implementation. The information presented in this section is excerpted from the Natural Environment Study (NES) conducted for this project.[91]

A project biologist and botanist conducted a general plant and wildlife survey on May 4, 2007, by walking and driving throughout the study area, utilizing binoculars when necessary. The biological study area (BSA) is similar to the APE designated for the historical and archaeological study. The California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California[92] and the California Department of Fish and Game's (CDFG) California Natural Diversity Database[93] were reviewed prior to the field survey to identify special-status plants, wildlife, and habitats known to occur in the vicinity of the survey area, which extends from the east side to the west side of the project limits and the area surrounding the viaduct footprint.

The biological survey was conducted to assess the biological conditions of the site, inventory the wildlife habitat and vegetation types, and to evaluate the site's potential to support special-status plant and wildlife species within the survey area. All species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification using keys in Hickman (1993)[94] and Munz (1974)[95]. Taxonomy follows Hickman (1993) and current scientific data (e.g., scientific journals) for scientific and common names. The Sunset Western Garden Book[96] was used for ornamental species that were not included in the references listed above. Taxonomy and nomenclature for wildlife generally follows Fisher and Case (1997)[97] for amphibians and reptiles, American Ornithologists Union (1998)[98] for birds, and Baker *et al.* (2003) for mammals.

The project site was resurveyed on November 9, 2010. A Senior Terrestrial Ecologist completed a thorough windshield and walking reconnaissance of the underside of the 6th Street Viaduct, adhering to the same BSA used in the original 2009 survey.

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91 Natural Environment Study for 6th Street Viaduct Seismic Improvement Project. September, 2011.
92 CNPS, 2009. California Native Plant Society. Inventory of Rare and Endangered Vascular Plants of California.
93 CDFG, 2009. California Department of Fish and Game. California Natural Diversity Database.
94 Hickman, J.C. Editor. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California.
95 Munz, P.A. 1974. *A Flora of Southern California*. University of California Press, Berkeley, California.
96 Brenzel, K. N., Editor. 2001. *Sunset Western Garden Book.* Sunset Publishing Corporation, Menlo Park, California.
97 Fisher, R. N. and T. J. Case. 1997. *A Field Guide to the Reptiles and Amphibians of Coastal Southern California*. San Mateo, CA: Lazer Touch.
98 American Ornithologists' Union. 1998. *Check-list of North American Birds, 7th ed.* American Ornithologists' Union, Washington, D.C.

3.18 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and fish passage and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

3.18.1 Affected Environment

The project vicinity is composed primarily of developed areas and is generally considered of low biological value to plant and wildlife species. Although non-native ornamental vegetation is present, along with small disturbed ruderal patches of invasive weeds, no natural communities/vegetation types are present on the site or in the immediate vicinity. No critical habitat under the Federal Endangered Species Act (FESA) is present within the project area.

3.18.2 Environmental Consequences

Since no natural communities/vegetation types are present on the site or in the immediate vicinity, no direct, indirect, short-term, or long-term impacts would occur with implementation of any of the proposed project alternatives.

3.18.3 Avoidance, Minimization, and Mitigation Measures

No avoidance, minimization, or mitigation measures are required.

3.19 Wetlands and Other Waters

3.19.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (CWA) (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section

404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by EPA.

USACE issues two types of 404 permits: standard and general permits. Nationwide permits, a type of general permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide permit may be permitted under one of USACE's standard permits. For standard permits, the USACE decision to approve is based on compliance with EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 CFR Part 230) and whether permit approval is in the public interest. The Section 404 (b)(1) guidelines were developed by EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have less effect on waters of the U.S. and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as FHWA, and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that (1) there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game (CDFG), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, then a Lake or Streambed Alteration Agreement will be required. The CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. State Water Quality Certification Section 401 of the CWA gives the states the authority to veto or place conditions on federally permitted activities that may result in water pollution. Specifically, Section 401 requires that any applicant for a federal permit or license that may result in a discharge to waters of the U.S. must first obtain certification from the state. If the state finds that the discharge will violate state water quality standards, it may reject the permit or license. A discharge is defined as an emission from a "discrete conveyance". The RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. See Section 3.11 – Water Quality and Stormwater Runoff, for additional details.

3.19.2 Affected Environment

The concrete-lined Los Angeles River is the only watercourse within the BSA, which is located in the Upper Los Angeles River Reach 3. This watercourse is under the jurisdiction of USACE (confirmed via consultation with Ken Wong, USACE Regulatory Division, Los Angeles District, September 2009). All of the areas satisfying USACE's jurisdictional criteria for waters of the U.S. are also subject to CDFG jurisdiction pursuant to Section 1602 of the California Fish and Game Code.

The sides and bottom of the Los Angeles River are mapped as two classes of riverine wetlands (Figure 3.19-1) by the Cowardin classification system. The central part of the channel is mapped as R2UBHx (R=riverine, 2=lower perennial, UB=unconsolidated bottom, h=diked/impounded, x=excavated), the sides as R2USFr (R=riverine, 2=lower perennial, US=unconsolidated shore, F= semi-permanently flood, r=artificial). The section of the Los Angeles River at the project area does not appear to remain inundated or saturated near the surface for long enough to meet the USACE wetland criteria. The wetlands in this concrete-lined channel are inherently transient because they form on the shallow concrete bottom of the concrete trapezoidal channel, which is designed for very high conveyance capacity. Winter rains, which cause the Los Angeles River to run hard and fast, would scour them completely, possibly several times during a typical winter. No riparian vegetation or wetlands are present within the Los Angeles River segment within the BSA of the proposed project based on the field surveys conducted by the biologists in 2007 and 2010.

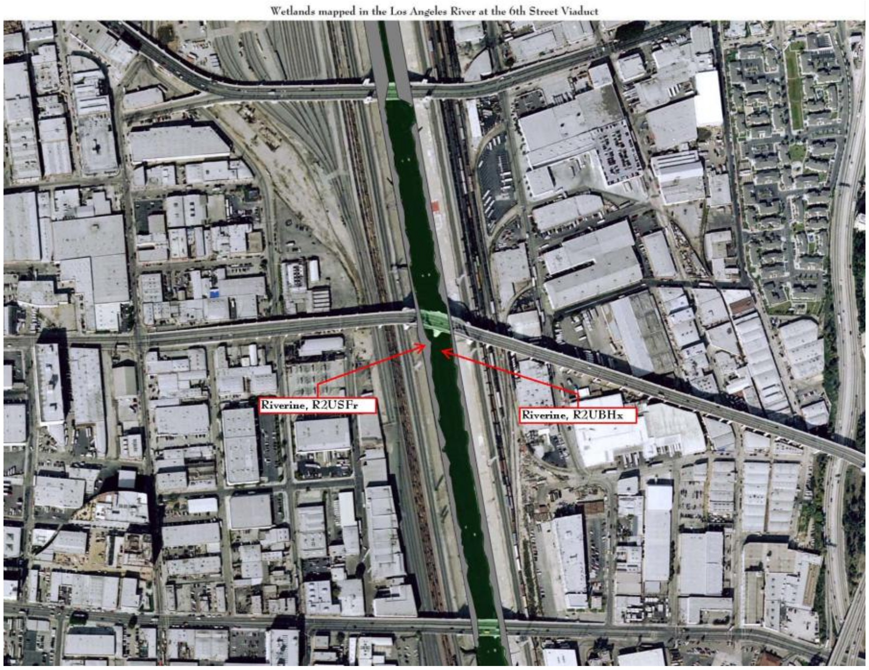


Figure 3.19-1 Riverine Wetlands Designation within the Project Study Area

3.19.3 Environmental Consequences

3.19.3.1 Construction Impacts

Alternative 1 – No Action

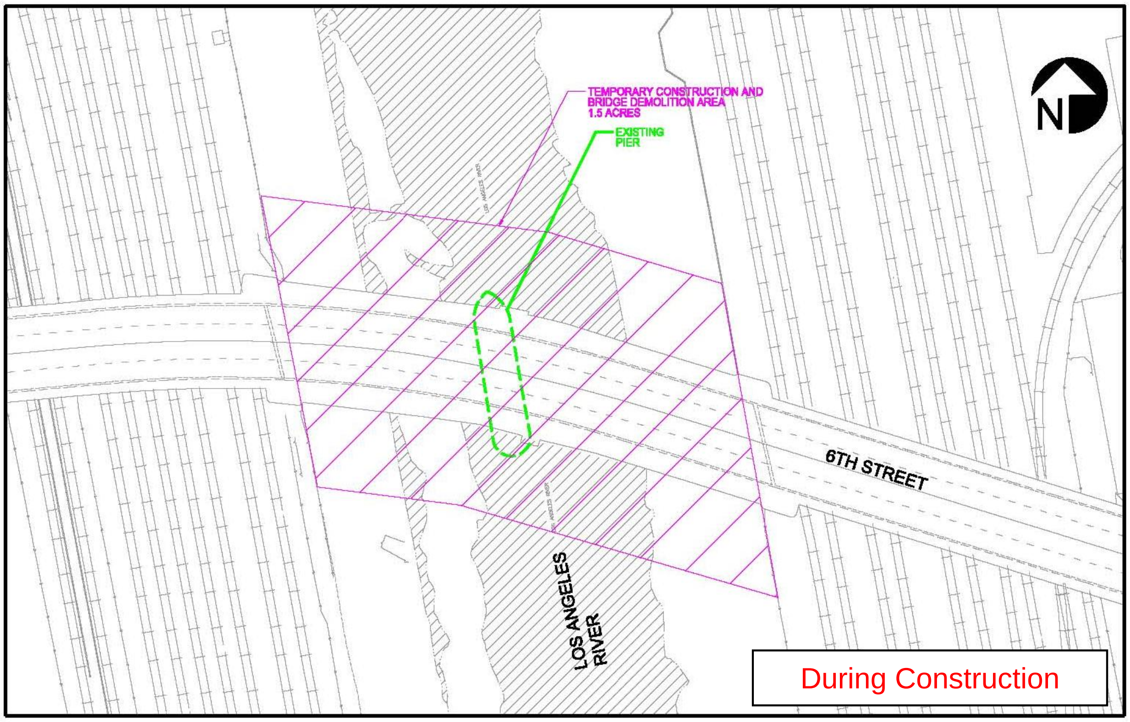
No impacts to wetlands or water channel would occur under this alternative as long as the viaduct remains in service.

Alternative 2 – Retrofit

Alternative 2 would not involve retrofit or removal of the center pier in the river. Work within the Los Angeles River channel would be minimal. As stated in Section 3.19.2, no wetlands are present within the channel; therefore, no impacts to wetlands would occur. However, work in the Los Angeles River channel is expected during the retrofit construction. Relevant permits (i.e., Section 404 Nationwide Permit, Section 401, and Section 1602) would be required. Ongoing coordination with appropriate agencies has occurred throughout the environmental review process of this project.

Alternative 3 – Replacement

Alternative 3 would result in temporary impacts to approximately 1.5 acres of Waters of the U.S., as shown in Figure 3.19-2. Temporary impacts include physical impacts from construction activities, including bridge improvement and water diversion activities.



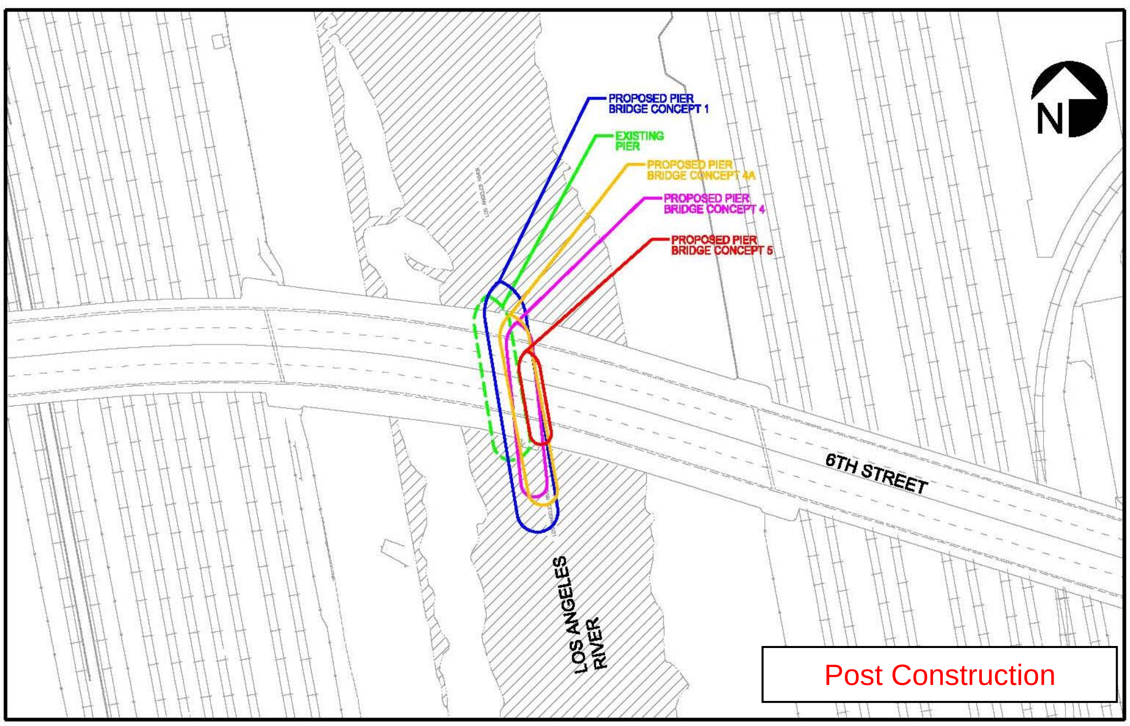


Figure 3.19-2
Area of Disturbance within the Los Angeles River from the Proposed Project

3.19.3.2 Permanent Impacts

Alternative 1 – No Action

No impacts to riparian or wetlands would occur under this alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. No impacts to wetlands would occur since no riparian or wetlands are present. Impacts to the channel from dredge and fill operations as a result of new viaduct construction would occur as described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

There would be no permanent impacts to the Los Angeles River.

Alternative 3 – Replacement

The project potentially involves placement of fill in the Los Angeles River, which is a jurisdictional waterway of USACE. The nature of the fill is placement of a viaduct pier within the waterway. A USACE Section 404 – Nationwide Permit will be obtained during the final design phase.

As part of the new viaduct construction, the existing center pier would be removed. A summary of the permanent direct impacts, resulting from the fill associated with the center pier of the viaduct, is provided in Table 3.19-1 and graphically shown in Figure 3.19-2. The areas shown are of the area of the center pier under different bridge concepts (impact to waterway). The net impact would be the increased footprint area, as compared to the existing footprint area.

Table 3.19-1
Impacts to Los Angeles River under Various Bridge Concepts

Bridge Concept	New Viaduct Pier Footprint (acres)	Existing Viaduct Pier Footprint (acres)	Net New Impact to Los Angeles River (acres)	Impacted Area Characteristic
Concept 1	0.089	0.048	+0.041	Water Column, Concrete Bottom
Concept 2	0	0.048	-0.048	N/A
Concept 3	0	0.048	-0.048	N/A
Concept 4	0.045	0.048	-0.003	N/A
Concept 4A	0.049	0.048	+0.001	N/A
Concept 5	0.021	0.048	-0.027	N/A

Based on the information shown in Table 3.19-1, most bridge concepts would have no or negligible net impact to the Los Angeles River waterway (i.e., they avoid placement of fill in the Waters of the U.S.) except for Concept 1, which would result in an additional impact. Concept 4 has been identified as the preferred alternative, and it would not place additional fill in Waters of the U.S.

The Los Angeles River in this area is concrete-lined channel, so there would be no soft bottom habitat impact. Because no natural conditions or native vegetation types are present in this portion of the channel or in the immediate vicinity, it does not provide suitable habitat for any special-status plant or wildlife species. The site also does not contain any federally designated critical habitat areas. Due to the extremely limited biological value of the concrete-lined waterway, the minimal amount of fill is not expected to degrade any local species habitats or other biological resources, and the impact would not be considered adverse.

3.19.3.3 Indirect Impacts

There would be no indirect impacts to wetlands or Waters of the U.S. under any of the project alternatives. For the No Action Alternative, if the project is determined to be unserviceable, the City would identify the emergency funding to replace it. The indirect impacts under this circumstance would be the same as described under Alternative 3 – Replacement.

3.19.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required.

Alternative 2 – Retrofit

In addition to measures presented previously in Section 3.11, Water Quality and Stormwater Runoff, the following measures would avoid and minimize impacts to the Waters of the U.S. for the proposed project:

- Compliance with the dredge and fill permit and water quality certification requirements of §§ 404 and 401 of the federal CWA, administered by the USACE and RWQCB, respectively.
- Compliance with the Streambed Alteration Agreement requirements of California Fish and Game Code §1602, administered by the CDFG.

Additional conditions may be required by USACE and CDFG as part of the permitting process, and those conditions would be adhered to.

Alternative 3 – Replacement

Minimization measures are the same as Alternative 2.

3.20 Plant Species

3.20.1 Regulatory Setting

USFWS and CDFG have regulatory responsibility for the protection of special-status plant species under federal and state laws, respectively. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA).

This section of the document discusses all the other special-status plant species, including CDFG species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at U.S.C 16, Section 1531, *et seq*. (see also 50 CFR Part 402). The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, *et seq.* Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and CEQA, Public Resources Code, Sections 2100-21177.

3.20.2 Affected Environment

The study area consists of a highly urbanized environment. It is mainly developed, including many industrial and commercial buildings, paved roadways, and several active railroad tracks running under the existing viaduct along the Los Angeles River. During the May 4, 2007 survey, a modest amount of water was flowing and utility workers were driving vehicles within the concrete-lined Los Angeles River. A high level of transient activity was observed throughout the survey area, including within the existing viaduct support structures.

Vegetation within the study area includes non-native invasive species growing through cracks in concrete and pavement, including London rocket (*Sisymbrium irio*), Mediterranean schismus (*Schismus barbatus*), foxtail chess (*Bromus madritensis ssp. rubens*), common sow-thistle (*Sonchus oleraceus*), and bermuda grass (*Cynodon dactylon*). In addition, other non-native invasive species are present in small ruderal patches (such as along chain-link fencing and abandoned railroad tracks), including Sellow's pampas grass (*Cortaderia selloana*), African fountain grass (*Pennisetum setaceum*), tree of heaven (*Ailanthus altissima*), smilo grass (*Piptatherum miliaceum*), and black mustard (*Brassica nigra*). Finally, the study area includes many non-native ornamental species growing in landscaped areas adjacent to buildings and roadways, such as Canary Island date palm (*Phoenix canariensis*), Mexican fan palm

(*Washingtonia robusta)*, acacia (*Acacia redolens*), gum (*Eucalyptus sp.*), Peruvian pepper tree *(Schinus molle*), elm (*Ulmus sp.*), and English walnut (*Juglans regia*).

3.20.3 Environmental Consequences

Alternative 1 – No Action

No temporary or permanent impacts to plant species would occur under this alternative as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. The new viaduct would be designed to meet current standards similar to Alternative 3 – Replacement. Impacts to mature trees within the BSA would be the same as described under Alternative 3 – Replacement..

Alternative 2 – Retrofit

No biological resources were indentified during project-related field surveys within the viaduct footprint where construction activities would occur. No mature trees would be removed; hence, no adverse impacts to plant species are anticipated.

Alternative 3 – Replacement

Ornamental trees within the survey area have a low potential to support nesting birds, which are protected by the Migratory Bird Treaty Act. Given the larger construction area for Alternative 3, a preconstruction survey would be conducted to identify any mature trees subject to removal prior to the commencement of construction activities. If migratory birds are found, mitigation measures to protect them, as described in Section 3.21.4, would be implemented.

3.20.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required.

Alternative 2 – Retrofit

No mitigation is required.

Alternative 3 – Replacement

If mature trees were to be removed, a landscape plan would be developed to provide landscape within the remaining unused land of the disturbed area.

3.21 Animal Species

3.21.1 Regulatory Setting

Many federal and state laws regulate impacts to wildlife. The USFWS, National Oceanic and Atmospheric Administration (NOAA) Fisheries, and CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the state or FESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 3.22 below. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include:

- National Environmental Policy Act (NEPA)
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act (CEQA)
- Sections 1600 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

3.21.2 Affected Environment

As previously described, most of the survey area is developed and completely surrounded by a highly urbanized environment. Due to the level of disturbance and the extremely limited amount of vegetated areas, the biological diversity within the survey area and immediate surroundings is low. The site provides very limited potential to support wildlife species that are highly adapted to urbanized conditions. These species occur throughout the urbanized areas of the region. Among the species expected to occur, the following were observed in the survey area during the May 4, 2007 survey: rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), cliff swallow (*Petrochelidon pyrrhonota*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), mallard (*Anas platyrhynchos*), brewer's blackbird (*Euphagus cyanocephalus*), rough-winged swallow (*Stelgidopteryx serripennis*), common grackle (*Quiscalus quiscula*), mourning dove (*Zenaida macroura*), killdeer (*Charadrius vociferus*), domestic cat (*Felis catus*), and domestic dog (*Canis lupus familiaris*). A few additional species, such as roof rat (*Rattus rattus*), Norway rat (*Rattus norvegicus*), Virginia opossum (*Didelphis virginiana*), and red-tailed hawks (*Buteo jamaicensis*) are also expected to occasionally utilize the survey area. Within the concrete-lined Los Angeles River bed in the survey area, a few additional species may be expected, such as mosquito fish (*Gambusia affinis*), Pacific tree frog (*Pseudacris Regilla*), and occasional water loving birds, such as the black necked stilt (*Himantopus mexicanus*), which was observed just downstream of the survey area. No cliff swallows or roosting bats were apparent underneath the 6th Street Viaduct during the May 4, 2007 survey.

Bat droppings were found at eye level on structural ledges of bridge columns at Anderson Street during the November 2010 site visit; however, droppings of various bat species are enough alike to be of no value in species identification. The steady presence of water in the Los Angeles River would certainly foster large insect populations in the summer months. Possibly several species of bats could roost by day in crevices, then forage at night along the river. The 6th Street Viaduct affords both facets of habitat requirements for bats.

According to the California Natural Diversity Database (CNDDB) records in 2007, 4 species of bats were noted. In total, 30 sensitive species and 3 biotic communities were judged as potentially present in the project area (CNDDB list dated May 22, 2007). A synopsis of all sensitive species recorded within the same four USGS quadrangles was extracted from CNDDB archives in November 2010. No species of special concern have been added to CNDDB records of the vicinity of the 6th Street Viaduct.

3.21.3 Environmental Consequences

Alternative 1 – No Action

No temporary or permanent impacts to animal species would occur under this alternative as long as the viaduct remains in service. In the event the viaduct is determined to be unserviceable, the City would seek emergency funding sources to replace it. Impacts to animal species within the BSA would be the same as that described under Alternative 3 – Replacement.

Alternative 2 – Retrofit

Ornamental trees within the survey area have a low potential to support nesting birds, which are protected by the Migratory Bird Treaty Act. No mature trees are expected to be removed as part of the construction activities.

Construction activities may cause the loss of an unknown number of individual bats if construction occurs during the late spring or summer months. The loss of bats during project construction would not have regional biological importance, as other nearby bridges across the Los Angeles River would likely house equal numbers of bats

Alternative 3 – Replacement

The impacts would be the same as those described under Alternative 2.

3.21.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding to replace it. Under this circumstance, minimization measures described under Alternative 3 – Replacement would apply.

Alternative 2 – Retrofit

A preconstruction survey will be conducted by a qualified bat biologist during the spring and summer (May through August) to confirm the absence or presence of any roosting bats. The surveys shall include a combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found, bat proofing (exclusion) will occur outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion will be staged to ensure that roosting sites in areas not currently under construction will be available at all times during the project to minimize the potential effects on bats.

Alternative 3 – Replacement

To protect any possible migratory bird nesting or roosting bat activity, construction activities and removal of non-native ornamental vegetation will be conducted between September 1 and January 31. If initial vegetation removal and ground clearance cannot be avoided between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey of trees and shrubbery for active nests. If active nests of migratory bird species occur within the construction area, any nests or roosts that are less than 50 percent complete would be removed and any further habitation would be prevented. Any nests that are more than 50 percent complete would have a buffer area of 50-ft radius for songbirds and 500-ft radius for raptors flagged off-limits until such time as the young have fledged. The biologist will monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such area can proceed.

If bats are found measures described under Alternative 2 above would be implemented.

3.22 Threatened and Endangered Species

3.22.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the FESA: 16 U.S.C., Section 1531, *et seq.* (see also 50 CFR Part 402). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as FHWA, are required to consult with USFWS and NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, *et seq*. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFG is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

3.22.2 Affected Environment

During the reconnaissance-level biological field survey, no native habitats, vegetation types, or special status species were observed within the survey area. The correspondences with USFWS confirming this finding are provided in Appendix K.

Table 3.22-1 lists special-status plant and wildlife species identified by CDFG and the California Native Plant Society (CNPS) with potential to occur within the project area.[99, 100, 101, 102]

3.22.3 Environmental Consequences

There are no special-status plants and animals within or immediately adjacent to the biological survey area. Although several special-status plant and wildlife species are known to occur in the

[99] California Department of Fish and Game (CDFG) California Natural Diversity Database, 2011: Hollywood, Los Angeles, Inglewood, and South Gate U.S. Geological Survey (USGS) quadrangles

[100] CDFG Special Animals List, 2011.

[101] Special Vascular Plants, Bryophytes, and Lichens List, 2011

[102] California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants - Electronic Version, 2011: Hollywood, Los Angeles, Inglewood, and South Gate USGS quadrangles.

project region, as shown in Table 3.22-1, no threatened or endangered species are expected to occur within the survey area due to the lack of suitable habitat and the disturbed nature of the survey area. The staff of USFWS was contacted to determine there are no federal listed species and no critical habitat in this area.[103] The field survey resulted in no native habitats, plant communities, or special-status species being observed within the project study area. No effects to threatened and endangered species as a result of proposed project implementation would occur under any of the alternatives implemented.

3.22.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required.

Alternative 2 – Retrofit

No mitigation is required.

Alternative 3 – Replacement

No mitigation is required.

Table 3.22-1
Special-Status Species with Potential to Occur in the 6th Street Viaduct Project Area

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Source
Plants					
Arenaria paludicola	Marsh sandwort	FE, SE, CNPS List 1B.1	Marshes and swamps.	A	CNPS 2011; CDFG, 2011
Astragalus brauntonii	Braunton's milk-vetch	FE, CNPS List 1B.1	Chaparral; coastal scrub; valley and foothill grassland.	A	CNPS 2011; CDFG, 2011
Astragalus pycnostachyus var. *lanosissimus*	Ventura marsh milk-vetch	FE, SE, CNPS List 1B.1	Coastal dunes; coastal scrub; marshes and swamps.	A	CNPS 2011
Astragalus tener var. *titi*	Coastal dunes milk-vetch	FE, SE, CNPS List 1B.1	Coastal bluff scrub; coastal dunes; coastal prairie.	A	CNPS 2011; CDFG, 2011
Atriplex serenana var. *davidsonii*	Davidson's saltscale	CNPS List 1B.2	Coastal bluff scrub; coastal scrub.	A	CNPS 2011
California macrophylla	Round-leaved filaree	CNPS List 1B.1	Cismontane woodland; valley and foothill grassland.	A	CNPS 2011

[103] Letters from USFWS dated July 22, 2009 and September 20, 2011 (See Appendix K).

Table 3.22-1
Special-Status Species with Potential to Occur in the 6th Street Viaduct Project Area

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Source
Calochortus plummerae	Plummer's mariposa lily	CNPS List 1B.2	Chaparral; cismontane woodland; coastal scrub; lower montane coniferous forest; valley and foothill grassland.	A	CNPS 2011
Calystegia sepium ssp. *binghamiae*	Santa Barbara morning-glory	CNPS List 1A	Marshes and swamps.	A	CNPS 2011
Camissonia lewisii	Lewis's evening-primrose	CNPS List 3	Coastal bluff scrub; cismontane woodland; coastal dunes; coastal scrub; valley and foothill grassland.	A	CNPS 2011
Centromadia parryi ssp. *australis*	Southern tarplant	CNPS List 1B.1	Marshes and swamps; valley and foothill grassland; vernal pools.	A	CNPS 2011
Dudleya multicaulis	Many-stemmed dudleya	CNPS List 1B.2	Chaparral; coastal scrub; valley and foothill grassland.	A	CNPS 2011
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	CNPS List 1A	Marshes and swamps.	A	CNPS 2011
Hordeum intercedens	Vernal barley	CNPS List 3.2	Coastal dunes; coastal scrub; valley and foothill grassland; vernal pools.	A	CNPS 2011
Horkelia cuneata ssp. *puberula*	Mesa horkelia	CNPS List 1B.1	Chaparral; cismontane woodland; coastal scrub.	A	CNPS 2011
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CNPS List 1B.1	Marshes and swamps; playas; vernal pools.	A	CNPS 2011
Linanthus orcuttii	Orcutt's linanthus	CNPS List 1B.3	Chaparral; lower montane coniferous forest; pinyon and juniper woodland.	A	CNPS 2011
Nasturtium gambelii	Gambel's water cress	FE, ST, CNPS List 1B.1	Marshes and swamps.	A	CNPS 2011; CDFG, 2011
Navarretia fossalis	Moran's navarretia	FT, CNPS List 1B.1	Chenopod scrub; marshes and swamps; playas; vernal pools.	A	CNPS 2011
Navarretia prostrata	Prostrate vernal pool navarretia	CNPS List 1B.1	Coastal scrub; meadows and seeps; valley and foothill grassland; vernal pools.	A	CNPS 2011
Orcuttia californica	California Orcutt grass	FE, SE, CNPS List 1B.1	Vernal pools.	A	CNPS 2011
Phacelia hubbyi	Hubby's phacelia	CNPS List 4.2	Gravelly, rocky, talus; chaparral; coastal scrub; valley and foothill	A	CNPS, 2011
Phacelia stellaris	Brand's star phacelia	FC, CNPS List 1B.1	Coastal dunes; coastal scrub.	A	CNPS 2011
Pseudo-gnaphalium leucocephalum	White rabbit-tobacco	CNPS List 2.2	Chaparral; cismontane woodland; coastal scrub; riparian woodland.	A	CNPS 2011
Ribes divaricatum var. *parishii*	Parish's gooseberry	CNPS List 1A	Riparian woodland.	A	CNPS 2011

Table 3.22-1
Special-Status Species with Potential to Occur in the 6th Street Viaduct Project Area

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Source
Symphyotrichum defoliatum	San Bernardino aster	CNPS List 1B.2	Cismontane woodland; coastal scrub; lower montane coniferous forest; meadows and seeps; marshes and swamps; valley and foothill grassland.	A	CNPS 2011
Symphyotrichum greatae	Greata's aster	CNPS List 1B.3	Broadleafed upland forest; chaparral; cismontane woodland; lower montane coniferous forest; riparian woodland.	A	CNPS 2011
Reptiles					
Phrynosoma coronatum blainvillii	Coast (San Diego) horned lizard	SSC	Coastal sage scrub and chaparral in arid and semi-arid climate conditions.	A	CDFG 2011
Invertebrates					
Carolella busckana	Busck's gallmoth	-	Sand dunes.	A	CDFG 2011
Birds					
Athene cunicularia	Burrowing owl	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation.	A	CDFG 2011
Empidonax traillii extimus	South-western willow flycatcher	FE, SE	Riparian woodlands in southern California.	A	CDFG 2011
Polioptila californica californica	Coastal California gnatcatcher	FT, SSC	Coastal sage scrub below 2,500 feet in elevation in southern California.	A	CDFG 2011
Mammals					
Antrozous pallidus	Pallid bat	SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	A	CDFG 2011
Eumops perotis californicus	Western mastiff bat	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral.	A	CDFG 2011
Lasiurus cinereus	Hoary bat	-	Prefers open habitats or habitat mosaics, with access to trees for cover, and open areas or habitat edges for feeding.	A	CDFG 2011
Microtus californicus stephensi	South coast marsh vole	SSC	Tidal marshes in Los Angeles, Orange, and southern Ventura counties.	A	CDFG 2011
Nyctinomops femorosaccus	Pocketed free-tailed bat	SSC	Variety of arid areas in southern California: pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian.	A	CDFG 2011

Table 3.22-1
Special-Status Species with Potential to Occur in the 6th Street Viaduct Project Area

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Source
Nyctinomops macrotis	Big free-tailed bat	SSC	Low-lying arid areas in southern California.	A	CDFG 2011
Taxidea taxus	American badger	SSC	Drier, open stages of most shrub, forest, and herbaceous habitats, with friable soils.	A	CDFG 2011

LEGEND:
Habitat Present/Absent: P: Present; A: Absent (no further work needed)
Federal (USFWS): FE: Endangered; FT: Threatened; FC: Candidate
State (CDFG): SE: Endangered; ST: Threatened; SR: Rare; SC: Candidate; SSC: Species of Special Concern; FP: Fully Protected Species
California Native Plant Society (CNPS) List Categories
List 1A: Plants Presumed Extinct in California
List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2: Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3: Plants About Which We Need More Information - A Review List;
List 4: Plants of Limited Distribution; A Watch List
California Native Plant Society (CNPS) Threat Rank Extensions
.1 Seriously threatened in California (high degree/immediacy of threat)
.2 Fairly threatened in California (moderate degree/immediacy of threat)
.3 Not very threatened in California (low degree/immediacy of threat or no current threats known)

3.23 Invasive Species

3.23.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." The FHWA guidance issued August 10, 1999, directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

3.23.2 Affected Environment

The California Invasive Plant Council (Cal-IPC) maintains a California Invasive Plant Inventory that categorizes non-native invasive plants that threaten the state's wildlands. Approximately 200 species are currently considered invasive in California based on assessed ecological impacts. Vegetation within the project study area includes sparse non-native invasive species growing through cracks in concrete and pavement and in small ruderal patches, such as along chain-link fencing and abandoned railroad tracks. Species observed include London rocket (*Sisymbrium irio*), Mediterranean schismus (*Schismus barbatus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), bermuda grass (*Cynodon dactylon*), Sellow's pampas grass (*Cortaderia selloana*), African fountain grass (*Pennisetum setaceum*), tree of heaven (*Ailanthus altissima*), smilo grass

(*Piptatherum miliaceum*), black mustard (*Brassica nigra*), tree tobacco (*Nicotiana glauca*), giant reed (*Arundo donax*), red-stemmed filaree (*Erodium cicutarium*), Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), and castor bean (*Ricinus communis*). Invasive weeds are the type of plants best suited to growing in developed areas and extremely disturbed patches of soil.

3.23.3 Environmental Consequences

None of the species on the California list of noxious weeds is currently used by the City of Los Angeles or Caltrans for erosion control or landscaping purposes within the project area. Implementation of the proposed project would not introduce or promote the spread of invasive species within the project area except during the construction phase, when invasive species could be inadvertently hauled onsite via construction vehicles.

3.23.4 Avoidance, Minimization, and Mitigation Measures

Alternative 1 – No Action

No mitigation is required as long as the viaduct remains in service. In the event the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. Under this circumstance, measures to minimize effects from invasive species described under Alternative 3 – Replacement will apply.

Alternative 2 – Retrofit

No mitigation is required.

Alternative 3 – Replacement

In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the project would not use species listed as noxious weeds. Precautions would be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should a propagation of invasive species in the project area occur prior to construction.

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3.24 Any Irreversible and Irretrievable Commitments of Resources that would be Involved in the Proposed Action

Implementation of the proposed action involves commitment of a range of natural, physical, human, and fiscal resources. Land dedicated for the retrofit or replacement construction and subsequent operation of the viaduct would constitute a semi-permanent commitment for the life of the facility; however, if a greater need arose for use of the land or if the facility became obsolete, then the land could be converted to another use. Currently, there is no reason to believe that such a conversion would ever be necessary or desirable, given that the project corridor has been used for transportation purposes for more than 100 years and will continue to be used for the foreseeable future.

Construction and operation of the proposed project would also require consumption of fossil fuels, labor, and construction materials. Additionally, the project would require expenditure of labor, and natural resources would be used in the fabrication and preparation of the necessary construction materials. These expenditures would be, for the most part, irrecoverable; however, they are not in short supply, and their use would not have an adverse effect upon continued availability of these resources. Any construction would also require a substantial one-time expenditure of federal and local funds.

The commitment of these resources is based on the concept that residents in the immediate area, as well as the region, state, and nation, would benefit from the safer transportation system in this critical transportation artery to the most-populated and heavily visited city in California. This benefit is anticipated to outweigh the commitment of these resources.

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3.25 The Relationship between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The proposed project involves tradeoffs between obtaining the long-term benefits of preventing the loss of human lives and property damage due to the possible collapse of the 6th Street Viaduct in a major earthquake against short-term impacts to the environment. Construction activities would result in temporary impacts that would cease upon completion of the viaduct construction. These impacts include air quality degradation associated with increased emissions of criteria pollutants; noise effects generated by heavy equipment operation; socioeconomic and community impacts from construction; impacts to utility systems caused by relocation and potential service interruption; generation of hazardous materials and wastes from construction; and intermittent roadway obstruction and traffic detours. These impacts would be mitigated, with the exception of air quality during certain phases of construction.

If the Retrofit Alternative were implemented, then the proposed project would provide a viable east-west link between Boyle Heights and Downtown Los Angeles via a seismically retrofitted structure that could withstand a design-level earthquake over the next 30-year period. If the Replacement Alternative were implemented, then the proposed project would provide a viaduct that meets functional and seismic safety standards for a period of at least 75 years.

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3.26 Cumulative Impacts

3.26.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in a defined area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for a project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

3.26.2 Methodology

The cumulative impacts analysis for the proposed project was undertaken by following the steps set forth in the Caltrans Standard Environmental Reference (SER) and the FHWA *Interim Guidance: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (2003).* These steps include:

1. Identify resources to be analyzed.
2. Define the study area for each resource.
3. Describe the current health and historical context for each resource.
4. Identify direct and indirect impacts of the proposed project.
5. Identify other reasonable foreseeable actions that affect each resource.
6. Assess potential cumulative impacts.
7. Report results.
8. Assess the need for mitigation.

As specified in Caltrans/FHWA guidance, if the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource. This cumulative impact analysis includes resources that are substantially impacted by the proposed project and resources that are currently in poor or declining health or at risk even if project impacts would not be substantial.

3.26.3 Affected Environment

The 6th Street Viaduct has been open for services since 1933. The project study area is located east of Downtown Los Angeles and is highly developed and urban/industrial in character. Land uses within the project area are dominated by industrial and warehouse uses, rail lines, and the concrete-lined Los Angeles River.

The project is located at the boundary of the City of Los Angeles General Plan's Central City North and Boyle Heights Community Planning areas. Rehabilitation, reuse, and redevelopment activities, including conversion of abandoned industrial buildings to residential units, are rapidly progressing in the downtown area. The project area is located within the CRA/LA redevelopment area where industrial uses are preserved.

Sixth Street is designated as a Secondary Highway within the project study area; it carries an average of 13,260 cars daily. The roadway segment accommodates substantial local traffic movement in the east-west direction between East Los Angeles and Downtown Los Angeles. Sixth Street is connected to US 101 through a NB on-ramp immediately east of the project limit.

The overall visual quality of the project area is moderately low to low because of the industrial nature of the area and its lack of vegetation and open space, which give the area low vividness, intactness, and unity. The existing viaduct does have a high visual quality because of its architectural and historic character, which creates a very vivid, or memorable, structure, although the structure has been degraded somewhat by the removal of some architectural features, the addition of infill walls, replacement of historic lampposts, and deferred maintenance over time.

The 6th Street Viaduct was found to be eligible for the National Register of Historic Places (NRHP) for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne design using steel and reinforced concrete. Because the viaduct has been determined eligible for listing in the NRHP, it is also listed in the California Register of Historical Resources (CRHR). It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California" as part of the Caltrans Statewide Bridge Inventory in 1987. In addition, the 6th Street Viaduct is designated as City of Los Angeles Historic-Cultural Monument (HCM) #905.

In 2004, Caltrans established a survey population of 45 bridges within the City of Los Angeles (City of Los Angeles Monumental Bridges, 1900-1950).[104] Of the 45 bridges examined as part of this study, 29 appeared to be significant as City of Los Angeles monumental bridges. The study concluded that the bridges in Los Angeles that are significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the NRHP criteria, which define a historic district as having a physical concentration of buildings, structures, objects, or sites with importance derived, in part, from that concentration of resources as a unified entity. The study determined the Los Angeles bridges are dispersed throughout the city and thus cannot be categorized as a historic district. Caltrans submitted this survey update to the SHPO.

The project area does not contain regionally significant visual resources; however, the 6th Street Viaduct is locally recognized as a visual and historic icon within Boyle Heights and nearby Downtown Los Angeles communities.

3.26.4 Related Projects

Several projects are known to be proposed, approved, or under implementation within the immediate Downtown Los Angeles area and nearby vicinity. In identifying recent past, present, and future projects, the baseline (present) year 2007 was used to be consistent with the traffic study for this project. With this baseline, the projects that were approved prior to 2007 are considered part of the existing setting (for traffic analysis purposes), and projects that have not been approved are considered foreseeable future projects. For traffic-generating related projects, the trips to be generated by these projects were accounted for in the traffic analysis performed as part of the proposed project in 2008, with the exception of the Boyle Heights Mixed-Use Project, which was introduced in 2010.

- **Hollenbeck Police Station Replacement:** The project involves replacement of the existing Hollenbeck Police Station with new offices and is located at the corner of 1st Street and Saint Louis Street in the City of Los Angeles. The new office will have a capacity of 350 sworn and civilian personnel, which is a potential increase of 73 employees. The additional 73 employees will generate an estimated 445 daily trips. The existing uses on the site provide trip credits, as allowed by LADOT traffic analysis guidelines. Due to the trip credits from existing uses, a net decrease in total daily trips and a minimal increase in peak-period traffic are expected. Note that this project became operational during the time the proposed project Final EIR/EIS was being prepared (August 2009).

[104] JRP Historic Consulting for Caltrans, "City of Los Angeles Monumental Bridges, 1900-1950," May 2004.

- **Mixed-Use Project: 100-300 South Santa Fe Avenue:** This is a proposed residential, retail, and commercial mixed-use project. The project area is part of the MTA Maintenance Yard site located on the east side of Santa Fe Avenue between 1st Street and north of 4th Street in Downtown Los Angeles. The site address is within the Central City North Community Plan and Artists-in-Residence District. The project proposes development of 442 apartment units, 17 live/work units, and 25,000 square ft of retail use. The project would generate approximately 2,443 total trips per day, which includes 208 trips during the morning peak hour and 229 trips during the afternoon peak hour. The schedule to complete the project is not known as of the date this Final EIR/EIS was prepared (August 2009).
- **Pollo Campero Restaurant – 425 South Soto Street:** The Pollo Campero Restaurant is proposed in an existing commercial center located in the southwest quadrant of South Soto Street and 4th Street in the Boyle Heights community of the City of Los Angeles. The proposed restaurant is at 425 South Soto Street. The planned building area is 2,660 square ft and includes a drive-through facility. Construction of the project was completed by the time this Final EIR/EIS was prepared (August 2009).
- **East Los Angeles Area New High School No. 1 – Mission Road and Plaza Del Sol:** The project involves construction of four new buildings, totaling 108,000 square ft on a 6.22-acre site with a maximum enrollment of 1,026 students. A subterranean parking structure with 95 parking spaces and a two-way driveway with access from Mission Road for staff and visitors is provided below the first building. The second and third buildings are two-story structures with 19 classrooms in each building. The fourth building houses an indoor gymnasium and locker facilities, a library, a performing arts facility, and student services. A student drop-off/ loading and unloading zone is on the south side of Plaza Del Sol just east of Mission Road. Construction of the project was completed by the time this Final EIR/EIS was prepared (August 2009).
- **Boyle Heights Mixed-Use Project:** The proposed project would redevelop the approximately 68.8-acre Wyvernwood Garden Apartments site (located at 2901 E. Olympic Boulevard) to provide up to 4,400 residential units (including no less than 1,200 rental units and up to 3,200 for-sale units), up to 300,000 square ft of neighborhood-serving retail and office commercial uses, up to 25,000 square ft of civic uses, and open space. The project would be constructed in five phases, with the initial phase to be completed in 2017 and the final phase to be completed in 2030. Under the maximum office scenario, the proposed project is estimated to generate approximately 19,382 net new daily trips, with 1,507 net trips in the a.m. peak hour and 1,927 net trips in the p.m. peak hour. Under the maximum retail scenario, the proposed project is estimated to generate approximately 19,640 net new daily trips, with 1,458 net trips in the a.m. peak hour and 1,934 net trips in the p.m. peak hour. A

traffic study was prepared to analyze operational impacts covering 52 intersections, 13 of which overlap with the proposed 6th Street Viaduct Seismic Improvement Project study intersections. Out of the 52 intersections analyzed, 22 were determined to be significantly impacted by the proposed Boyle Heights Mixed-Use Project at build-out. The traffic study proposed various measures to mitigate the impacts. Only six intersections would be left unmitigated; none of those unmitigated intersections coincide with the study intersections for the 6th Street Viaduct Seismic Improvement Project.

- **First Street Viaduct and Street Widening Project:** Currently under construction, this project widens the 1st Street Viaduct deck to accommodate the future MTA Gold Line Light Rail Extension project. It will provide two lanes of vehicular traffic in each direction (same as pre-project condition). Viaduct approaches and transition roadways will be improved. Construction will be completed in 2011.
- **East Los Angeles Area Primary Sewer Rehabilitation:** This project proposes rehabilitating approximately 21,635 linear ft of aging and structurally deteriorated sewers, ranging from 16 to 40 inches in diameter. The sewer reaches targeted for rehabilitation are scattered throughout the entire Central Area. The project area includes 7th Street in the vicinity of Santa Fe Avenue and Alameda Street between 6th Street and 7th Street. The rehabilitation schedule is from January 2010 to March 2012.
- **North Outfall Sewer (NOS) Rehabilitation Project:** This project will rehabilitate a portion of the NOS along the east side of the Los Angeles River. The reach of sewer will stretch from 6th Street and Mission Road to the Humboldt Division, which is approximately 2.7 miles north of 6th Street. The project is scheduled to be constructed between April 2014 and December 2016.
- **Central Industrial Redevelopment Project and Adelante Eastside Redevelopment Project:** These two projects are ongoing redevelopment projects under the CRA/LA. Detailed information on the projects is presented in Section 3.2.1.7 of this EIR/EIS.
- **Los Angeles River Revitalization Master Plan:** As described in Section 3.2.2.1 D of this EIR/EIS, the LARRMP is the conceptual framework to guide revitalization of the Los Angeles River. The plan was approved by the City Council in May 2007; however, there is no available implementation date for this project. The LARRMP has "near-term opportunities" that could be realized in a 5- to 15-year time horizon. All of the 15 smaller-scale projects in the vicinity of the 6th Street Viaduct are described as "design process could begin as soon as funding is available." It is unlikely that construction of the proposed project would overlap with construction of these Los Angeles River projects.

- **City of Los Angeles Bridge Improvement:** The City of Los Angeles Bureau of Engineering has identified more than 80 bridges throughout Los Angeles to be part of its Bridge Improvement Program (BIP), which implements a range of structural and seismic improvements to existing bridges and in some instances replaces bridges entirely. Several of the bridges currently undergoing improvement under the BIP are historic bridges, as summarized in Table 3.26-1.

- **Westside Subway Extension Project:** In fall 2007, MTA began an Alternatives Analysis study to look at whether a transit improvement was needed on the Westside and to evaluate a variety of options to improve mobility in the area. When built, it will provide a high-capacity, high-speed, dependable alternative for those traveling to key destinations such as the Miracle Mile, Beverly Hills, Century City, Westwood, and the UCLA campus. More than 300,000 people travel into the Westside every day for work from areas throughout the County. It will connect the Westside to the region's growing rail transit network. The Draft EIS/EIR for the Westside Subway Extension was prepared and approved by the Metro Board of Directors on October 28, 2010. The Final EIS/EIR is being prepared but has not been released as f this date of the FEIR/EIS preparation. The subway construction is scheduled to commence in 2015 and be completed in 2021. As part of the Westside Subway Extension, a Division 20 South Rail Yard would be constructed. The site of this rail yard is located north of 6th Street Viaduct west of the Los Angeles River. If constructed, some properties east of Santa Fe Avenue north of the 6th Street Viaduct would have to be acquired.

- **California High-Speed Rail Project:** Established in 1996, the California High-Speed Rail Authority (Authority) is the state agency responsible for planning, constructing, and operating a high-speed train system serving California's major metropolitan areas. The 800-mile-long high-speed train system will serve Sacramento, San Francisco Bay Area, Central Valley, Los Angeles, Inland Empire, Orange County, and San Diego. The California high-speed rail system, pending funding availability, is anticipated to be built in phases by 2020. The system is forecast to potentially carry more than 100 million passengers per year by 2030.

Table 3.26-1
Active Bridge Projects under Bridge Improvement Program

Bridge Name/Year Built	Bridge Number	Federal/Local Designation	Proposed Improvement	Status/Construction Schedule
First Street Viaduct / 1929	53C1166	NRHP eligible; HCM #909	One side widening by 22 ft; replication of existing exterior elements.	EIR/Environmental Assessment (EA) completed Construction schedule: Summer 2008 – Fall 2011
Main Street Bridge / 1910	53C1010	NRHP eligible; HCM #901	Seismic retrofit; replace deck/ sidewalk; restore original barrier.	Category Exemption (CE)/Categorical Exclusion (CE) completed Construction schedule: Summer 2011 – Fall 2012
Fletcher Avenue Bridge / 1927	53C0096	NRHP eligible; HCM #322	Seismic Retrofit; replace sidewalk.	CE/CE completed Construction schedule: Summer 2011 – Fall 2012
Riverside Bridge (Figueroa Street) / 1927/1939 (Original 1927 bridge washed out)	53C0160	Not NRHP eligible; HCM # 908	Replacement; modern concrete box-girder with exterior arch facia.	Initial Study (with Negative Declaration)/EA (with Finding of No Significant Impact) completed Construction schedule: Summer 2011 – Fall 2015
North Spring Street Bridge / 1928	53C0859	NRHP eligible; HCM # 900	One side widening of 23 ft; modern concrete dual arch without spandrel columns.	Final EIR/EA in preparation Construction schedule: Spring 2012 – Fall 2015
Glendale-Hyperion Complex / 1929	53C1881-4	NRHP eligible; HCM #164	One side widening of 8 ft to Glendale bridges only; replication of existing exterior elements; restore original barrier for entire complex.	EIR/EA in preparation Construction schedule: Fall 2013 – Winter 2016
Riverside Bridge (Zoo Drive) / 1938	53C1298	NRHP eligible; HCM #910	Two side widening of 8 ft each; replication of existing exterior elements.	EIR/EA on hold Construction schedule: To be determined
Sixth Street Viaduct / 1932	53C1880	NRHP eligible; HCM # 905	Replacement or seismic retrofit – Bridge type under Replacement Alternative is to be identified.	Final EIR/EIS in preparation Construction schedule: Fall 2014 – Fall 2018

Source: Los Angeles Bridge Improvement Program, 2011.

To date, the Authority has certified the Statewide Final Program-Level EIR/EIS and the Bay Area to Central Valley Final Program EIR/EIS, which are the first and second part, respectively, of the programmatic analysis in the tiered environmental review process for California's high-speed rail. The environmental document for the Orange County to Los Angeles segment has not been prepared; however, based on a 10 percent design drawing made available by the project proponent, the high-speed rail track would run along the west bank of the Los Angeles River at a location adjacent to the existing railroad tracks and existing 6th Street Viaduct columns.

- **State Route 710 Extension Project:** State Route (SR) 710 serves as a major north-south link in the Los Angeles County transportation network. It is heavily traveled, with a very high percentage of trucks, and congestion is increasing within the corridor. Additional congestion is created on surface streets by a 6.2-mile-long gap that begins where SR 710 ends on Valley Boulevard near the Los Angeles/Alhambra border. Motorists who wish to continue traveling north must drive on local streets through the cities of Alhambra, Los Angeles, South Pasadena, and Pasadena. SR 710 resumes at Del Mar Boulevard in the City of Pasadena and continues 0.6-mile north, where it meets the Foothill Freeway (I-210). Since the 1960s, various conceptual plans have been proposed to close the SR 710 gap; however, none were acceptable to the nearby communities and environmental interests.

  In 2006, the MTA commissioned a Tunnel Feasibility Assessment Study, which concluded that constructing a tunnel to connect SR 710 is feasible. Because a tunnel connection would relieve regional and local congestion, and improve air quality, it gained the support of MTA, Caltrans, FHWA, and SCAG. The environmental review process for this project has not officially begun. It is not likely that this project would be under construction at the same time as the 6th Street Viaduct Improvement Project.

3.26.5 Resources not Subject to Cumulative Impact Analysis

Based on the nature of the proposed project, the affected project area, and the impact analysis for each resource conducted for this EIR/EIS, it was determined the following resources would not be substantially impacted by the proposed project and are not at risk:

- **Community Character and Cohesion:** Construction of any project alternative, together with other proposed future foreseeable projects, would not cumulatively change the community character and cohesiveness of people residing in the project area, especially the Boyle Heights community and the Downtown Los Angeles area.
- **Utilities/Emergency Services:** Although several service utilities would be affected by construction activities, they are confined within the area adjacent to the project footprint. Once they are relocated, no cumulative effects to other service utilities would occur.

Likewise, emergency services would be affected only during the construction period. The project does not result in permanent effects to utilities or emergency services.

- **Hydrology and Floodplain:** The area within the proposed construction zone is fully built-out; therefore, no substantial increase in runoff flow is expected. Construction-related nuisance flows would be diverted into detention basins to be treated before discharging to existing storm drains. Construction-site sheet flows would be retained to prevent discharge during construction. No cumulative impacts would occur during construction or operation of the project.

  Based on the hydraulic analysis prepared for Alternative 3 (viaduct replacement), no impact to river flow would occur; therefore, no cumulative impacts on river hydraulics are anticipated.
- **Water Quality and Stormwater Runoff:** Stormwater runoff occurring during construction and operation of the proposed project would be localized and confined within the site during construction and within the project area after construction is complete. No cumulative impacts pertaining to stormwater runoff would occur. Special water pollution control Best Management Practices (BMPs) would be employed to minimize impacts to the Los Angeles River water quality. No cumulative impacts to water quality are anticipated.
- **Geology/Soils/Seismicity:** Seismically induced impacts are localized and would not result in any cumulative impacts as a result of the proposed project implementation.
- **Paleontology:** Impacts associated with paleontological resources are localized. No cumulative impacts are anticipated as a result of the proposed project implementation.
- **Hazardous Materials and Wastes:** Impacts associated with hazardous materials and wastes are localized. No cumulative impacts are anticipated as a result of the proposed project implementation.
- **Energy:** Energy effects would occur during the construction period. No long-term cumulative effects are anticipated.
- **Biological Environment:** Impacts associated with biological resources for this project are minimal and localized. No cumulative impacts are anticipated as a result of the proposed project implementation.
- **Noise and Vibration:** The commercial/industrial areas adjacent to the viaduct are not identified as "frequent human outdoor-use" locations; therefore, no adverse construction noise impacts to commercial/manufacturing uses along the 6th Street corridor are anticipated. The closest residences to the viaduct are located 600 ft away; no adverse noise impact would occur. Since no fragile or historic buildings are located within 50 ft of the proposed construction site, no adverse impacts from construction vibration to

adjacent buildings are expected. No cumulative noise and vibration impacts are anticipated.

As discussed throughout this chapter, under the No Action Alternative, the viaduct may be determined to be unserviceable by the City of Los Angeles Bureau of Engineering and Caltrans due to advanced ASR deterioration or a major seismic event in the future, neither of which can be predicted. Under such an event, the City would take the viaduct out of service and seek emergency funding sources to replace it. It is estimated that the time to identify funding, complete design, acquire ROW, and construct a new viaduct would range between 5 and 7 years from the time it was placed out of service. The impacts during construction would be similar to Alternative 3 with the exception that the timing of when the viaduct would be placed out of service is unknown. In this scenario, the City would replace the viaduct under any circumstance.

3.26.6 Resources Analyzed for Cumulative Effects

Based on the nature of the proposed project, the affected project area, and the impact analysis for each resource conducted for this EIR/EIS, it was determined the following resources could be adversely affected when combined with the potential impacts from other related projects:

- Land Use and Planning
- Community Impacts
- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Cultural Resources
- Visual Resources
- Air Quality

Analysis of impacts to these resources is presented in the sections that follow.

3.26.6.1 Land use and Planning

Resource Study Area

The project is located at the boundary of the City of Los Angeles General Plan’s Central City North and Boyle Heights Community Planning areas. The project area is located within the CRA/LA redevelopment area where industrial uses are preserved. The geographical area identified for land use and planning impact assessment covers the area that would potentially be either directly or indirectly affected by the proposed project activities, including the localized area within the project limits and approximately a 0.5-mile radius from the 6th Street Viaduct.

Health and Historical Context

The resource study area is located within the City of Los Angeles General Plan’s Central City North and Boyle Heights Community Planning areas. Land uses along the north and south sides of the viaduct are predominantly industrial and commercial. Railroad corridors exist along the east and west banks of the river. Rehabilitation, reuse, and redevelopment activities in the downtown area are progressing very rapidly, while such activities in the Boyle Heights community are less apparent, which is evident from current property conditions in the vicinity. The area near the proposed project site west of the Los Angeles River, in the Arts District of downtown, has seen several adaptive reuse renovations of abandoned industrial buildings, which introduces residential uses to the primarily industrial district by converting the spaces into live/ work units. Redevelopment within the project study area with the goal to preserve industrial land uses has been undertaken under the management of the CRA/LA. Improvements to the Los Angeles River corridor, including the area adjacent to the project study area, have been planned, and the guidelines for revitalization were developed as contained in the LARRMP; however, the LARRMP has not been integrated into the City of Los Angeles General Plan, and zoning or land use designations have not been revised to reflect the proposed elements of the plan. As of this date, there is no implementation schedule, so elements of the plan in the study area cannot be predicted in the foreseeable future.

Project Impacts

The project's land use and planning impacts for each alternative are discussed in detail in Section 3.2.2 of this EIS/EIR and summarized below.

Alternative 1 – No Action

There would be no project impacts on land use or planning as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Impacts on land use and planning as a result of new viaduct construction would be similar to Alternative 3 – Replacement.

Alternative 2 – Retrofit

- Alternative 2 would require some right-of-way (ROW) acquisition, including industrial properties, which would be inconsistent with the City of Los Angeles Community Plan objective of preserving the industrial area and employment.
- Alternative 2 would not provide the City with an opportunity to designate 6th Street along the 6th Street Viaduct as a bikeway because the viaduct does not have sufficient width for shoulders that can accommodate bicycles.

Alternative 3 – Replacement

Displacement of several industrial properties for ROW under Alternative 3 would be inconsistent with the City of Los Angeles Community Plan objective of preserving the industrial area and employment.

Reasonably Foreseeable Actions

Several development projects and transportation improvement projects have been constructed or planned within the same locality as the proposed project, as presented in Section 3.26.4. The following related projects, including Westside Subway Extension Project (Division 20 South Rail Yard), High-Speed Rail Project, and LARRMP, together with the proposed project, could impact land use within the vicinity of the 6th Street Viaduct on a cumulative basis. In turn, implementation of the proposed project could support several of the housing development and community redevelopment projects by providing a safe transportation link between Downtown Los Angeles and Boyle Heights.

Cumulative Impacts

Alternative 1 – No Action

There would be no cumulative impacts on land use or planning as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Cumulative impacts on land use and planning as a result of new viaduct construction cannot be determined since the timing of such an event is unknown and other projects contributing to cumulative effects might be different from those listed in Section 3.26.4 at the time of occurrence.

Alternative 2 – Retrofit

The project area is located within the CRA/LA redevelopment area where there is a goal to preserve industrial uses under the Community Plan; however, several industrial buildings within the project area are being converted to residential lofts. Implementation of Alternative 2 would result in two business relocations to accommodate the retrofit construction. These acquisitions would not require a revision to any of the adopted plans or policies at the local and regional levels; however, conversion of industrial land uses to accommodate the retrofit construction would conflict with the City of Los Angeles' industrial land use policies. This impact, along with the potential conversion of some industrial land uses that would be required as part of the foreseeable future projects (e.g., the future high-speed rail and Westside Subway Extension – Division 20 South Rail Yard projects), would constitute a cumulative adverse impact on industrial land uses.

Alternative 3 – Replacement

The project area is located within the CRA/LA redevelopment area where industrial uses are preserved; however, several industrial buildings within the project area are being converted to residential lofts. Implementation of Alternative 3 would require acquisition of several industrial buildings; the number of affected parcels would depend on the alignment chosen, as discussed in Section 3.4.3 of this EIR/EIS. This acquired land would be used to construct the viaduct structure and would be reserved as an easement (see Figure 3.4-3). The acquisition of industrial buildings to accommodate the retrofit construction would conflict with the City of Los Angeles' Industrial Land Use Policy. This impact, along with the conversion of industrial land uses as part of the foreseeable future projects (e.g., the future high-speed rail and Westside Subway Extension – Division 20 South Rail Yard projects), would constitute a cumulative adverse impact on industrial land uses; however, the unused portion of the acquired land under the proposed project could potentially be redeveloped for industrial use.

Although implementation of Alternative 3 would have an adverse cumulative impact on land use and planning, it would provide the City with an opportunity to implement certain elements of the LARRMP. Land use and zoning changes associated with LARRMP implementation would have to be considered and approved by the City of Los Angeles Planning Department independent from the proposed project.

Avoidance, Minimization, or Mitigation Measures

To minimize cumulative land use conflicts within the project area, the City would encourage planning departments, divisions, agencies, and interested parties having responsibility for planning and policy development within the Central City North and Boyle Heights Community Plan areas including, but not limited to, the City of Los Angeles Planning Department, LABOE Architecture Division, CRA/LA, LARRMP committees, and Friends of Los Angeles River, to discuss and develop or modify the land use plan and policy covering the two planning areas affected, taking into account the need to proceed with the proposed project and other approved plans and policies.

3.26.6.2 Community Impacts

Resource Study Area

The components of community impacts that could have the potential to be affected on a cumulative basis include community disruption and environmental justice consideration. No change to community characters and cohesion are anticipated. The resource study area for community impact assessment includes the localized area within the project limits and surrounding vicinity. The primary impact area consists of the area in the immediate vicinity of the 6th Street Viaduct, which includes business and commercial buildings along the front row of the viaduct footprint. These properties would be subject to direct effects, such as property acquisition or disruption from construction activities. Indirect impact areas would be dispersed and include areas likely to experience increased vehicle movements associated with construction haul routes and detoured traffic during the bridge closure. The indirect impact zone would be bound by 1st Street and 7th Street to the north and south, respectively, and Soto Street and Central Avenue to the east and west, respectively.

Health and Historical Context

The City of Los Angeles has a long history dating back to 1769 when the first permanent settlement occurred. Suburban development in the project study area began in the 1880s. There are two neighborhoods within the project area – the Downtown Arts District on the west side of the proposed project and the community of Boyle Heights on the east side. The Downtown Arts District, previously known as the Warehouse District, occupies the eastern side of Downtown Los Angeles. Its borders are roughly Alameda Street on the west, US 101 on the north, the Los Angeles River on the east, and 7th Street on the south. The Arts District is filled with older industrial and former railroad buildings. In 1981, the City of Los Angeles passed its "Artists in Residence" or "AIR" ordinance, which allowed residential use of formerly industrial buildings (artists had long used such spaces as living quarters illegally, and the AIR law sought to bring this practice into legality and regulation). In 2005, a group of long-time Arts District property owners worked with the Central City East Association (CCEA) to form the Arts District Business Improvement District (BID), which would provide much-needed services in the area: security, maintenance, marketing, and advocacy. Loft-style apartments and condos in restored industrial buildings now dot the landscape, but the Arts District is still home to a major rail yard, cold storage, warehouses, food processing, furniture and fashion design/manufacturing, personal storage, government facilities, and film locations.[105]

The Boyle Heights community is located east of the Los Angeles River. Boyle Heights was developed as one of the first residential suburbs in Los Angeles when the railroads were constructed along the Los Angeles River. It was initially settled by European immigrants and later by Mexican laborers employed by the railroads and related industrial sector. Some of the first City public housing projects were constructed in Boyle Heights, and much of the existing housing stock is in poor condition.[106] The community was segmented into four smaller areas and one larger area by the construction of four major freeways between 1940 and 1960. In addition, the Los Angeles River divides Boyle Heights from the downtown area. The bridges over the Los Angeles River, including the 6th Street Viaduct, have long served as a means of connecting Boyle Heights residents to downtown. Today, Boyle Heights is a predominantly Hispanic community.

Community characteristics and socioeconomic characteristics of the study area are described in Section 3.3.2 of this EIS/EIR.

[105] Excerpted from wikipedia.com http://en.wikipedia.org/wiki/Arts_District,_Los_Angeles,_California, Accessed March 30, 2011.

[106] City of Los Angeles, 1998. Boyle Heights Community Plan. November.

Project Impacts

The project impacts for each alternative are discussed in detail in Sections 3.3, 3.4, and 3.5 of this EIR/EIS and summarized below.

Alternative 1 – No Action

There would be no project impacts on the community as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Impacts to the community as a result of new viaduct construction would be similar to Alternative 3 – Replacement.

Alternative 2 – Retrofit

- Temporary blockage of roadways and local detours would occur during construction due to the lane closures and construction equipment movement.
- Alternative 2 would require acquisition of two properties.
- Businesses and residents near the construction zone would experience a higher level of impacts over the prolonged period of time than other groups of people who would also benefit from the proposed project.

Alternative 3 – Replacement

- Construction would require closure of the 6th Street Viaduct for 4 years. Access restrictions to remaining businesses would occur during demolition and construction activities.
- Alternative 3 would require acquisition of up to 11 properties.
- Businesses and residents near the construction zone would experience a higher level of impacts over the prolonged period of time than other groups of people who would also benefit from the proposed project.

Reasonably Foreseeable Actions

The Westside Subway Extension – Division 20 South Rail Yard Project, future high-speed rail project, and LARRMP, together with the proposed project, would pose an elevated level of community impacts within the vicinity of the 6th Street Viaduct on a cumulative basis, as discussed below.

Cumulative Impacts

Alternative 1 – No Action

There would be no cumulative impacts on the community as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Cumulative community impacts as a result of new viaduct construction under this scenario cannot be accurately determined since the timing is unknown and other projects contributing to cumulative effects might be different from those listed in Section 3.26.4 at the time of occurrence.

Alternative 2 – Retrofit

Community impacts from Alternative 2 construction would include temporary access control and business disruption from construction materials delivery and other activities; traffic congestion within and nearby the construction zone and along the construction material hauling routes; air pollutant emissions from construction activities; and temporary noise-level elevations from construction equipment operations. The level of these impacts would escalate if the construction period overlaps with other construction projects in the vicinity. Based on the known projects listed in Section 3.26.4, construction of Westside Subway Extension – Division 20 South Rail Yard Project, located adjacent to the northwest side of the 6th Street Viaduct, could occur concurrently with the retrofit schedule. Low-income and/or minority populations living close to the viaduct would be subject to disproportionately higher impacts from concurrent construction activities on a cumulative basis. Once construction of each project is complete, there would be no disproportionate impacts to low-income and/or minority populations on a cumulative basis when taking into account other past, current, or future foreseeable projects listed in Section 3.26.4 because the proposed project would enhance public safety for local residents and businesses who are the major users of the viaduct. A seismically safe viaduct would support other planning and development goals within the locality.

As discussed under Section 3.26.6.1 – Land Use above, implementation of Alternative 2 would result in property acquisition of two businesses within the viaduct footprint to accommodate the retrofit construction. Although the impacts to these two properties are not considered adverse because one owner is already out of business and one could be relocated nearby, implementation of this project, along with other reasonably foreseeable future projects (e.g., future high-speed rail and Westside Subway Extension – Division 20 South Rail Yard projects), could cause more businesses to be relocated and reduce the available industrial land use within the project area, which would be inconsistent with the City of Los Angeles Industrial Land Use Policy. In addition, implementation of the planned LARRMP could also result in conversion of additional industrial land along each side of the river into recreational uses. Impacts to area businesses could be cumulatively significant with implementation of the future foreseeable projects; however, prior to implementation of any future project, an environmental impact analysis would be completed to identify the level of impact and appropriate mitigation measures.

Alternative 3 – Replacement

Community impacts from Alternative 3 construction would include traffic detours as a result of viaduct closure; temporary access control and business disruption from construction materials delivery and other activities; traffic congestion within and nearby the construction zone and along the construction material hauling routes; air pollutant emissions from construction activities; and temporary noise-level elevation from construction equipment operations. The level of these impacts would escalate if the construction period overlaps with other construction projects in the vicinity. Based on the known projects listed in Section 3.26.4, construction of Westside Subway Extension – Division 20 South Rail Yard Project, located adjacent to the northwest side of the 6th Street Viaduct, could occur concurrently with the viaduct replacement. Low-income and/or minority populations living close to the viaduct would be subject to disproportionately higher impacts from concurrent construction activities on a cumulative basis. Close coordination between the City of Los Angeles and MTA would be required to arrange the heavy construction phases of the two projects to occur at different times to minimize impacts to local residents and businesses.

Once the construction of each project is complete, there would be no disproportionate impacts to low-income and/or minority populations on a cumulative basis when taking into account other past, current, or future foreseeable projects listed in Section 3.26.4 because the proposed project would upgrade the seismic and design deficiencies of the 6th Street Viaduct to current standards, thus providing beneficial impacts to residents, businesses, and other projects on a cumulative basis. With the wider sidewalks and shoulders for bicycle lanes incorporated into the project design, pedestrians and bicyclists would benefit from the proposed project implementation.

As discussed under Section 3.26.6.1 – Land Use, implementation of Alternative 3 would require the relocation of several businesses located adjacent to the viaduct. Implementation of this project, along with other reasonably foreseeable future projects (e.g., future high-speed rail and Westside Subway Extension – Division 20 South Rail Yard projects), would cause more businesses to be relocated and reduce the available industrial land use within the project area, which would be inconsistent with the City of Los Angeles Industrial Land Use Policy. In addition, implementation of the planned LARRMP would also result in conversion of additional industrial land along each side of the river into recreational uses. Impacts to area businesses would be cumulatively significant with implementation of the future foreseeable projects. As indicated earlier, prior to implementation of any future project, an environmental impact analysis would be completed to identify the level of impact and appropriate mitigation measures.

Avoidance, Minimization, or Mitigation Measures

To minimize cumulative community disruption impacts, the City would continue the outreach program to notify residents, businesses, and any service providers within the area and to inform surrounding communities about the project construction schedule, relocation plans and assistance programs, traffic-impacted areas and the TMP, and other relevant project information. The outreach program would include, but not be limited to, establishing a project hotline, mailing information fliers or newsletters, organizing community meetings, and posting project information onsite and on the City's Web site.

In addition, the City would participate in the Downtown Construction Traffic Management Committee, which consists of representatives from planned projects, to develop a construction plan that minimizes community impacts. The construction plan may include, but would not be limited to, the following:

- Construction schedule
- Designated hauling routes
- Traffic lane closure schedule
- Designated detour routes

The committee would meet on a regular basis to discuss project progress, problems confronted, and issues to be resolved.

3.26.6.3 Traffic and Transportation/Pedestrain and Bicycle Facilities

Resource Study Area

The resource study area for cumulative impact analysis related to traffic and transportation/ pedestrian and bicycle facilities includes the intersections within and nearby the project limits (as designated for study under the traffic impact analysis), and along the designated detour routes to be used during project construction: 1st Street and 7th Street to the north and south, respectively, and Soto Street and Central Avenue/Alameda Street to the east and west, respectively.

Health and Historical Context

The 6th Street Viaduct has served as a viable east-west link between Boyle Heights and Downtown Los Angeles since it opened in 1933. Today, 6th Street, within the project study area, is designated as a Secondary Highway. It carries an average of 13,260 cars daily. In the project vicinity, 6th Street/Whittier Boulevard is directly connected to four major north-south streets – Central Avenue and Alameda Street located to the west of the viaduct and Boyle Avenue and Soto Street located to the east. Sixth Street is connected to US 101 through a NB on-ramp immediately east of the project limit. The area surrounding the project area is fully developed with residential, commercial, and industrial buildings.

Project Impacts

The project impacts for each alternative are discussed in detail in Section 3.7.3 of this EIS/EIR and are summarized below.

Alternative 1 – No Action

There would be no project impacts to traffic and transportation as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. Traffic and transportation impacts during construction of the new viaduct would be similar to Alternative 3, but for a longer duration. These impacts would end once construction is completed.

Alternative 2 – Retrofit

- Construction would cause localized, temporary traffic disruption, sidewalk blockage, and parking space obstruction.
- The possible loss of some public parking spaces underneath the viaduct and along the local streets nearby would create inconvenience to area residents and businesses.
- There would be minor disruption to public transit operations due to partial lane closures on the 6^{th} Street Viaduct during construction.

Alternative 3 – Replacement

- Construction would require full closure of the 6^{th} Street Viaduct for up to 4 years, resulting in traffic detours along the street network east and west of the river. Traffic analysis revealed up to 13 out of 31 intersections under study would be impacted by detouring traffic. Temporary access restrictions would occur on streets around the construction zone. Sidewalk closures would require rerouting of pedestrians.
- The loss of approximately 50 public parking spaces underneath and around the viaduct during construction would create inconvenience to area residents and businesses.
- Travel delays of 5 to 10 minutes on public transit would occur from traffic detours.

Reasonably Foreseeable Actions

Several development projects and transportation improvement projects are planned within the same locality as the proposed project, as presented in Section 3.26.4. Construction of the Westside Subway Extension – Division 20 South Rail Yard Project and the Boyle Heights Mixed-Use Project at the same time as the proposed project would result in cumulative traffic and circulation impacts around the construction zones and along the construction material hauling routes. Once construction of each project is complete, there would be no cumulative traffic impacts within the locality resulting from implementation of these projects.

Cumulative Impacts

Alternative 1 – No Action

There would be no cumulative impacts to traffic and transportation to the surrounding area as long as the viaduct remains in service. If the viaduct was determined unserviceable, the City would seek emergency funding sources to replace it. Traffic and transportation cumulative impacts as a result of new viaduct construction cannot be accurately determined since the timing is unknown and other projects contributing to cumulative effects might be different from those listed in Section 3.26.4 at the time of occurrence.

Alternative 2 – Retrofit

Traffic disruption during the 2.5-year construction phase of this alternative is expected. Temporary traffic lane closures and a transit route detour would impact commuters, local businesses, residents, and people using area public service facilities at locations near the construction sites and along the detour routes. Impacts to pedestrian safety near the construction zones would be potentially increased. Material hauling in and out of the construction site would further obstruct the local traffic system. The level of these impacts would escalate if the construction period overlaps with other construction projects in the vicinity. Based on the known projects listed in Section 3.26.4, construction of the Westside Subway Extension – Division 20 South Rail Yard Project, located adjacent to the northwest side of the 6th Street Viaduct, would occur concurrently with the retrofit schedule. Close coordination between the City of Los Angeles and MTA would be required to arrange the heavy construction phase of the two projects to occur at different times to minimize impacts to local traffic and circulation, pedestrian movement, and bicycle uses. Implementation of the TMP for the viaduct and related street improvements would minimize cumulative traffic disruption within the affected area.

Once construction is complete, no cumulative effects on traffic and transportation from the retrofitted viaduct operation would occur because there would be no increase in traffic capacity. The 6th Street Viaduct would continue to serve as a link between the Boyle Heights Community and the Downtown area for some 30 years, which is the expected life-span of the retrofitted viaduct. Thereafter the viaduct would need to be replaced due mainly to advanced ASR damage.

Since the 6th Street Viaduct would not be widened under this alternative, pedestrians and bicyclists would have to continue using the substandard sidewalks on a sharing basis; therefore, this alternative, would not support implementation of the 2010 Bicycle Plan.

Alternative 3 – Replacement

Traffic disruption from Alternative 3 would be similar to Alternative 2, but it would be greater in extent and duration because the river crossing would be closed for up to 4 years. The impacts would extend to residents and businesses located along the detour routes, defined as 1st Street and 7th Street to the north and south, respectively, and Soto Street and Central Avenue/Alhambra Street to the east and west, respectively. The level of traffic impacts would escalate if viaduct construction overlaps with other construction projects in the vicinity, including construction of the first phase of the Boyle Heights Mixed-Use Project and the Westside Subway Extension –

Division 20 South Rail Yard Project. These construction projects could possibly utilize the same detour routes as the proposed project if construction activities overlapped; therefore, adverse cumulative effects to nearby residents and businesses and those residing near the detour routes could occur if Alternative 3 is constructed. Implementation of the TMP for the viaduct and related street improvements would minimize cumulative traffic disruption within the affected area.

The proposed projects that would generate trips, as listed in Section 3.26.4, would cumulatively add traffic volumes to the local roadway system in the vicinity of the proposed project after implementation. The traffic study prepared for this proposed project has accounted for the general traffic growth and foreseeable future projects within the proposed project vicinity known at the time the traffic study was conducted. No significant cumulative operational impacts from the 6th Street Viaduct Project are foreseen in the long term because the proposed project would not increase traffic capacity. Some short-term traffic generation may occur following the opening of the new viaduct, however, from interested individuals who want to view the new signature bridge in Los Angeles.

Once construction is complete, no cumulative effects on traffic and transportation from the new viaduct operation would occur because there would be no increase in traffic capacity from the viaduct. The 6th Street Viaduct would continue to serve as the link between the Boyle Heights Community and the Downtown area for the designed life of 75 years. Implementation of this alternative would upgrade the design deficiencies of the 6th Street Viaduct to current standards, thus providing beneficial impacts to residents, businesses, and other projects on a cumulative basis. With the standard sidewalks and bicycle lane incorporated into the project design, pedestrians and bicyclists would benefit from the proposed project implementation. This feature of the project would also benefit the future implementation of the LARRMP, which aims to create the connection between the bridges and the Los Angeles River.

Avoidance, Minimization, or Mitigation Measures

To minimize cumulative traffic impacts during project construction duration, the City of Los Angeles would develop a construction staging plan and TMP in close coordination with the members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP would also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian and bicycle routes, and residential and commercial access routes to be used during the construction period.

3.26.6.4 Visual/Aesthetic

Resource Study Area

The resource study area for visual/aesthetics impact analysis includes the viewshed area within the project limits (see details in Section 3.8.2).

Health and Historical Context

The 6th Street Viaduct has been open for services since 1933. The resource study area is within a heavily urbanized area dominated by industrial and warehouse uses, rail lines, and the concrete-lined Los Angeles River. The overall visual quality of the project area is moderately low to low because of the industrial nature of the area and its lack of vegetation and open space, which give the area low vividness, intactness, and unity. The existing viaduct does have a high visual quality because of its architectural and historic character, which creates a very vivid, or memorable, structure, although the structure has been degraded somewhat by the removal of some architectural features, the addition of infill walls, replacement of historic lampposts, and deferred maintenance over time.

Landscape units around the viaduct consist of Western Warehouse, Eastern Warehouse, River-Rail Corridor, Interstate Corridor, High-Rise Residential, Multi-Family Residential, and the 6th Street Corridor. The viaduct is also historic and is eligible for listing in the NRHP; the CRHR; as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California;" and is designated as City of Los Angeles HCM #905. No Scenic Routes are located within or near the project area.

Project Impacts

The project impacts for each alternative are discussed in detail in Section 3.8.3 of this EIS/EIR and are summarized below.

Alternative 1 – No Action

There would be no project impacts to visual resources as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. It is likely that the City would use the viaduct replacement design developed thus far for this emergency replacement scenario. Impacts to visual resources as a result of the new viaduct construction would be similar to Alternative 3 – Replacement.

Alternative 2 – Retrofit

Retrofit would encase most of the existing columns with heavy steel covered by architectural mortar, creating a more massive column configuration. In addition, construction of sheer walls between many of the columns would limit views under the viaduct. The view restrictions under the viaduct deck could affect activities such as filming.

Alternative 3 – Replacement

- Replacement of the viaduct and the subsequent loss of the landmark would impact views to the historic structure. Any of the bridge replacement concepts would alter the existing views to varying degrees. The most notable visual change from existing conditions would be from replacement of the historic structure with a new structure of contemporary design (i.e., the cable-supported design); however, each of the designs analyzed would maintain the vividness, memorability, and other visual qualities experienced with the current viaduct structure.
- Modern Bridge Concepts 4, 4A, and 5 would likely include architectural lighting, which would be a noticeable addition to the nighttime viewscape.

Reasonably Foreseeable Actions

Several development projects and transportation improvement projects have been planned within the same locality as the proposed project. In particular, implementation of the following projects along with the proposed project, would cumulatively affect the visual landscape within the project surrounding area: the planned LARRMP Project, the Westside Subway Extension – Division 20 South Rail Yard Project, and the future High-Speed Rail Project.

Cumulative Impacts

Alternative 1 – No Action

The No Action Alternative proposes no changes to the 6th Street Viaduct or the surrounding area as long as the viaduct remains serviceable; therefore, there would be no cumulative impacts to visual resources under this alternative. If the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. Under this circumstance, cumulative impacts pertaining to visual resources as a result of new viaduct construction cannot be determined since the timing is unknown and other projects contributing to cumulative effects might be different from those listed in Section 3.26.4 at the time of occurrence. In addition, it would be too speculative to assume that some or all buildings within the landscape units under study would or would not sustain damage from the same seismic event to use as basis of cumulative effect analysis.

Alternative 2 – Retrofit

Although the proposed retrofit scheme would alter the historic fabric of the 6th Street Viaduct, the iconic structure would still remain. Many of the other historic bridges that span the Los Angeles River have been or are in the planning stages for safety and functional improvements. With close coordination of these bridge improvement projects between the relevant agencies concerning historic bridges within the City of Los Angeles, such as the Office of Historic Resources, Cultural Heritage Commission, and the SHPO, cumulative impacts on historic visual resources would be minimized.

Alternative 3 – Replacement

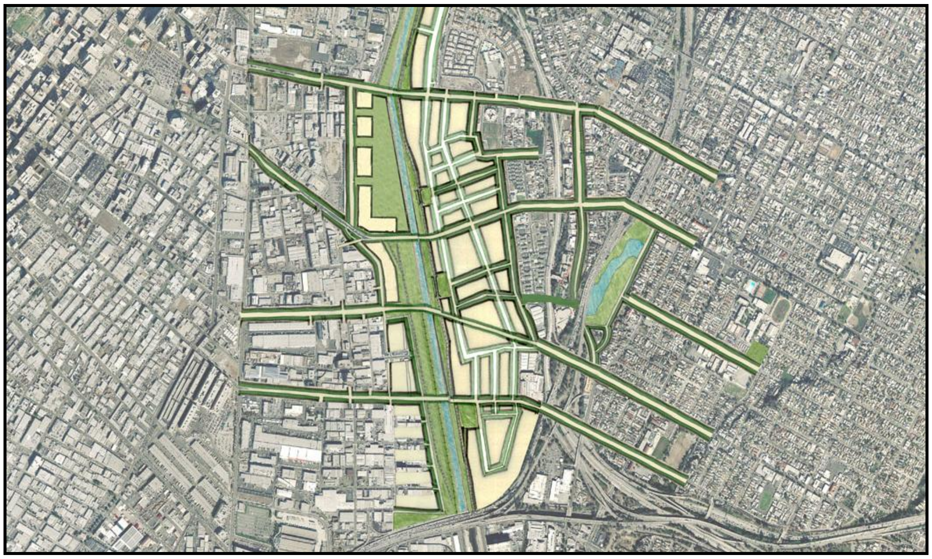
Under this alternative, the existing iconic 6th Street Viaduct would be removed and replaced with a new structure that would be distinctive from the surrounding monumental bridges spanning the Los Angeles River; however, the new structure would likely become a notable visual icon to the city and nearby communities. Many of the other historic bridges that span the river have been or are in the planning stages for improvements – most recently the 1st Street Viaduct, which is currently being widened. However, the other bridges do not have the ASR condition that afflicts the 6th Street Viaduct, so it is not anticipated that these bridges would need replacement for the foreseeable future; therefore, no cumulative adverse effects to surrounding visual resources are anticipated.

The greatest potential for change in the visual quality of the area lies with the LARRMP. If the Master Plan elements were developed in this stretch of the river, the resulting green space and recreational amenities created would have a positive impact on the visual quality of the area (see Figure 3.26-1). If portions of the Greening Concept objectives set forth in the Master Plan move forward, then these would add to the positive impact of the river revitalization by extending the open space into the surrounding communities on both sides of the river and incorporating the monumental Los Angeles River bridges in the overall design. However, the LARRMP has not been integrated into the city's General Plan and there has been no rezoning; therefore, implementation of the plan elements in the proposed project area would not occur in the foreseeable future.

Among the list of other projects proposed in the area, the high-speed rail project would build an additional line of tracks on the west side of the river bank, and the Westside Subway Extension – Division 20 South Rail Yard Project would add train parking spaces at the area northwest of the viaduct. Given the highly urban and industrial nature of the development within and adjacent to the project area, it is not anticipated that these proposed projects, along with the 6th Street Viaduct Seismic Improvement Project, would appreciably change the existing character of the area.

Avoidance, Minimization, or Mitigation Measures

Minimization measures were identified under the direct impact section discussed in Section 3.8.4. No additional measures are required.



Source: Los Angeles River Revitalization Master Plan.

Figure 3.26-1 Los Angeles River Revitalization Master Plan: Connections with the Project Area

3.26.6.5 Cultural Resources – Historic Resources

Resource Study Area

The resource study area for cumulative impact analysis pertaining to cultural resources includes the proposed project's Area of Potential Effects (APE), as well as other historic Los Angeles River bridges in the surrounding area.

Health and Historical Context

Based on the archaeological survey conducted as part of this project, Archaeological Resource 19-003683 is situated within the APE.

Thirty-three (33) properties in the project APE contained historic-era built resources (buildings, structures and/or objects that pre-date 1957) that were evaluated for historic significance. Based on the evaluation performed for this project, other than the 6th Street Viaduct no properties are eligible for listing in the NRHP. The viaduct was determined eligible for its association with the Los Angeles River bridge program and its extraordinary Streamline Moderne design using steel and reinforced concrete. Because the viaduct has been determined eligible for listing in the NRHP, it is also listed in the CRHR. It was also determined eligible as one of a thematic group of 118 "Historic Highway Arch and Other Bridges in California." In addition, the 6th Street Viaduct is designated as City of Los Angeles HCM #905.

Based on the City of Los Angeles Monumental Bridges, 1900-1950 study[108] commissioned by Caltrans in 2004, of the 45 bridges examined, 29 (including 6th Street Viaduct) appeared to be significant as City of Los Angeles monumental bridges; however, the study concluded that the bridges in Los Angeles that are significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the NRHP criteria.

During preparation of this Final EIR/EIS, the Los Angeles Community Redevelopment Agency (CRA/LA) submitted a letter dated July 28, 2010, to the Project Development Team (PDT) indicating that an historic site survey of the Adelante Eastside Redevelopment Area was completed in July 2010. The letter included a map of a proposed "Historic District – Anderson Street" showing one building classified as "contributor" to the proposed Anderson Street District located within the 6th Street Viaduct APE (Building No. 17 on Figure 3.4-2). This building was previously determined to not be eligible for the NRHP by Caltrans based on the 2007 HRER prepared for the 6th Street Viaduct Seismic Improvement Project.

In response to the CRA/LA letter, the PDT contacted CRA/LA staff to obtain detailed information about the survey and any planned local nomination/certification process for the proposed district. The CRA/LA provided an incomplete report entitled "Intensive Historic Resources Survey, Adelante Eastside Redevelopment Area, July 2008," and supporting California Department of Parks and Recreation (DPR) 523 forms related to the proposed Anderson District, in January 2011. This report contains a different map as provided in the original letter (dated July 2010); it identifies property Nos. 17 and 14 (see Figure 3.4-2) as individually eligible but not as a district contributor. Similar to Building No. 17, Building No. 14 was previously determined to not be eligible for the NRHP by Caltrans based on the 2007 HRER prepared for the 6th Street Viaduct Seismic Improvement Project.

A review of the report entitled "Intensive Historic Resources Survey, Adelante Eastside Redevelopment Area" and the Historic Property Survey Report (HPSR) for the 6th Street Viaduct Seismic Improvement Project led to the conclusion that the only historic property within the project area is the 6th Street Viaduct.

Project Impacts

The project impacts for each alternative are discussed in detail in Section 3.9.3 of this EIS/EIR and are summarized below.

[108] JRP Historic Consulting for Caltrans, "City of Los Angeles Monumental Bridges, 1900-1950," May 2004.

Alternative 1 – No Action

There would be no project impacts to historic resources within the APE under this alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. It is likely that the City would use the viaduct replacement design developed thus far for this emergency replacement. Impacts to cultural resources as a result of the new viaduct construction would be similar to Alternative 3 – Replacement.

Alternative 2 – Retrofit

- The project area has the potential for buried archaeological materials to be encountered during ground disturbance.
- Retrofitting would alter and/or destroy historic materials, features, and spatial relationships that characterize the viaduct, resulting in an adverse effect to a designated historic resource.

Alternative 3 – Replacement

- The project area has the potential for buried archaeological materials to be encountered during ground disturbance.
- Replacement of the 6th Street Viaduct would be an adverse effect.
- The viaduct would be removed from the City-wide inventory of historic bridges over the Los Angeles River.

Reasonably Foreseeable Actions

Several development projects and transportation improvement projects have been planned within the same locality as the proposed project, including the planned LARRMP Project, the Westside Subway Extension – Division 20 South Rail Yard Project, and the future High-Speed Rail Project, as presented in Section 3.26.4. Implementation of these projects and other major projects in the region, such as the SR-710 Gap Closure project, along with the proposed project, could cumulatively affect historic resources within the City of Los Angeles.

Several historic bridges have been identified and programmed for improvement by the LABOE Bridge Improvement Program as summarized in Table 3.26-1.

Cumulative Impacts

Alternative 1 – No Action

The No Action Alternative proposes no changes to the 6th Street Viaduct or the surrounding area as long as the viaduct remains serviceable; therefore, there would be no cumulative impacts to historic resources under this alternative scenario. If the viaduct was determined to be unserviceable due to ASR and/or earthquake damage, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance.

Under this circumstance, cumulative impacts pertaining to historic resources as a result of new viaduct construction cannot be determined since the timing is unknown and other projects contributing to historic resources cumulative effects might be different from those listed in Section 3.26.4 at the time of occurrence. In addition, it would be too speculative to assume that some or all historic buildings and historic bridges within the City of Los Angeles would or would not sustain the damage from the same seismic event as basis for cumulative effect analysis.

Alternative 2 – Retrofit

The following projects listed in Section 3.26.4 would likely have their APE overlap with the APE of the 6th Street Viaduct Project: the planned LARRMP Project, the Westside Subway Extension – Division 20 South Rail Yard Project, and the future High-Speed Rail Project. There is the potential that these projects would affect archaeological and historical resources within the overlapping APEs as part of the construction activities. Since the 6th Street Viaduct retrofit alternative would not result in the loss of any archaeological and historical resources within its APE, there would be no cumulative impacts as a result of the implementation of these projects together with the 6th Street Viaduct.

There are several bridges currently on the improvement list of the LABOE Bridge Improvement Program, as shown in Table 3.26-1. Impacts to archaeological resources near individual bridges are limited to the project construction areas; however, improvements to bridges programwide, combined with other known projects within the vicinity of Downtown Los Angeles, could result in cumulative effects to archaeological resources.

The 6th Street Viaduct was determined eligible for listing in the NRHP and CRHR on an individual basis. Since there is no historic district associated with the Los Angeles Monumental Bridges, implementation of Alternative 2 would not affect any historic district on a cumulative basis. The 6th Street Viaduct was also determined eligible as one of a thematic group of 118 “Historic Highway Arch and Other Bridges in California.” Implementation of Alternative 2 would not result in the loss of the 6th Street Viaduct; therefore, it would not likely affect the thematic group’s eligibility.

Implementation of Alternative 2 would not result in the removal of the 6th Street Viaduct from the group of HCM-designated bridges; therefore, no cumulative effects on HCM-designated bridges within the City would occur.

Alternative 3 – Replacement

The following projects listed in Section 3.26.4 would likely have their APE overlap with the APE of the 6th Street Viaduct Seismic Improvement Project: the planned LARRMP Project, the Westside Subway Extension – Division 20 South Rail Yard Project, and the future High-Speed Rail Project. There is the potential that these related projects would affect archaeological and historical resources within the overlapping APEs as part of the construction activities. Since the implementation of the Replacement Alternative would not result in the loss of the archaeological resources within its APE, the Replacement Alternative would not contribute to cumulative impacts on archaeological resources when implemented together with other related projects. Implementation of the Replacement Alternative would result in the loss of the historic 6th Street Viaduct.

Implementation of the Westside Subway Extension – Division 20 South Rail Yard Project would not result in the loss of any historic property. However, no information about the effects to historic properties from the planned LARRMP Project and the future High-Speed Rail Project are known at this time. Therefore, no cumulative impacts on historic resources can be determined.

The 6th Street Viaduct was determined eligible for listing in the NRHP and CRHR on an individual basis. Since there is no historic district associated with the Los Angeles Monumental Bridges, implementation of Alternative 3 would result in destruction of the 6th Street Viaduct, but it would not affect any historic district on a cumulative basis. The 6th Street Viaduct was also determined eligible as one of a thematic group of 118 “Historic Highway Arch and Other Bridges in California.” Implementation of Alternative 3 would result in destruction of the 6th Street Viaduct, but it would not likely affect the thematic group’s eligibility.

The 6th Street Viaduct is also designated City of Los Angeles HCM #905, as one of 11 historic Los Angeles River bridges (HCM #900 – #910). An article by Ken Bernstein, Office of Historic Resources (OHR) Manager, on the OHR Web site, notes that on January 30, 2008, the Los Angeles City Council approved designation of these Los Angeles River bridges as HCMs. Built between 1909-1944, most of these bridges were constructed by the LABOE, under the bridge building program of Merrill Butler, Engineer of Bridges and Structures from 1923-1963.[109] The themes that these monumental river bridges convey, according to an OHR staff presentation to the Cultural Heritage Commission in September 2007, include the City Beautiful Movement, relation to the City Municipal Art Commission (predecessor to the Cultural Affairs Commission), and engineering and technical innovations; furthermore, the 6th Street Viaduct is transitionally important in that it established the streamline moderne/art deco design principles of other Works Progress Administration (WPA) bridges (e.g., Riverside-Zoo Drive Bridge-HCM #910) beginning in the mid 1930s.[110]

[109] http://www.preservation.lacity.org/node/403, accessed on May 6, 2010.

[110] Edgar Garcia, Los Angeles River Bridges Staff Presentation, September 2007; accessed May 7, 2010, at http://www.preservation.lacity.org/node/403.

Among the 11 historic Los Angeles River bridges, six are on the list for proposed improvements under the BIP, including 1st Street Viaduct (HCM#909), Main Street Bridge (HCM#901), Riverside Bridge at Figueroa Street (HCM#908), North Spring Street (HCM#900), Riverside-Zoo Drive Bridge (HCM#910), and 6th Street Viaduct (HCM#905). Alteration by widening or retrofit of some of these bridges or replacement of others, namely Riverside Bridge at Figueroa Street and 6th Street Viaduct, even with mitigation measures, could adversely affect the thematic context of these monumental river bridges. Specifically, the 6th Street Viaduct, with its unique dual steel through-arch design, transitional moderne/art deco design, and by virtue of being the largest of the Los Angeles River bridges built near the end of that era, certainly contributes strongly to these themes, and its removal would impact the City's HCM bridges on a cumulative basis.

Avoidance, Minimization, or Mitigation Measures

To minimize cumulative impacts to cultural resources, the City would implement mitigation measures stipulated in the Section 106 Memorandum of Agreement (MOA) for the proposed project in cooperation with the SHPO and Caltrans, as outlined in Section 3.9.4 of this EIR/EIS.

3.26.6.6 Air Quality

Resource Study Area

The resource study area for cumulative impact analysis pertaining to air quality includes the area within the South Coast Air Basin (SCAB).

Health and Historical Context

The 6th Street Viaduct is located in Los Angeles, within the SCAB. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over air quality issues within the SCAB. While the SCAB has some of the most unhealthy air quality in the nation, air quality within the basin continues to show improvement. Ambient air quality near the closest monitoring station to the project site is described in Section 3.15.2 of this EIR/EIS.

Project Impacts

The project impacts for each alternative are discussed in detail in Section 3.15.3 of this EIS/EIR and are summarized below.

Alternative 1 – No Action

There would be no project impacts to air quality under this alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. Impacts to air quality as a result of the new viaduct construction would be similar to Alternative 3 – Replacement.

Alternative 2 – Retrofit

The air quality analysis projected emissions for the worst-case day (i.e., viaduct closed with highest number of equipment up on running). Under this condition, which may not occur under Alternative 2 over a prolonged period of time, the regional emissions of nitrogen oxides (NO_X) would exceed the daily significance threshold set forth by SCAQMD.

Alternative 3 – Replacement

The air quality analysis projected emissions for the worst-case day (i.e., viaduct closed with highest number of equipment running). Under this condition, the regional emissions of NO_X would exceed the daily significance threshold set forth by SCAQMD.

<u>Reasonably Foreseeable Actions</u>

As presented in Section 3.26.4, some development projects and transportation improvement projects are planned to be constructed within the same locality as the proposed project and during a similar timeframe, such as the Westside Subway Extension – Division 20 South Rail Yard Project and the Boyle Heights Mixed-Use Project. Construction of these related projects, along with the proposed project, concurrently could cumulatively affect air quality during construction.

<u>Cumulative Impacts</u>

Alternative 1 – No Action

There would be no cumulative impacts to air quality under this alternative as long as the viaduct remains in service. If the viaduct was determined to be unserviceable, the City would seek emergency funding sources to replace it. In this scenario, the City would replace the viaduct under any circumstance. Cumulative impacts on air quality would be similar to Alternative 3 – Replacement. However, a conformity determination cannot be made due to the uncertainty of the timing of such an event.

Alternative 2 – Retrofit

Cumulative air pollutant emissions could occur if several projects in the vicinity of the viaduct project are under construction at the same time. Air pollutant emissions from construction equipment operations, construction materials delivery, debris disposal, and worker commutes would additively impact the air quality of the locality, which is part of the SCAB. For instance, the overall criteria pollutant emissions, including CO, ROG, NO_X, SO_X, and PM_{10}, could exceed the threshold levels established by SCAQMD. Extended exposure to air pollutants above the threshold levels could result in some adverse health effects on area residents.

The cumulative effects on air quality from Alternative 2 would occur during the 2.5-year construction period. The mitigation measures described under Section 3.15.4 would minimize the contribution of construction-related emissions from the proposed project.

Alternative 3 – Replacement

The cumulative effects on air quality from the proposed project would be similar to Alternative 2, but they would occur over a 4-year period. The mitigation measures described under Section 3.15.4 would minimize the contribution of construction-related emissions from the proposed project.

Implementation of Alternative 3 would not increase traffic capacity; therefore, no cumulative impacts as a result of project operation would occur. As stated in Section 3.15.3.1, the proposed project is included in the 2008 RTIP and is consistent with the 2008 Regional Transportation Plan (RTP) policies, programs, and projects. The proposed project is in conformity with the AQMP, as described in Section 3.15.3.1. The proposed project is not anticipated to cumulatively impact the air quality of the region because it was included in the regional impact analyses and the RTP.

Avoidance, Minimization, or Mitigation Measures

To minimize air quality cumulative impacts, the City would require the contractors to strictly adhere to the requirements of existing rules and regulations set forth by SCAQMD, as outlined in Section 3.15.4 of this EIR/EIS.

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Chapter 4
California Environmental Quality Act Evaluation

Chapter 4 California Environmental Quality Act Evaluation

4.1 Determining Significance under CEQA

The proposed project is subject to federal, as well as City of Los Angeles (City) and state environmental review requirements because the City proposes the use of federal funds and the project requires a federal approval action. Project documentation, therefore, has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The City is the project proponent and the lead agency under CEQA. Federal Highway Administration's (FHWA) responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this proposed project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

One of the primary differences between NEPA and CEQA is the way that significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS), or some lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the City to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report (EIR) must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list mandatory findings of significance that also require the preparation of an EIR. There are no types of actions under NEPA that parallel the mandatory findings of significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

4.2 Resources Considered Not Relevant or Resulting in No Impacts

Section 3.1.3 of this EIR/EIS lists Farmland, Coastal Zone, and Wild & Scenic River, as a resource that is considered not relevant to this proposed project. The resources determined to have no impacts from project implementation, as listed in Section 3.1.4 is Growth.

Implementation of Alternative 1 – No Action would result in no impacts to any of the environmental resources under consideration as long as the viaduct remains in service; however, the Alkali Silica Reaction (ASR) causing the concrete to decompose throughout the 6th Street Viaduct would continue, resulting in further deterioration of the structure. If the viaduct may be determined to be unserviceable due to advanced ASR deterioration or a major seismic event in the future, which cannot be predicted, the City would take the viaduct out of service and seek emergency funding sources to replace it. It is estimated that the time to identify funding, complete design, acquire right-of-way, and construct a new viaduct would range between 5 and 7 years from the time it was placed out-of-service. During this time, all traffic would be temporarily detoured in a manner similar to that described for Alternative 3.

The analysis in this CEQA chapter assumes the Viaduct would remain in service under the No Action Alternative. Also, a catastrophic failure of the viaduct was not considered because it is too speculative for analysis in accordance with CEQA.

4.3 Less than Significant Effects of the Proposed Project

This section summarizes the resources that would have a less than significant impact from implementation of each project alternative. More-detailed analysis can be found in the respective sections within Chapter 3 of this document.

4.3.1 Alternative 2 – Retrofit

Traffic and Transportation/Pedestrian Facility

Alternative 2 would cause traffic disruption, sidewalk blockage, and parking space obstruction during the 2.5-year construction period. Any such effects would be highly localized, temporary, and of short duration. Implementation of a mandatory Work Area Traffic Control Plan (WATCP), outlined in the Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook, adopted by the City, would minimize this effect to a less than significant level.

Emergency Service

During the construction period, delays in emergency response time could occur due to roadway obstructions and partial closures. Implementation of the WATCP would minimize this effect to a less than significant level.

Hydrology and Floodplains

The stormwater collection design of the existing viaduct results in excessive runoff concentration during a major storm event causing clogging at the inlets located at Mateo Street. Under Alternative 2, the excessive runoff from the viaduct during major storm events would continue to occur. Impacts to existing storm drain system under this circumstance would be less than significant.

Based on the preliminary design information, no retrofit would be constructed on the center pier; therefore, the hydraulic conditions after the retrofit would be the same as existing. Impacts to the floodplain would be considered less than significant.

Water Quality

Stormwater runoff from the construction site could contain erosion-related pollutants. A Stormwater Pollution Prevention Plan (SWPPP) and Monitoring Program would be prepared and implemented prior to and during construction activities to minimize water quality impacts. Special stormwater best management practices (BMPs) would also be installed and implemented to minimize debris deposition into the river.

Since there would be no permanent treatment BMP devices installed with this alternative, all stormwater runoff from the viaduct would be directly discharged to the river without being treated, similar to the existing condition. The impact is considered less than significant.

Noise and Vibration

Construction Impacts

Noise impacts from Alternative 2 construction activities would be confined to a relatively narrow corridor extending along both sides of the roadway and corresponding to the construction sequence. Noise levels from construction activities at the nearest residences to the construction site are predicted to be well below the City’s limit of 75 A-weighted decibels (dBA). Minimal construction noise impacts are expected to occur.

During the construction period, the highest vibration levels would be caused by the impact pile driver, which would be operational during substructure construction. Buildings located adjacent to the pile driving location could temporarily experience the vibration effect. Since no fragile buildings or historic buildings are located within 50 ft of the proposed construction site, no significant impacts from construction vibration to adjacent buildings are expected to occur.

Permanent Impacts

No permanent impact would occur after the construction is complete since traffic volumes would not increase as a result of the retrofit.

Energy

Construction of the Retrofit Alternative would require one-time energy consumption to manufacture building materials for viaduct retrofit. This is required to improve public safety, and the energy consumption would not cause a substantial depletion in the supplies of nonrenewable energy resources. The impact is considered less than significant.

Biological Resources

The concrete-lined Los Angeles River is the only watercourse within the BSA, which is located in the Upper Los Angeles River Reach 3. No riparian vegetation or wetlands are present within the Los Angeles River segment within the BSA of the proposed project based on the field surveys conducted by the biologists in 2007 and 2010. Alternative 2 would not involve retrofit or removal of the center pier in the river. Work within the Los Angeles River channel would be minimal. The impact to biological resources within the Los Angeles River within the BSA is considered less than significant. Once the construction is complete, there would be no permanent impacts to the Los Angeles River.

No other biological resources exist within the viaduct footprint where construction activities would occur, and no mature trees would be removed; hence, no adverse impacts to wildlife or plant species are anticipated. Although no cliff swallows or roosting bats were apparent underneath the 6th Street Viaduct during the survey, they may establish new nests or roosts under the viaduct deck at any time. A preconstruction survey would be conducted to confirm the absence or presence of any nesting birds or roosting bats. Steps would be taken to remove any existing nests and/or roosts and to prevent the establishment of new nests or roosts prior to the beginning of the nesting season.

4.3.2 Alternative 3 – Replacement

Utilities

Alternative 3 could result in temporary impacts to utilities, such as an increase in utility demand and solid waste volume. Construction of Alternative 3 would cause temporary and permanent relocation of underground and overhead utility lines, such as sewer pipes and storm drain lines.

Working in close coordination with the utility providers prior to the commencement of construction to develop a relocation plan would minimize impacts to service utilities.

Construction of Alternative 3 would result in potential periodic short- and extended-term shutdown of some railroad tracks on each side of the Los Angeles River to construct the new viaduct. Written construction agreements would be entered into with the railroad companies. Close coordination with the railroads' owners to work on the railroad during periods when specific tracks are not in active use and to avoid track closures to the extent feasible would minimize the impacts to railroad operations.

The impact to utilities is considered less than significant.

Hydrology and Floodplains

The new viaduct structure would be designed to adequately collect and route stormwater runoff on the viaduct to a stormwater treatment system prior to discharging to the river. As discussed in Section 3.10.4, only one out of six bridge concepts (Concept 1) would have a negative impact on the floodway as a result of the center river pier being larger than existing. If this bridge concept is selected for construction, the impact would be considered significant. None of the other bridge concepts would have a significantly larger center river pier than existing. No impacts to floodplain and flood flow would occur from these bridge concepts.

Water Quality

Stormwater runoff from the construction site could contain erosion-related pollutants. A SWPPP and monitoring program would be prepared and implemented prior to and during construction to minimize water quality impacts. Special BMPs would also be installed and implemented to minimize debris deposition into the river.

Geology/Soil/Seismicity

Alternative 3 would replace the existing severely deteriorated viaduct with a new viaduct that is designed to meet current seismic safety standards required by Caltrans.

Noise

Similar to Alternative 2 described above, but the impacts would occur for a longer period of time.

Energy

Construction of the Replacement Alternative would require one-time energy consumption to construct the new viaduct. Consumption of energy resources is required to improve public safety and would not cause a substantial depletion in the supplies of nonrenewable energy resources.

The impact is considered less than significant. The new viaduct would also have additional lighting features that would consume electrical power during operation. The electrical power required for this new lighting would be provided by LADWP, and the energy consumption would not cause a substantial depletion in the supplies of nonrenewable resources.

Biological Resources

Alternative 3 would result in temporary impacts to approximately 1.5 acres of Waters of the U.S., as shown in Figure 3.19-2. Temporary impacts include physical impacts from construction activities, including bridge improvement and water diversion activities.

As part of the new viaduct construction, the existing center pier would be removed. A summary of the permanent direct impacts, resulting from the fill associated with the center pier of the viaduct, is provided in Table 3.19-1 and graphically shown in Figure 3.19-2. Most bridge concepts would have no or negligible net impact to the Los Angeles River waterway (i.e., they avoid placement of fill in the U.S. waters) except for Concept 1, which would result in an additional impact. Concept 4 has been identified as the preferred alternative, and it would not place additional fill in U.S. waters. The Los Angeles River in this area is concrete-lined channel, so there would be no soft bottom habitat impact. Because no natural conditions or native vegetation types are present in this portion of the channel or in the immediate vicinity, it does not provide suitable habitat for any special-status plant or wildlife species. The site also does not contain any federally designated critical habitat areas. Due to the extremely limited biological value of the concrete-lined waterway, the minimal amount of fill is not expected to degrade any local species habitats or other biological resources, and the impact would be considered less than significant.

Ornamental trees within the biological survey area have a limited potential to support nesting birds that are protected by the Migratory Bird Treaty Act. A preconstruction survey would be conducted to identify any mature trees subject to removal prior to the commencement of construction activities. Measures for protection of potential cliff swallows and roosting bats would be similar to Alternative 2 described above.

4.4 Significant Environmental Effects of the Proposed Project

This section summarizes the environmental resources that are determined to be significantly affected by implementation of the proposed project, as outlined in Chapter 3 of this document. Note that with mitigation incorporated, some of these significant environmental effects could be minimized to a less-than-significant level.

4.4.1 Alternative 2 – Retrofit

Land Use

Alternative 2 would not have any conflict with applicable land use plans and policies and would not require modification of land use and zoning designations; however, Alternative 2 would not provide the City with an opportunity to implement the 2010 Bicycle Plan along 6th Street over the 6th Street Viaduct because it does not have sufficient width for shoulders that can accommodate bicycles. Bicyclists who wish to cross the 6th Street Viaduct would have to continue using the outside traffic lanes and sidewalks at their own risk. The impact on land use and zoning is considered less than significant; however, the inconsistency with the 2010 Bicycle Plan would cause a significant impact to bicyclists who want to use the 6th Street Viaduct to travel between Boyle Heights and Downtown Los Angeles.

Community Impacts

Construction of Alternative 2 has the potential to cause local roadway blockage and business disruption. The City of Los Angeles Maintenance Facility and former Ventura Food, Inc. located within the viaduct footprint would have to be relocated. The impact is considered significant.

Utilities

Alternative 2 could result in temporary impacts to utilities, such as an increase in utility demand and solid waste volume. Construction of Alternative 2 would involve foundation work, which would require either temporary or permanent relocation of many underground utility lines, such as sewer pipes and storm drain lines. Working in close coordination with the utility providers to develop a utility relocation plan prior to the commencement of construction would minimize impacts.

Construction of Alternative 2 would result in potential periodic short- and extended-term shutdown of some railroad tracks on each side of the Los Angeles River to modify existing bent columns and foundations, and to add shear walls. Written construction agreements would need to be entered into with the railroad companies. Close coordination with the railroads' owners to allow work during periods when specific tracks are not in active use and to avoid track closures to the extent feasible would minimize the impacts to railroad operations.

Implementation of Alternative 2 would further reduce horizontal clearance between the center of the existing tracks and the retrofitted columns to approximately 8 ft, which is less than the current standard of 8.5 ft, as required by BNSF, and 10 ft, as required by Metrolink. The impact is significant and unavoidable.

Visual/Aesthetics

Alternative 2 would encase most of the existing columns with heavy steel casing covered by architectural mortar to recreate the historic column shape, resulting in a more massive column configuration. In addition, construction of sheer walls between many of the columns would limit many of the views under the viaduct. View restriction under the viaduct deck could affect the activities that benefit from the present views under the viaduct, such as filming. The improvement would not likely change the overall visual quality of any of the associated landscape units. The impact as a result of view blockage from the sheer walls construction is considered significant.

Cultural Resources

During the construction period, potential impacts to the historic-era archaeological site (no. 19-003683) would be mitigated to a level of less-than-significant through the establishment of an Environmentally Sensitive Area (ESA) Action Plan. The ESA would be fenced off from construction activities and require monitoring of ground-disturbing activities by a qualified archaeologist and Native American monitor, and the Action Plan would require training of construction workers. There is also the potential to encounter archaeological materials during ground disturbance. Monitoring during ground-disturbing activities by a qualified archaeologist and a Native American monitor would mitigate potential impacts to buried cultural resources to a level of less than significant.

Alternative 2 would alter and/or destroy many of the historic elements, features, and spatial relationships that characterize the viaduct. Implementation of Alternative 2 would result in a significant impact on the 6th Street Viaduct because it would materially alter in an adverse manner those physical characteristics of the historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources (CRHR) and its listing as a Los Angeles Historic-Cultural Monument (HCM).

Geology/Soil/Seismicity

Alternative 2 would only prevent collapse under a design seismic event. Due to railroad access restrictions, Bent 12 would not be retrofitted. Although the retrofitted viaduct would not collapse in a major earthquake, the likely damage would require its replacement. Furthermore, the design life expectancy with this alternative is only about 30 years, until the ASR would overtake the structure, requiring its replacement. The impact is considered significant.

Paleontology

No previously recorded paleontological sites have been found in the study area, however sites have been found nearby in the formations that occur within the study area. As a result these formations are considered as having high potential for containing scientifically important fossil remains. Therefore, a qualified paleontological monitor, under the direction of a qualified Principal Paleontologist, would be present at the site during excavation. The impact is considered less than significant with mitigation.

Hazardous Waste/Materials

A preliminary site investigation conducted along the viaduct corridor detected petroleum hydrocarbon at several soil samples and volatile organic compounds (VOCs) at many groundwater samples, and soils near US 101 may contain aerially deposited lead (ADL) generated by historic motor vehicle exhaust. In addition, the viaduct and appurtenances also contain asbestos-containing materials (ACMs) and lead-based paint (LBP) coatings; these materials could be released into the air during construction. The impact is considered significant, but it can be minimized to a less-than-significant level with mitigation measures.

Air Quality

Construction Impacts

Construction impacts on air quality are analyzed in Section 3.15.3.3. The analysis was performed based on the worst-case day, which is represented by Alternative 3. Under the worst-case day of the construction period (i.e., viaduct closed, traffic detour in effect), the regional emissions of nitrogen oxides (NO_X) would exceed the daily significance threshold set forth by the South Coast Air Quality Management District (SCAQMD). Even with the mitigation measures, the level of NO_X would still exceed the thresholds (see Section 4.5.1); therefore, the impact to air quality during intense construction periods is considered significant.

Operational Impacts

Permanent impacts on air quality under NEPA are determined by comparing the project-related emissions level to the No Action baseline condition; however, under CEQA, the impacts to air quality consider the changes in pollutant emission levels between the baseline year (2007), post-operation years including opening year (2018) [SCAQMD requirement], and horizon year (2038) with and without project conditions. Since the proposed project is neither a new facility, nor does it include additional traffic lanes, no capacity enhancement or change in traffic pattern is anticipated. As such, the future (post-construction) project traffic volumes and associated air pollutant emissions would be based on the ambient growth rate; the no action and proposed project traffic and associated emissions would be the same, therefore no significant impacts from implementation of the project are expected to occur.

Cumulative Impacts

Cumulative impacts are defined by CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Such effects may be changes resulting from a single project or many separate projects. Based on the cumulative impact analysis presented in Section 3.26 of this EIR/EIS, the following resources would have a considerable level of impacts when combined with impacts from other known related projects: land use and planning, community disruption, traffic and circulation, visual and aesthetics, cultural resources, and air quality during construction.

Mandatory Findings of Significance

The project site is currently developed and devoid of significant fish, wildlife, and/or plant populations. Construction activities would not degrade or have adverse impacts on the natural environment. Alternative 2 would alter and/or destroy historic materials, features, and spatial relationships that characterize the viaduct. Implementation of Alternative 2 would result in an adverse effect under Criterion *ii* of the Secretary of the Interior's *Standards for the Treatment of Historic Buildings.* The impacts of Alternative 2 on the viaduct are considered adverse and potentially significant under CEQA.

4.4.2 Alternative 3 – Replacement

Land Use

Alternative 3 would require some land acquisition, which would result in a loss of several industrial buildings and relocation of up to 11 businesses situated adjacent to the viaduct. The Relocation Impact Report confirmed there is adequate industrially zoned land available to relocate the 11 businesses. However, the loss of industrial and commercial uses would be inconsistent with the City of Los Angeles Industrial Land Use Policy and the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. The impact is considered significant.

Community

Temporary roadway blockage and business disruption is expected to occur throughout the 4-year construction period. Construction of the proposed project would require closure of the viaduct during the construction period, resulting in traffic detours and delay along the street network on both sides of the Los Angeles River. This impact would be borne almost exclusively by local area residents and businesses. The impact is considered significant.

Traffic and Transportation/Pedestrian Facility

Construction of Alternative 3 would require full closure of the 6th Street Viaduct for up to 4 years, resulting in traffic detours along the street network east and west of the river. Based on the results of the traffic analysis, up to 13 out of 31 intersections under study would be adversely impacted. Pedestrian circulation blockage and the loss of some 50 public parking spaces around the viaduct would also occur during the construction phase. The impact is considered significant.

Emergency Services

During the proposed project's 4-year construction period, delays in emergency response time could occur due to closure of the 6th Street Viaduct and related traffic congestion at intersections along the detour routes. The City would implement a mandatory WATCP and closely coordinate with emergency service providers to ensure that the construction schedule and traffic detour information are available to relevant parties in advance. With mitigation, the impact is not significant

Visual/Aesthetics

Replacement of the viaduct and the loss of this historic resource would change the visual character of the landmark. The various bridge replacement concepts would be expected to alter the existing views to varying degrees. The most notable visual impact would result from the replacement of the historic structure with a new structure of modern bridge design; however, each of the designs considered would maintain the visual qualities (i.e., vividness, memorability, unity, and intactness) experienced by viewers of the landmark. The impact is considered significant.

Cultural Resources

During the construction period, potential impacts to the historic-era archaeological site (no. 19-003683) would be mitigated to a level of less than significant through the establishment of an ESA Action Plan, which would require fencing the area off from construction activities, monitoring of ground-disturbing activities by a qualified archaeologist and Native American monitor, and training construction workers. There is also the potential to encounter archaeological materials during ground disturbance. Monitoring during ground-disturbing activities by a qualified archaeologist and a Native American monitor would mitigate potential impacts to buried cultural resources to a level of less than significant.

Alternative 3 would destroy the historic elements, features, and spatial relationships that characterize the viaduct as an individual resource eligible for listing in the CRHR. Implementation of Alternative 3 would result in a significant impact because it would demolish those physical characteristics of the historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR (CEQA Guidelines, Section 15064.5(b)(2)(A)), and as a designated City of Los Angeles HCM (#905).

During preparation of this Final EIR/EIS, the Los Angeles Community Redevelopment Agency (CRA/LA) submitted a letter dated July 28, 2010, to the Project Development Team (PDT) indicating that an historic site survey of the Adelante Eastside Redevelopment Area was completed in July 2010. The letter included a map of a proposed “Historic District – Anderson Street” showing one building classified as “contributor” to the proposed Anderson Street District located within the 6th Street Viaduct APE (Building No. 17 on Figure 3.4-2). This building had been determined to be not eligible for the NRHP by Caltrans based on the 2007 HRER prepared for the 6th Street Viaduct Seismic Improvement Project. As described in Section 3.9 of this EIR/EIS, review of the report entitled “Intensive Historic Resources Survey, Adelante Eastside Redevelopment Area” and the HPSR for the 6th Street Viaduct Seismic Improvement Project lead to the conclusion that the only historic property within the project area is the 6th Street viaduct.

Hydrology and Floodplains

As discussed in Section 3.10.3, only one out of six bridge concepts (Concept 1) would have a negative impact to the floodway as a result of the center river pier being larger than existing. If this bridge concept is selected for construction, the impact would be considered significant. None of the other bridge concepts would have a notably larger center river pier than existing. No impacts to floodplains and flood flow would occur from these bridge concepts.

Paleontology

Similar to Alternative 2 described above.

Hazardous Waste/Materials

A preliminary site investigation conducted along the viaduct corridor detected petroleum hydrocarbon in several soil samples and volatile organic compounds (VOCs) in many groundwater samples, and it was determined that soils near US 101 may contain ADL generated by historic motor vehicle exhaust. In addition, the viaduct and appurtenances also contain ACMs and LBP coatings. The buildings to be demolished could contain ACMs. The impact from the release of these materials during demolition is considered significant, but it can be minimized to a less-than-significant level with mitigation measures.

Air Quality

Construction Impacts

Construction impacts are analyzed in Section 3.15.3.4. Under the worst-case day of the construction period (i.e., viaduct closed, traffic detour in effect), the regional emissions of nitrogen oxides (NO_X) would exceed the daily significance threshold set forth by the SCAQMD (see Table 3.15-7). Even with the mitigation measures, the level of NO_X would still exceed the thresholds (see Section 4.5.2); therefore, the impact to air quality during intense construction periods would be significant.

Local impacts of combined construction and detour traffic emissions of the criteria pollutants were analyzed (Section 3.15.3.4). Table 3.15-13 presents the modeling results for years 1 and 3 of construction, which represent the worst-case construction emissions. As shown in Table 3.15-13, the potential increase in $PM_{2.5}$ emissions and the estimated potential NO_2 concentrations, when added to background ambient concentrations, would not violate the respective air quality standards at any of the sensitive receptor locations. As such, localized impacts during construction with respect to these pollutant concentrations would not exceed CEQA thresholds.

The projected potential impacts represent worst-case conditions during demolition and site preparation, when earthwork activities occur close to the nearest residential units. The impacts would be reduced as these activities conclude near the northeast site boundary and move farther from the residential receptors. Table 3.15-13 also indicates that maximum PM_{10} concentrations could reach a level of 11.2 $\mu g/m^3$ at the nearest residence located north of the project site during the peak concurrent demolition/construction activities of year 1 (month 6). This increased concentration level would exceed the SCAQMD threshold, but the impacts could be minimized by applying mitigation measures presented in Section 3.15.4 of this EIS/EIR.

Construction of Alternative 3 would require closure of the roadway and viaduct between Mateo Street and the US 101 NB on-ramp during the 4-year period of construction. The detoured daily traffic would be diverted to nearby local roadways within the project area. This would result in a change of traffic patterns and the associated mobile source emissions in the area during the construction years.

Operational Impacts

For the post-construction operational years, including horizon year 2038, the traffic patterns on the replaced viaduct would be the same as with the No Action Alternative because there would be no additional traffic lanes; therefore, no changes in the LOS or posted speed are expected as a result of implementation of the project. The future project traffic volumes and associated air pollutant emissions would be based only on ambient growth. Consequently, the pollutant emissions from the no-build and build scenarios would be the same; therefore, no impacts from the project are anticipated. The following subsections present the analysis results of various air quality impact categories.

Regional Operational Impact

For each study scenario, the peak-hour VMT data and projected average speeds within the project study area were derived in the project's traffic study. Emission factors for average travel speeds were obtained using the EMFAC2007 model. Table 4-1 summarizes the results of the project's operational emissions analysis for the opening year (2018) and horizon year (2038).

Table 4-1
Summary of Replacement Alternative Operational Regional Emissions (lbs/day)

Scenario/Alternative	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Year 2007 – CEQA Baseline	1,600.4	69.7	455.8	1.9	142.9	34.4
Year 2018 – Opening Year	757.8	27.3	207.0	2.1	155.5	34.4
Net Change from 2007 CEQA Baseline	-842.7	-42.5	-248.8	0.2	12.6	0.3
SCAQMD Significance Threshold	550	55	55	150	150	55
Exceed Threshold?	No	No	No	No	No	No
Year 2038 – Horizon Year	453.8	17.0	100.8	2.6	189.7	40.5
Net Change from 2007 CEQA Baseline	-1,147	-53	-355	0.7	46.9	6.3
Exceed Threshold?	No	No	No	No	No	No

Notes:
1. Emissions are calculated using emission factors from EMFAC2007, at the projected average speed, and VMT of each roadway segment within the study area (from Traffic Analysis Report).
2. VMT, average speed data an the calculation worksheets are provided in the Air Quality Technical Report

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Updated 2011.

The data in Table 4-1 shows that during the detour years (represented by year 2018, which constitutes the worst-case traffic during detour years), the regional emission level of all pollutants would be less than the existing or base-year of 2007, except SO_2, which shows a slight increase of the base year emission level. The projected emissions reduction is due to the compliance with the existing, and newly adopted, regulations for mobile source control measures. These include use of alternative or reformulated fuels, use of retrofit controls on engines, and installing or encouraging the use of new engines and cleaner in-use heavy-duty vehicles. Similar results are shown for year 2038, with the exception of PM_{10} and $PM_{2.5}$ emissions, which show an increase of 47 and 6 pounds per day, respectively, compared with the 2007 emissions level. The increase in SO_2 emissions in 2018 and 2038 and the increase in PM_{10} and $PM_{2.5}$ emissions in 2038, attributable to the proposed project's build alternatives, are well below the CEQA operational thresholds of 150 pounds per day (SO_2 and PM_{10}) and 55 pounds per day ($PM_{2.5}$); therefore, regional operational emissions would be less than significant pursuant to CEQA.

Detour Traffic Local Operation Impact

The local construction emissions of criteria pollutants from the traffic along the detour route during the detour years were calculated and incorporated in the analysis. To complement the above analysis, the post-construction daily indirect construction emissions of $PM_{2.5}$ and PM_{10} along the studied local roadways were estimated for opening and horizon years to provide comparison with the year 2007.

Table 4-2 presents the estimated PM_{10} and $PM_{2.5}$ daily emissions attributable to total vehicular traffic on the adjacent roadways. These projected values are based on estimates of $PM_{2.5}$ and PM_{10} emissions from tailpipe, break wear, and tire wear sources. The projected daily emissions show that, although the traffic volumes increase compared to base year 2007, the particulate emission levels show a relatively small increase in future years compared to the 2007 level. This is mainly due to including re-entrained road dust in calculations. The increases are well below the NEPA-based threshold of 100 tons per year (established under 40 CFR 93.153, required for conformity finding), as well as the CEQA-based threshold established by SCAQMD.

Table 4-2
Estimate of PM_{10} and $PM_{2.5}$ along Local Roadways during Post-Construction Years (Opening and Horizon Years)

Local Roadway	PM_{10} Emission (lbs/day)					$PM_{2.5}$ Emission (lbs/day)				
	2007 CEQA Base	2018 Opening Year	2038 Horizon Year	Increment		2007 CEQA Base	2018 Opening Year	2038 Horizon Year	Increment	
				2014	2035				2018	2038
6th Street - Soto Street to Central Avenue	17.0	17.6	21.5	0.6	4.5	4.1	3.9	4.6	-0.2	0.5
1st Street - Soto Street to Central Avenue	21.1	22.7	27.7	0.6	6.5	5.0	5.0	5.9	0.0	0.9
4th Street - Soto Street to Central Avenue	34.6	41.5	50.7	6.9	16.1	8.2	9.2	10.8	1.0	2.6
7th Street - Soto Street to Central Avenue	14.6	15.3	18.6	1.3	4.0	3.5	3.4	4.0	-0.1	0.5
Central Avenue - 1st Street to 7th Street	7.0	7.3	8.9	0.3	1.9	1.7	1.6	1.9	-0.1	0.2
Alameda Street - 1st Street to 7th Street	15.3	16.2	19.8	0.9	4.5	3.6	3.6	4.2	0.0	0.6

Table 4-2
Estimate of PM_{10} and $PM_{2.5}$ along Local Roadways during Post-Construction Years (Opening and Horizon Years)

Local Roadway	PM_{10} Emission (lbs/day)					$PM_{2.5}$ Emission (lbs/day)				
	2007 CEQA Base	2018 Opening Year	2038 Horizon Year	Increment		2007 CEQA Base	2018 Opening Year	2038 Horizon Year	Increment	
				2014	2035				2018	2038
Mateo Street - 6th Street to 7th Street	0.7	0.7	0.9	0.0	0.2	0.2	0.2	0.2	0.0	0.0
Santa Fe Avenue - 6th Street/ Frontage Road to 7th Street	1.4	1.4	1.7	0.0	0.3	0.3	0.3	0.4	0.0	0.1
Boyle Avenue - 1st Street to 7th Street	8.6	9.0	10.9	0.4	2.3	2.1	2.0	2.3	-0.1	0.2
Soto Street - 1st Street to 7th Street	22.6	23.7	29.0	1.1	6.2	5.4	5.2	6.2	-0.2	0.8

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, Updated 2011

Mobile Source Toxic Air Contaminants

Control of TACs is required by both federal and state regulations. The SCAQMD currently provides rules and policies that are oriented for analyzing TACs from land use projects. The following analysis provides an assessment of project operational emissions of MSATs for comparison with the CEQA baseline (year 2007) and the indirect construction emissions during the detour years. The analysis was conducted using the projected traffic data, including local roadway traffic volumes and VMT, vehicle mix, traffic diversion data, average speed, and the associated changes in MSATs for the project alternatives.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of many EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

In California, MATES-II and MATES-III studies included monitoring of more than 30 toxic air pollutants and an effort to estimate cancer risk from exposure to DPMs. The study identified particulate emissions, which were attributed mostly to diesel engines, as an important cancer risk factor. According to MATES-III, DPMs accounted for approximately 84 percent of the total cancer risk associated with the investigated group of air pollutants. MATES-II also provided regional trends in estimated outdoor cancer risk from air toxics emissions.

SCAQMD's MATES-II and MATES-III studies offer an opportunity to estimate air toxics-related health risks from roads; however, while at the regional scale the study approximates air toxics-related health risk from roads, it was not designed to provide accurate approximations of risk as a function of proximity to roads. Monitoring data near freeways were limited to three sites, and modeling results were not finely resolved to provide concentration gradients near roads. The MATES-II monitoring results are consistent with other research studies indicating that pollutant concentrations generally diminish as distance is increased from the source, and they are often approximately the same as background conditions beyond 100 meters from a road. Furthermore, the study cautions that results are highly dependent upon the unit risk factors assumed, particularly for DPM, for which uncertainties are an order of magnitude or more. At the microscale, neither MATES-II nor MATES-III was designed to effectively assess changes in pollutant concentrations with varying distance from roadways. Therefore, the available methodology and techniques would need to be refined so that they provide tools and information that would be useful to alleviate the uncertainties listed above and enable a more comprehensive evaluation of the health impacts; hence specific impacts from this project cannot be determined.

Estimate of Project Emissions of Primary MSATs. The local roadways subject to traffic diversion would be affected by additional traffic volumes during the duration of construction. Emissions of priority MSATs were estimated along these local roadways. Emissions were also estimated for years 2007 and 2038 for comparison purposes. The 2007 emissions are included to show the effect of current VMT levels and the degree of control plans on MSAT emissions.

The analysis was conducted for six air toxics that are identified as priority MSATs by EPA. The UC Davis-Caltrans *CT-EMFAC 2.6* (UC-Davis and Caltrans, 2008) was used to provide a comparison of MSAT emissions for the roadway segments affected by the traffic diversion due to viaduct closure during project construction. The emissions were estimated for worst-case during construction years with and without the proposed project. The traffic volumes and average speeds during peak and non-peak hours, percent of trucks, and VMTs were used as input data.

Table 4-3 presents the estimated daily emissions for each analyzed local roadway performed in the Traffic Study for this Project. As shown, for all studied roadways, MSAT emissions are projected to decline markedly in the future compared to the base year 2007. This decrease is prevalent for all of the priority MSATs, and it is directly due to the improved pollution emission performance of a modernizing fleet of all diesel-fueled vehicles, which is a trend that is anticipated to continue throughout the planning horizon year. The estimated emissions increase on the adjacent roadways for the detour years 2014 to 2018 would be temporary, due to diverted traffic volume increasing along the detour route.

In conclusion, MSAT emissions from the proposed project alternative implementation would marginally increase in certain locations during the construction years when the detour plan would be in effect. At the same time (i.e., during detour years), the MSAT emissions would be marginally lower in areas near the closed segment of the 6th Street roadway and viaduct; however, concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be defined with any level of confidence.

Toxic Air Contaminants

The greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during grading and excavation activities. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the construction schedule of 4 years, and considering that most grading and excavation activities would occur intermittently during different construction phases, the proposed project would not result in a long-term (i.e., 70 year) substantial source of TAC emissions with no residual emissions after construction and corresponding individual cancer risk. As such, potential impacts related to TAC emissions during construction would be less than significant, and no mitigation measures are required.

Table 4-3
Estimate of Priority MSAT Emissions for the Local Roadways within Project Study Area [a] (grams/day)

Year/Scenario	DPM	Formaldehyde	1,3-Butadiene	Benzene	Acrolein	Acetaldehyde
4th Street – Soto Street to Central Avenue						
Existing – 2007	1,988	1,372	291	1,543	66	457
Detour Year – 2018/ Viaduct Open	1,020	604	96	590	22	224
Detour Year – 2018/ Viaduct Closed	1,160	687	109	672	24	255
Horizon Year – 2038/ Build and No-Build	682	405	69	413	15	149
7th Street – Soto Street to Central Avenue						

Existing – 2007	722	454	92	487	21	155
Detour Year – 2018 / Viaduct Open	344	191	28	176	6	73
Detour Year – 2018 / Viaduct Closed	505	281	42	258	9	107
Horizon Year – 2038 / Build and No-Build	227	128	20	122	4	49
1st Street – Soto Street to Central Avenue						
Existing – 2007	798	551	117	619	27	184
Detour Year – 2018 / Viaduct Open	388	229	36	224	8	85
Detour Year – 2018 / Viaduct Closed	405	240	38	234	9	89
Horizon Year – 2038 / Build and No-Build	258	154	26	156	6	57
South Soto Street – 7th Street to 1st Street						
Existing – 2007	769	531	112	597	26	177
Detour Year – 2018 / Viaduct Open	369	218	35	214	8	81
Detour Year – 2018 / Viaduct Closed	389	230	37	225	8	85
Horizon Year – 2038 / Build and No-Build	247	147	25	150	5	54

[a] Project study area includes the roadways that are studied in the *Traffic Analysis Report*.

[b] Traffic data used for calculations are provided in the *Air Quality Technical Report*.

Source: *Air Quality Technical Report* (Parsons, 2008a).

Cumulative Impacts

Based on the cumulative impact analysis presented in Section 3.26 of this EIR/EIS, the following resources would have a considerable level of impacts when combined with impacts from other known related projects: land use and planning, community disruption, traffic and circulation, visual and aesthetics, cultural resources, and air quality during construction.

Mandatory Findings of Significance

The project site is currently developed and devoid of significant fish, wildlife, and/or plant populations. Construction activities would not degrade or have adverse impacts on the natural environment. Implementation of Alternative 3 would result in an adverse effect under Criterion *i* of the Secretary of the Interior's *Standards for the Treatment of Historic Buildings.* The impacts of Alternative 3 on the viaduct are considered adverse and potentially significant under CEQA.

4.5 Unavoidable Significant Environmental Effects

Even with implementation of the proposed mitigation measures, some of the impacts identified would still remain significant as summarized herein.

4.5.1 Alternative 2 – Retrofit

Cultural Resources

Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Standards) or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource (CEQA Guidelines Section 15064.5(b)(3)). Elements of Alternative 2 could be designed in a manner consistent with the Standards, but Alternative 2 overall would materially alter in an adverse manner those physical characteristics that convey the viaduct’s significance, and the viaduct would not retain sufficient integrity for inclusion in the CRHR.

Utility – Railroad

Implementation of Alternative 2 would further reduce the substandard horizontal clearance between the existing tracks and the retrofitted columns of the viaduct. The impact is unavoidable.

Visual/Aesthetics

The restriction of views under the viaduct resulting from the seismic shear walls to be constructed between the columns cannot be avoided.

Geology/Soil/Seismicity

No other retrofit options are available to protect the viaduct from collapse for more than the design life expectancy of approximately 30 years due to the ongoing ASR deterioration, which cannot be stopped. The retrofitted viaduct would have to be replaced after this time.

Air Quality

Implementation of the recommended mitigation measures (refer to Section 3.15.6.4) would reduce construction emissions for all pollutants; however, as shown in Table 4-4, the regional emissions of NO_X would remain in exceedance of the SCAQMD CEQA significance threshold during the most intense activities through the construction period. Therefore, even with mitigation measures, regional emissions of NO_X would remain significant under CEQA and unavoidable during project construction.

Table 4-4
Estimate of Mitigated Regional Construction Emissions [a] (lbs/day)

Construction Year	VOC	NO_X [b]	CO	PM_{10} [c]	$PM_{2.5}$ [c]
YEAR 1					
Peak Concurrent Activities (Month 6)					
Mitigated Emission	40	368 (311)	228	56	24
Regional Daily Significance CEQA Threshold	75	100	550	150	55
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 2					
Peak Concurrent Activities (Month 12)					
Mitigated Emission	20	174 (145)	114	17	10
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 3					
Peak Concurrent Activities (Month 1)					
Mitigated Emission	26	221 (184)	148	30	14
Exceed CEQA Threshold?	No	**Yes**	No	No	No
Peak Concurrent Activities (Month 8)					
Mitigated Emission	27	219 (181)	151	13	11
Exceed CEQA Threshold?	No	**Yes**	No	No	No
YEAR 4					
Peak Concurrent Activities (Month 1)					
Mitigated Emission	17	142 (119)	101	12	7
Exceed CEQA Threshold?	No	**Yes**	No	No	No

[a] Mitigation reductions are applied to onsite construction activities. The emission values in the table are composed of on-road construction mitigation and mitigated onsite (off-road) emissions.
[b] Mitigation measure consists of maintaining construction equipment properly tuned. Exhaust emissions reduction is 5 percent for all criteria pollutants. For NO_X reduction, use of aqueous diesel fuel, plus oxidation catalyst for the construction equipment, would reduce onsite emissions up to 28 percent. These data are shown in parentheses.
[c] PM_{10} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, plus additional watering of construction area. Additional watering would provide a 70 percent reduction in fugitive PM_{10}, as well as fugitive $PM_{2.5}$ emissions.

Source: Air Quality Technical Report for 6th Street Viaduct Seismic Improvement Project, updated 2011.

Cumulative Impact

Construction for the project could occur at the same time as construction for other planned projects within very close proximity, such as the Westside Subway Extension – a Division 20 South Rail Yard and the Boyle Heights Mixed-Use projects. Even with implementation of available mitigation measures, unavoidable and significant cumulative effects from increased traffic congestion, air pollutant emissions, and traffic noise levels could still remain during construction of the project if other projects are concurrently under construction in the same vicinity.

4.5.2 Alternative 3 – Replacement

Land Use

Loss of commercial/industrial land use in the vicinity of the viaduct corridor cannot be avoided with construction of the new viaduct.

Traffic and Transportation/Pedestrian Facility

Eleven out of 13 impacted intersections could not be mitigated without causing further right-of-way impacts.

Cultural Resources

Under CEQA, relocation of a historical resource is recommended when demolition is proposed. Relocation of the viaduct is not a feasible alternative due to the deterioration of the concrete which has resulted from the Alkali-Silica Reaction. Therefore, adverse impacts due to the proposed demolition of the historic viaduct, a CRHR-eligible resource, and the loss of HCM status under this alternative are unavoidable.

Air Quality

Similar to Alternative 2 described in Section 4.5.1.

Cumulative Impact

Construction for the project could occur at the same time as construction for other planned projects within very close proximity, such as the Westside Subway Extension – a Division 20 South Rail Yard and the Boyle Heights Mixed-Use projects. Even with implementation of available mitigation measures, unavoidable and significant cumulative effects from increased traffic congestion, air pollutant emissions, and traffic noise levels could still remain during construction of the project if other projects are concurrently under construction in the same vicinity.

The 6th Street Viaduct is also designated City of Los Angeles HCM #905, as one of 11 historic Los Angeles River bridges (HCM #900 – #910). The 6th Street Viaduct, with its unique-for-the-time dual steel through-arch design and being the largest of the Los Angeles River bridges built near the end of that era, contributes to the themes that these monumental river bridges convey (City Beautiful Movement, relation to the City Municipal Art Commission, and engineering and technical innovations—see Section 3.26.6.5), and its removal would impact the City's historic-cultural monument bridges on a cumulative basis.

4.6 Significant Irreversible Environmental Changes

Significant irreversible environmental changes have been discussed in Section 3.24 of this document.

4.7 Growth-Inducing Impacts

The main objective of the proposed project is to seismically improve the ASR-damaged 6th Street Viaduct. Neither the retrofit nor replacement alternatives would result in traffic capacity enhancement. The proposed project is therefore not considered growth inducing.

4.8 Global Climate Change

4.8.1 Regulatory Setting

State and Federal Level

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHG related to human activity that include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of AB 1493, California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year; however, to enact the standards, California needed a waiver from EPA. The waiver was denied by EPA in December 2007 (see California v. Environmental Protection Agency, 9th Cir. Jul. 25, 2008, No. 08-70011); however, on January 26, 2009, it was announced that EPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5-mile-per-gallon (mpg) fuel economy standard for automobiles and light-duty trucks that will take effect in 2012. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With EO S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97. SB 97 (Chapter 185), enacted in 2007, directed the state Office of Planning and Research (OPR) to develop amendments to CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directed the Natural Resources Agency to certify and adopt the amendments to CEQA Guidelines by early 2010. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law (OAL) on December 31, 2009. In February 2010, the OAL approved the Amendments and filed them for inclusion in the California Code of Regulations. The Amendments became effective March 18, 2010.

Climate change and GHG reduction are also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force EPA to regulate GHG as a pollutant under the CAA (Massachusetts vs. Environmental Protection Agency *et al.*, 549 U.S. 497 [2007]). The court ruled that GHG does fit within the CAA's definition of a pollutant and that EPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs – CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Findings: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not themselves impose any requirements on transportation industry or other entities; however, this action is a prerequisite to finalizing EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.[111]

Local Level – City of Los Angeles

In May 2007, the City of Los Angeles initiated an action plan and published: *"Green LA: An Action Plan to Lead the Nation in Fighting Global Warming."* The Plan sets forth a goal of reducing the City's GHG emissions to 35 percent below 1990 levels by the year 2030. This voluntary plan identifies more than 50 action items, grouped into focus areas, to reduce GHG emissions. While the emphasis is first on municipal facilities and operations, several measures address programs to reduce emissions in the community.

The subsequent *ClimateLA* is the implementation program that provides detailed information about each action item discussed in the Green LA framework (City of Los Angeles, 2008)[112]. The actions in the *ClimateLA* 2008 document are categorized by the focus areas of the *Green LA* Plan that include energy, water, transportation, land use, waste, open space and greening, green economy, and proprietary departments. For transportation, as an important focus of the Program, the City will lower the GHG emissions by the following actions:

- Require 85 percent of the City fleet to be powered by alternative fuels.
- Convert 100 percent of City refuse collection trucks and street sweepers to alternative fuels.
- Convert 100 percent of Metropolitan Transportation Authority (MTA) buses to alternative fuels.
- Convert commuter Express diesel buses to alternative fuels and CityRide diesel vehicles to ultra-low-emission gasoline.
- Complete the Automated Traffic Surveillance and Control System (ATSAC).

[111] http://www.epa.gov/climatechange/endangerment.html
[112] http://www.ci.la.ca.us/ead/ead_GreenLAClimateLA.htm

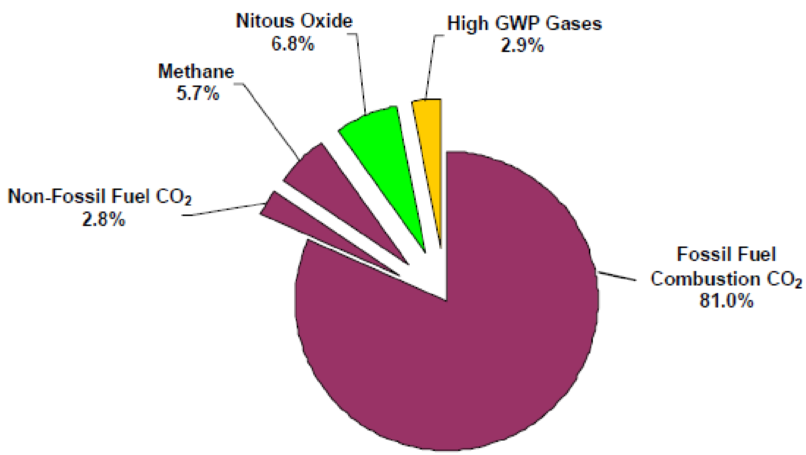
- Expand FlyAway shuttles serving Los Angeles World Airports, including Los Angeles International Airport, and convert existing FlyAway buses to alternative fuels.
- Make transit information easily available, understandable, and translated into multiple languages.
- Increase City employee participation in the rideshare program and increase the subsidy for mass transit.
- Promote walking and biking to work, within neighborhoods, and to large events and venues.
- Expand the regional rail network.

ClimateLA is a living document, reflecting a process of ongoing learning and continuous improvement as technology advances and City departments develop expertise in methods of lowering GHG emissions.

According to Recommendations by the Association of Environmental Professionals (AEP) on "How to Analyze GHG Emissions and Global Climate Change in CEQA Documents" (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (see CEQA Guidelines sections 15064(i)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult if not impossible task.

Sources of GHG

The GHG emissions are mostly related to fossil fuel combustion for energy use, as shown in Figures 4-1. These are driven largely by economic growth and fuel used for power generation, transportation, heating, and cooling. According to the California Energy Commission (CEC), energy-related CO_2 emissions resulting from fossil fuel combustion represents approximately 81 percent of California's total GHG emissions (Figure 4-1). Although the emissions of other GHG gases, such as CH_4 (methane) and N_2O (nitrous oxide) are small, it should be noted that their global warming potential (GWP) is very high in relation to that of CO_2.

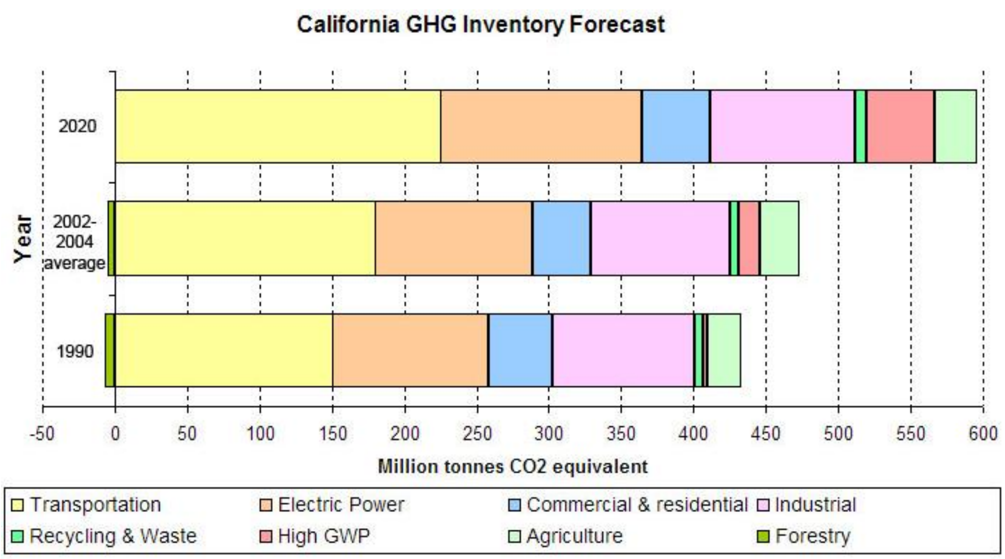


Primary sources of emissions of these GHGs are from:

- CH_4 – agricultural activities and landfills
- N_2O – agricultural soil and mobile source fuel combustion
- High GWP gases – industrial processes, refrigerants, insulating material; these have a long lifetime in the atmosphere (varying from several decades to several centuries)

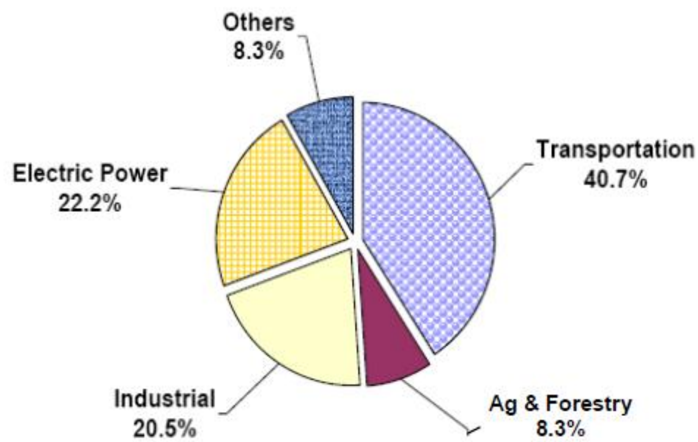
Source: CEC, 2006

Figure 4-1
California Greenhouse Gas Composition by Type of Gas in 2004



Source : http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Figure 4-2
California Greenhouse Gas Inventory



Source: CEC, 2006

Figure 4-3
Sources of California GHG Emissions by End-Use Sector (2004)

As part of its supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the GHG inventory for California (June 26, 2008). Figure 4-2 is a graph from that update that shows the total GHG emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

According to CEC, among the end-use sectors contributing to California's GHG emissions, the transportation sector represents the largest source and constitutes 41 percent of the state's GHG emissions. Figure 4-3 shows the emissions of GHGs by the end-use sector in 2004.

As Figures 4-2 and 4-3 show, the transportation sector activities are responsible for a substantial portion of the GHG emissions in California. Because of its size, it is critical that the transportation sector achieve significant emission reductions toward the State's 2020 goal. If the transportation sector does not provide significant GHG reductions, it would be difficult for another sector to make up the emission reductions. Transportation's contribution to GHG emissions is dependent on three factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel.

Project GHG Emissions Analysis

CARB Scoping Plan and GHG Significance Threshold

California laws, such as AB 32 and SB 97, provide that climate change is an environmental effect subject to CEQA. Lead agencies therefore are required to determine whether a project's climate change-related effects may be significant, and to impose feasible mitigation to minimize any significant effects. Determining significance, however, can be a challenging task. Accordingly, the Governor's OPR, in its June 2008 *Technical Advisory, "CEQA and Climate*

Change," asked CARB to make recommendations for GHG-related thresholds of significance, identifiable benchmarks or standards that assist lead agencies in the significance determination. According to its *Climate Change Scoping Plan* (CARB, 2008), CARB would make its final recommendations on thresholds in mid 2009 to harmonize with OPR's timeline for issuing draft CEQA guidelines addressing GHG emissions and to provide much needed guidance to lead agencies in the near term. Note, there is no update as of August 2010.

In its Proposed Scoping Plan, CARB has concluded that a zero threshold, which was previously considered, should not be mandated in light of the fact that (1) some level of emissions in the near term and at mid-century is still consistent with climate stabilization and (2) current and anticipated regulations and programs apart from CEQA (e.g., AB 32, the Pavely vehicle regulations) will increasingly reduce the GHG contributions of past, present, and future projects. However, any non-zero threshold must be sufficiently stringent to make substantial contributions to reducing the State's GHG emissions to meet its interim (2020) and long-term (2050) emissions reduction targets.

CARB has developed preliminary interim threshold concepts for two important sectors: industrial projects, and residential and commercial projects (CARB, 2008). At the time of this writing, CARB is still working on a proposal for an interim approach for significance thresholds for transportation projects and other sectors.

Estimation of GHG Emissions

GHG emissions for the proposed project include the emissions produced during construction and those produced during operation (viaduct traffic) upon completion of construction.

Construction-related emissions include off-road construction equipment exhaust emissions, on-road haul trucks and workers commute vehicles emissions, and the traffic along the detour routes during viaduct closure. Operational emissions include GHG emissions from vehicles traveling along the project corridor.

Project-related GHG emissions (No Build and Build Alternatives) were calculated using the emissions factors for off-road and on-road mobile sources, annual VMTs, and guidelines of the California Climate Action Registry (CCAR) Protocol and the *Technical Advisory*, prepared by the Governor's OPR (OPR, 2008).

Climate change, as it relates to manmade GHG emissions, is by nature a global and cumulative impact. According to the AEP, in its paper titled *Alternative Approaches to Analyzing GHG*

Emissions and Global Climate Change in CEQA Documents [113], "an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs." The following GHG emissions estimate is presented for the purpose of disclosing all project-related emissions and to provide a comparison between the No Build and Build Alternatives. The analysis was performed for only the Alternative 3 scenario to represent the worst case.

Table 4-5 summarizes the annual GHG emissions that would occur within the project region from the proposed project during the peak construction emissions detour year 2018 and horizon year 2038. Sources considered in these emission calculations are the same as those analyzed for criteria pollutants. For the detour year, the total GHGs are presented as combined emissions from project-related detours, associated with other traffic within project corridor, and emissions from the simultaneous demolition of the old bridge.

The data in Table 4-5 show that in each analyzed future year, annual operational carbon dioxide (CO_2) emissions would increase from year 2007 baseline; however, there is no significance criterion established to evaluate the project GHG emission impacts.

Table 4-5 shows that during the construction years the GHG emissions would increase by approximately 9 percent compared with the no-project scenario. As shown, this increase is due to construction activities. Upon opening the new viaduct to traffic, the operational emissions during the future years from opening year 2018 through the horizon year 2038, there would be no change compared to the no project baseline (No Action) because the project would not increase capacity and would not cause change in fleet mix or traffic patterns. Therefore, there would be no operational impact from implementation of the proposed project.

For detour years (construction period), because no significance threshold has been established to date to compare the effect between the without and with project conditions, no determination of significance for construction years emissions of GHG has been made for this impact.

[113] AEP, 2007. Association of Environmental Professionals. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.*

Table 4-5
Annual GHG Emissions Associated with Proposed Alternative 3 Implementation

Project Scenario/Roadway Segments	Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Base Year 2007				
6th Street – Soto Street to Central Avenue	3,809	0.3	0.3	3,900
1st Street – Soto Street to Central Avenue	4,552	0.4	0.3	4,666
4th Street – Soto Street to Central Avenue	7,662	0.6	0.6	7,854
7th Street – Soto Street to Central Avenue	3,154	0.3	0.2	3,233
Central Avenue – 1st Street to 7th Street	1,573	0.1	0.1	1,611
Alameda Street – 1st Street to 7th Street	3,285	0.3	0.2	3,367
Mateo Street – 6th Street to 7th Street	160	0.0	0.0	164
Santa Fe Avenue – 6th Street to 7th Street	330	0.0	0.0	338
Boyle Avenue – 1st Street to 7th Street	1,923	0.2	0.1	1,969
Soto Street – 1st Street to SR 60 eastbound on-ramp	4,866	0.4	0.4	4,988
Total Year 2007	**31,315**	**2.6**	**2.3**	**32,088**
Year 2018 – No Action (Viaduct Open)				
6th Street – Soto Street to Central Avenue	4,118	0.2	0.3	4,212
1st Street – Soto Street to Central Avenue	5,078	0.2	0.4	5,200
4th Street – Soto Street to Central Avenue	9,272	0.4	0.7	9,495
7th Street – Soto Street to Central Avenue	3,426	0.2	0.3	3,509
Central Avenue – 1st Street to 7th Street	1,710	0.1	0.1	1,750
Alameda Street – 1st Street to 7th Street	3,621	0.2	0.3	3,708
Mateo Street – 6th Street to 7th Street	172	0.0	0.0	175
Santa Fe Avenue – 6th Street to 7th Street	354	0.0	0.0	361
Boyle Avenue – 1st Street to 7th Street	2,092	0.1	0.1	2,139
Soto Street – 1st Street to SR 60 eastbound on-ramp	5,307	0.2	0.4	5,435
Total Year 2014 – No Action	**35,149**	**1.7**	**2.6**	**35,983**
Peak Construction Year 2018 – With Project (Viaduct Closed)				
6th Street – Soto Street to Central Avenue	641	0.0	0.0	656
1st Street – Soto Street to Central Avenue	5,325	0.3	0.4	5,453
4th Street – Soto Street to Central Avenue	10,208	0.5	0.8	10,453
7th Street – Soto Street to Central Avenue	5,554	0.3	0.4	5,688
Central Avenue – 1st Street to 7th Street	1,478	0.1	0.1	1,512
Alameda Street – 1st Street to 7th Street	3,621	0.2	0.3	3,708
Mateo Street – 6th Street to 7th Street	202	0.0	0.0	206
Santa Fe Avenue – 6th Street to 7th Street	354	0.0	0.0	361
Boyle Avenue – 1st Street to 7th Street	2,082	0.1	0.1	2,130
Soto Street – 1st Street to SR 60 eastbound on-ramp	5,599	0.3	0.4	5,733
Total Roadway Traffic Emissions	**35,064**	**1.7**	**2.6**	**35,900**
Construction Emissions – Detour Year 2014	3,259	0.01	0.01	3,262
Total Year 2018 – Proposed Project (Alternative 3)	**38,322**	**1.7**	**2.6**	**39,162**
Net Change from 2007	**7,008**	**-0.9**	**0.3**	**7,074**
Net Change from No-Action Scenario	**3,173**	**0**	**0**	**3,179**

Table 4-5
Annual GHG Emissions Associated with Proposed Alternative 3 Implementation

Project Scenario/Roadway Segments	Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Horizon Year 2038 – No-Action/ Proposed Project				
6th Street – Soto Street to Central Avenue	5,205	0.1	0.4	5,318
1st Street – Soto Street to Central Avenue	6,414	0.1	0.5	6,561
4th Street – Soto Street to Central Avenue	11,741	0.2	0.9	12,009
7th Street – Soto Street to Central Avenue	4,312	0.1	0.3	4,411
Central Avenue – 1st Street to 7th Street	2,154	0.0	0.1	2,201
Alameda Street – 1st Street to 7th Street	4,593	0.1	0.3	4,698
Mateo Street – 6th Street to 7th Street	228	0.0	0.0	232
Santa Fe Avenue – 6th Street to 7th Street	445	0.0	0.0	454
Boyle Avenue – 1st Street to 7th Street	2,641	0.0	0.2	2,698
Soto Street – 1st Street to SR 60 eastbound on-ramp	6,713	0.1	0.5	6,866
Total Year 2038 – Horizon Year	**44,448**	**0.8**	**3.2**	**45,449**

One metric ton equals 2,204.6 lbs; emission factors of CO_2 and CH_4 are obtained using EMFAC2007 and N_2O emission factors are obtained from the CCAR.

CO_2e = carbon dioxide equivalent of combined emissions of all GHGs. The CO_2-equivalent emission of each GHG is the emission rate multiplied by its corresponding global warming potential (GWP). The GWPs for CH_4 and N_2O are 21 and 310, respectively.

Source: Air Quality Technical Report, Originally prepared 2008, Revised 2011.

The stated objective of the proposed project is to reduce the risk of seismic collapse of the viaduct. It is not a capacity-enhancing project, so there will not be an increase in traffic volumes due to the proposed project. The proposed project is consistent with the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP), and it is included in the Regional Transportation Improvement Program (RTIP). Because the proposed project is not capacity enhancing, CO_2 emissions would not increase in the region as a result of the project's implementation. Similarly the operational emissions would not have any significant cumulative GHG impact compared with the no-project scenario.

AB 32 Compliance

The City's *GreenLA Climate Action Plan*, identifies more than 50 action items that will lead Los Angeles to lower GHG emission levels. The actions taken by the City to reduce GHG emissions from transportation include encouraging green transportation by making transit information easily available, expanding ride share programs, and promoting walking and bicycling to work. A City program called "Cops on Bikes" is anticipated to improve productivity, reduce air pollution, and save $350,000 in vehicle costs over 5 years. The City also invested in a fleet of alternative fuel vehicles that includes nearly half of the City's refuse collection trucks and street sweepers, all 188 DASH buses, and nearly 1,000 hybrid passenger cars, saving more than 10 million gallons of fuel annually. The conversion of City fleet vehicles to alternative fuels reduced CO_2 emissions by 2,477 metric tons in 2008.

In addition to the local strategies and plans of the City, at the state level Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders and help achieve the targets set forth in AB 32. Many of the strategies that Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Schwarzenegger's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016.[114]

As shown in Figure 4-4, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions.

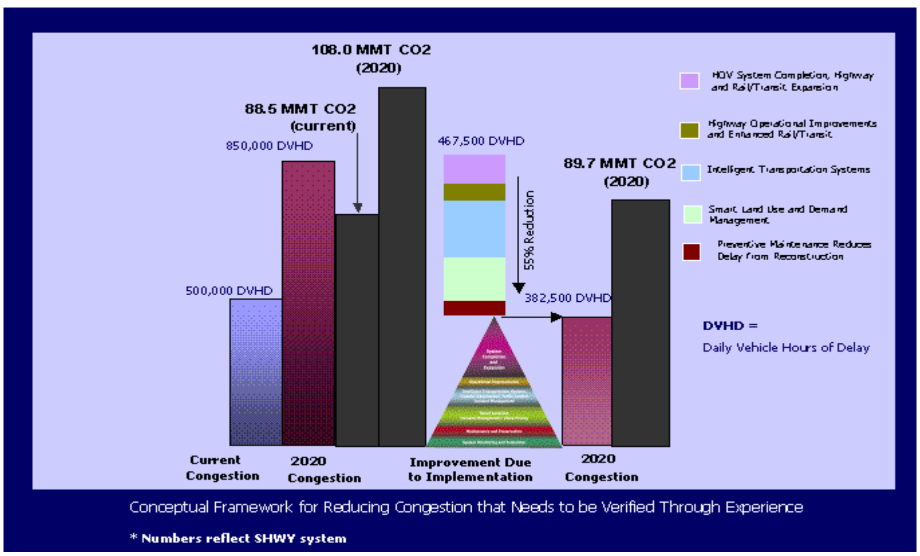


Figure 4-4
Outcome of Strategic Growth Plan

The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that when combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

[114] Governor's Strategic Growth Plan, Fig. 1 (http://gov.ca.gov/pdf/gov/CSGP.pdf)

Emissions Reduction Measures

As described in CARB Scoping Plan, GHG emission reductions will come from three overarching strategies: more efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. The GHG emission reductions in transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy. The proposed project would help to implement the goal of reduction in vehicle use by providing wide shoulders and sidewalks to promote bicycle and pedestrian alternatives to automobile travel.

The actions taken by the City to reduce GHG emissions at the local level are summarized in Figure 4-5. As described above, at the state level, Caltrans is active in reducing GHG emissions from transportation sector.

4.9 Mitigation Measures for Significant Impacts under CEQA

The analysis in this document assumes that, unless otherwise stated, the project will be designed, constructed and operated following all applicable laws, regulations, ordinances and formally adopted City standards (e.g., *Los Angeles Municipal Code* and Bureau of Engineering *Standard Plans*). Also, this analysis assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works *Additions and Amendments to the Standard Specifications For Public Works Construction* (AKA "The Brown Book," formerly Standard Plan S-610)).

The following subsections list specific mitigation measures to mitigate significant impacts for Alternatives 2 and 3, respectively.

4.9.1 Alternative 2 – Retrofit

The following paragraphs provide specific mitigation measures for each impacted resource under Alternative 2 in addition to the standard measures to be implemented by the City.

Figure 4-5
City of Los Angeles Near-Term Action Plan

Focus Area		Action No.	Measure	Milestone
2008	Energy	E3	Reduce the use of coal-fired power plants	Final draft feasibility study on reducing IPP's carbon footprint
		E4	Increase the efficiency of natural gas-fired power plants	Completion of the SHARE study
		E5	Increase biogas co-firing of natural gas-fired power plants	Terminal Island Fuel Cell (November - tentative)
		E6	Present a comprehensive set of green building policies to guide and support private sector development	Process 100 new buildings (December)
		E7	Reduce energy use by all city departments to the maximum extent feasible	Complete installation of pilot solar lighting (June) Installation of LEDs - expand program (June)
		E8	Perform energy efficient retrofits on 497 city-owned buildings to continuously reduce energy consumption	Replace a minimum of 10 HVAC rooftop units with SEER rating of 13 or better and/or EER of 11.3 or better (June)
		E12	Maximize energy efficiency of wastewater treatment equipment	Launch a pilot program to determine the feasibility of processing food waste from Santa Monica and Los Angeles area restaurants (September)
		E13	Distribute two compact fluorescent light (CFL) bulbs to each of the 1.4 million households in the city	distribute bulbs (June)
		E14	Increase the level and types of customer rebates for energy efficient appliances, windows, lighting and heating and cooling systems	Implement the thermal energy storage (TES) rebate program (July)
		E16	Create a fund to acquire energy savings as a resource from LADWP customers	Issue RFP for demand side management (DSM) (July) evaluate RFPs for viability and cost (October) Submit new DSM programs to LADWP Board for approval (December)
2009	Land Use	LU1	Promote high-density housing close to major transportation arteries	Update housing element (July) Adopt city-wide density bonus ordinance (December)
		LU2	Promote and implement transit-oriented development (TOD)	conduct public outreach including workshops (September)
		LU3/4/5	Make available underutilized city land for housing and mixed-use development/parks and open space/housing and mixed-use development (within 1500 feet of transit)	Establish city working group to identify and evaluate publicly owned land (June) Prioritize opportunities to transform underutilized land (December)
	Waste	WsT1	Reduce or recycle 70% of trash by 2015	Conduct at least 290 business waste assessments (June) Implement recycling for at least 125,000 multi-family households (June) Recruit at least 305 schools to participate in the LAUSD school recycling program (June) Develop a centralized data system to track the recycling activities in the city in order to meet the city's legal requirements (FY07/08)
	Education	Ed1/Ed2/ Ed3/ Ed4	Citywide Climate Change Education Program	Provide training for staff (September) and implement public participation activities (December)

Focus Area		Action No.	Measure	Milestone
2009	Energy	E5	Increase biogas co-firing of natural gas-fired power plants	Landfill gas to energy projects (June)
		E6	Present a comprehensive set of green building policies to guide and support private sector development	Process 300 new buildings (December)
		E7	Reduce energy use by all city departments to the maximum extent feasible	Acquire funding for further installation of solar lighting and LEDs (June)
		E9	Install the equivalent of 50 "cool roofs" on new or remodeled city buildings	Install an additional 16 new cool roofs, retrofit 20 existing roofs as cool roofs and install 1 green roof (June) Green roofs opportunity analysis for Arroyo-Seco Cornfields Specific Plan area private-sector buildings (June)
	Land Use	LU2	Promote and implement transit-oriented development (TOD)	Approve station area plans (March)
		LU5	Clean up brownfields sites for community economic revitalization projects and open space	Remove environmental barriers to development at 25 or more underutilized properties
	Airport	AIR3	Evaluate options to reduce aircraft-related GHG emissions	Complete GHG inventory, determine 1990 baseline and establish 2030 goal (December)
2010	Energy	E1	Meet the goal to increase renewable energy from solar, wind, biomass, and geothermal sources to 20% by 2010.	
		E8	Perform energy efficient retrofits on 497 city-owned buildings to continuously reduce energy consumption	Replace a minimum of 35 HVAC rooftop units with SEER ratings of 16 SEER, 12 EER and .56 kWh/ton or better (December)
		E12	Maximize energy efficiency of wastewater treatment equipment	Improve lighting efficiency: replace Na lights with fluorescent T5 light equipped with motion sensors in the galleries at HTP (December)
	Transportation	T1	Require 85% of the fleet to be powered by alternative fuels	Port of Los Angeles will have 50% alt fuel or hybrid fleet 100% passenger sedans (FY09/10)
		T3	Convert 100% of Metropolitan Transit Authority (MTA) buses to alternative fuel	100% alt fuel MTA buses (FY09/10)
	Land Use	LU3/4/5	Make available underutilized city land for housing and mixed-use development/parks and open space/housing and mixed-use development (within 1500 feet of transit)	Develop one to three city properties (December)
	Waste	WsT1	Reduce or recycle 70% of trash by 2015	Expand mutli-family recycling program to 50% of the city's multi-family units Implement alternative technology facility to process post source-separated municipal solid waste for renewable energy generation
	Open Space and Greening	OS/G1 & OS/G6	Create 35 new parks or joint-use sites by 2010	
2011	Energy	E7	Reduce energy use by all city departments to the maximum extent feasible	Conversion of final 902 signaled intersections to incandescent lamps
2012	Energy	E7	Reduce energy use by all city departments to the maximum extent feasible	Installation of new solar lighting equipment (June)
		E8	Perform energy efficient retrofits on 497 city-owned buildings to continuously reduce energy consumption	Design and construct a district cooling plant and distribution system to supply chilled water to downtown Los Angeles buildings for space cooling applications
	Transportation	T1	Require 85% of the fleet to be powered by alternative fuels	85% entire fleet powered by alt fuel (FY11/12)

Community Impacts

MM2-1 Develop a construction staging plan and Traffic Management Plan (TMP) in close coordination with the members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP shall identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, shortest alternate transit routes and operation hours, alternative pedestrian routes, alternative bicycle routes, and residential and commercial access routes to be used during the construction period.

MM2-2 Inform event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid any conflicts in the use of areas near the 6th Street Viaduct for any festive events.

MM2-3 If homeless people were identified within the construction site, the Los Angeles Homeless Services Authority (LAHSA) should be contacted to provide services to those affected prior to construction.

Utilities and Emergency Services

MM2-4 Notify emergency service providers at least 2 weeks in advance of the project construction schedule. Provide detailed information on the construction schedule, roadway closures, traffic detour route maps, and expected congested intersections.

MM2-5 Coordinate with emergency service providers throughout the construction period to notify them of any changes in construction schedule, roadway closures, and detour routes.

Cultural Resources

MM2-6 Establish an Environmentally Sensitive Area (ESA) Action Plan, which would include fencing of site LAN 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.

Paleontology

MM2-7 Retain a qualified paleontologist to develop and implement a Paleontological Monitoring Plan. Conduct paleontological monitoring onsite to inspect new exposures created by earth-moving activities in areas underlain by older alluvium (the area east of US 101) and at depths greater than 5 ft below current grade for younger alluvium.

Air Quality

MM2-8 Implement fugitive dust source controls by requiring the contractor to:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to active and inactive sites during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.

MM2-9 Implement mobile and stationary source controls by requiring the contractor to:

- Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable, and at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and adhere to manufacturer's recommendations.
- Lease new and clean equipment meeting the most stringent of applicable federal and state standards, if practicable.
- Utilize EPA-registered particulate traps and other appropriate controls, where suitable, to reduce emissions of particulate matter and other pollutants at the construction site.

MM2-10 Implement administrative controls by requiring the staff to:

- Require the contractor to prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Use alternative fuels such as natural gas and electric, where appropriate.
- Develop a construction traffic and parking management plan that minimizes interference and maintains traffic flow as part of the TMP.

Biological Resources

MM2-11 If construction occurs between February 1 and August 31, conduct a preconstruction survey by a qualified biologist to identify any active nesting or roosting locations. If active nests of migratory bird species occur within the construction area, then a temporary exclusion fence 50 ft in diameter shall be assembled around the nest. The biologist shall then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such area can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.

Cumulative Effects

- To minimize cumulative community disruption, implement MM 2-1.
- To minimize air quality cumulative impacts, implement MM2-8 to MM2-10.

4.9.2 Alternative 3 – Replacement

The following paragraphs provide specific mitigation measures for each impacted resource under Alternative 3 in addition to the standard measures to be implemented by the City.

Community Impacts

In addition to mitigation measures to minimize impacts on traffic and transportation, air quality, and noise described in respective sections of the EIR/EIS, the following measures are recommended:

MM3-1 Conduct a public outreach program to keep residents, businesses, utility service providers, and emergency service providers (including Fire and Police Departments) within the project area informed of the project construction schedule, demolition plans, material hauling plans, relocation plans and assistance programs, traffic-impacted areas, the Traffic Management Plan (TMP), and other relevant project information.

MM3-2 Require the construction contractor to submit the means and methods for demolition for LABOE review and approval.

MM3-3 Participate in ongoing meetings with the LABOE Los Angeles River Project Office (LARPO) to implement elements of the Los Angeles River Revitalization Master Plan (LARRMP) related to providing potential future connections to the river corridor from the viaduct.

MM3-4 Provide improvements to enhance the aesthetics and pedestrian safety of 11 out of 13 affected intersections along the proposed detour routes that could not be mitigated. Types of improvements would be developed with public input and using context sensitive design solutions, and may include but not be limited to the following: decorative crosswalk with community theme; raised median with hardscape treatment where space allows.

MM3-5 Develop a construction staging plan and TMP in close coordination with members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize construction impacts on the community. The TMP will identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, shortest alternate transit routes and operation hours, alternative pedestrian routes, alternative bicycle routes, and residential and commercial access routes to be used during the construction period.

MM3-6 Inform event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid any conflicts in the use of areas near the 6th Street Viaduct for any festive events.

MM3-7 If homeless people were identified within the construction site, the Los Angeles Homeless Services Authority (LAHSA) sould be contacted to provide services to those affected prior to construction.

Traffic and Transportation/Pedestrian Facilities

Implement MM3-5 as stated above.

MM3-8 Install new traffic signals, and connect to Los Angeles City ATSAC system at the intersection of 4th Street and US 101 SB On-/Off-Ramps.

MM3-9 Restripe to add an eastbound right-turn lane at the intersection of 4th Street and Soto Street.

Utilities and Emergency Services

Implement MM3-1.

Visual Resources

MM3-10 Establish an Aesthetics Advisory Committee (AAC) to provide input and advice throughout design of the project on bridge aesthetics for the new structure and associated roadways under improvement within the scope of this project. The AAC will participate in design review meetings and provide input on selected design elements including, but not limited to, colors, textures, lighting, railings, and community/City gateway monumental elements.

Implement MM3-3 and MM 3-4.

Cultural Resources

MM3-11 Prior to the start of any work that could adversely affect any characteristics that qualify the 6th Street Viaduct (Bridge No. 53C-1880 and 53-0595) as a historic property, contact the National Park Service Western Region Office (NPS) in Oakland, California, to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, 6th Street Bridge, HAER No. CA-176," dated May 7, 1996. Provide NPS 30 days to respond to the additional recordation determination request. If additional documentation is required, Caltrans should ensure that the additional documentation is completed by the City and accepted by NPS before the viaduct is altered and/or demolished.

MM3-12 Upon completion, copies of the documentation prescribed in Mitigation Measure 3-11, consisting of an acid-free xerographic copy of the report, prepared on standard 8.5-inch by 11-inch paper, should be retained by Caltrans District 7, deposited in the Caltrans Transportation History Library in Sacramento, and offered by the City to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, City of Los Angeles Office of Historical Resources, and the California Office of Historic Preservation.

MM3-13 Work with the Los Angeles Public Library to place the historical information from the HABS/HAER report on a City Web site with a link to a public library Web site, such as the Los Angeles Public Library Web site, available to the public for a minimum period of 3 years. The information link should also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their Web site.

MM3-14 Produce a documentary (i.e., motion picture or video) that addresses the history of the Los Angeles River Monument bridges, and their importance and use within the broader contextual history of the City of Los Angeles. The motion picture or video should be of broadcast quality, between 30- and 90-minute duration, and should be made available to local broadcast stations, public access channels in the local cable systems, and requesting schools/libraries; one copy should be submitted to the

Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento.

MM3-15 Produce and publish a booklet on the Historic Los Angeles River Bridges that addresses the history of the monumental concrete bridges of Los Angeles and this bridge's place in that history. The booklet should be similar in general format to the "Historic Highway Bridges of California" published by Caltrans (1991) and should include high-quality black-and-white images of the Los Angeles River Bridges, historic photographs or drawings, as appropriate, and text describing each of the bridges' location, year built, builder, bridge type, significant character-defining features, and its historic significance. The City should post an electronic version of the booklet on a City Web site and produce paper copies for distribution to local libraries, institutions, and historical societies. One copy should be submitted to the Caltrans Transportation Library and History Center in Sacramento. The City should maintain the camera-ready master booklet and produce additional copies if there is demand.

MM3-16 Install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced.

MM3-17 Offer artifacts removed from the viaduct during demolition to local museums or other suitable facilities to be determined by the City. The accepting institutions should arrange their own transportation to deliver the artifacts to designated locations.

MM3-18 Establish an Environmentally Sensitive Area (ESA) Action Plan, which would include fencing of site no. 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.

Paleontology

MM3-19 Retain a qualified paleontologist prior to the start of construction to develop and implement a Paleontological Monitoring Plan (PMP). Conduct paleontological monitoring onsite to inspect new exposures created by earth-moving activities in areas underlain by the older alluvium (the area east of US 101) and at depths greater than 5 ft below current grade for the younger alluvium.

Air Quality

MM3-20 To the extent applicable, implement fugitive dust source controls by requiring the contractor to:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to active and inactive sites during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.

MM3-21 To the extent applicable, implement mobile and stationary source controls by requiring the contractor to:

- Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable, and at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and adhere to manufacturer's recommendations.
- Lease new and clean equipment meeting the most stringent of applicable federal and state standards, if practicable.
- Utilize EPA-registered particulate traps and other appropriate controls, where suitable, to reduce emissions of particulate matter and other pollutants at the construction site.

MM3-22 To the extent applicable, implement administrative controls by requiring the City staff to:

- Require the contractor to prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Use alternative fuels such as natural gas and electric, where appropriate.
- Develop a construction traffic and parking management plan that minimizes interference and maintains traffic flow as part of the TMP.

Biological Resources

MM3-23 Prevent possible damage and injury to migratory birds by scheduling the removal of vegetation (whether native or horticultural landscaping) in the project area between September 1 and January 31. If initial vegetation removal and ground clearance cannot be avoided between February 1 and August 31, engage a qualified biologist to conduct a preconstruction survey of trees and shrubbery for active nests. If active nests of migratory bird species occur within the construction area, then a temporary exclusion fence 50 ft in diameter should be assembled around the nest. The biologist should then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such area can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.

Cumulative Effects

- To minimize cumulative community disruption, implement MM 3-1 and MM 3-5.
- To minimize cultural resources cumulative impacts, implement MM 3-11 through MM3-18.
- To minimize air quality cumulative impacts, implement MM3-20 through MM3-22.

Chapter 5
Comments and Coordination

Chapter 5 Comments and Coordination

5.1 Introduction

The Council on Environmental Quality (CEQ) NEPA Regulations (40 CFR Part 1500 *et seq*.) and the State CEQA Guidelines (14 CCR, Sections 15082-15083) recommend that federal, state, and local lead agencies use a public scoping process to help identify the various issues to be addressed in the environmental document. Scoping allows public agencies and the general public to learn about the proposed project and to provide suggestions regarding alternatives and the types of impacts to be evaluated.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), authorizing U.S. highway and transit programs, was signed into law on August 10, 2005. Numerous provisions of the law are aimed at improving the environmental review process for transportation projects. One of the key requirements of SAFETEA-LU related to public involvement is that the lead agency must provide the "opportunity for involvement" to participating agencies and the public in developing the purpose and need and the range of alternatives to be considered for a proposed project.

Public involvement, agency coordination, and Native American tribal coordination were carried out during the development process of the proposed project by means of formal scoping meetings, participating agency coordination meetings, community meetings, potentially affected property owner meetings, political representative meetings, notification letters, and the creation and maintenance of a project Web site.

Ongoing coordination meetings with affected business owners and groups, government agencies, railroads, and utility companies are being conducted to update interested parties on the status of the proposed project, obtain public and agency input, and resolve issues. Letters describing the proposed project and inviting comment were sent to Native American groups and other individuals known to have an interest in the proposed project.

This chapter summarizes the results of the City of Los Angeles and Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing public involvement and agency coordination. A Public Outreach Report was compiled to provide a record of all the meetings held and the comments received.[109]

[109] Diverse Strategies for Organizing, 2008. Public Outreach Report – Scoping Phase for 6th Street Viaduct Seismic Improvement Project. September.

5.2 Pre-Scoping Activities

Several public outreach activities were conducted prior to the formal CEQA/NEPA scoping process to disseminate information about the viaduct improvement proposal and the actions undertaken by the City and Caltrans.

5.2.1 Initial Project Information Meetings

In October 2006, prior to commencement of the formal environmental review process, the Project Development Team (PDT) initiated widespread notification of government agencies and the public about proposed project information meetings. Notices were mailed to interested agencies and residents within a 2,000-ft radius of the viaduct; published in newspapers (the *Los Angeles Times* and *La Opinion*); and hand-delivered to residents and property owners in the immediate vicinity of the viaduct. Two proposed project information meetings were held – one on January 23, 2007, at the Artshare Los Angeles (west side of the Los Angeles River) and one on January 25, 2007, at St. Isabel Church (east side of the Los Angeles River). Approximately 80 people attended the meetings, listened to the proposed project information presentation, asked questions, and provided suggestions.

Several other proposed project information meetings were conducted upon request. These meetings were held with the Boyle Heights Neighborhood Council (BHNC) Land Use Committee (February 13, 2007), the BHNC Quadrant 4 (March 12, 2007), the Downtown Los Angeles Neighborhood Council (March 13, 2007), the BHNC Quadrant 3 (May 9, 2007), the Boyle Heights Resident Homeowner Association (May 19, 2007), and the Downtown Arts District Business Improvement District (October 3, 2007).

5.2.2 Community Advisory Committee Formation

Following the proposed project information meetings, a Community Advisory Committee (CAC) was formed. Twenty-five (25) potential members were identified by PDT members based on their representation of affected neighborhoods, businesses and various other stakeholders, and their willingness to serve as conduits between the project design team and their constituents. As of September 2011, 10 CAC meetings were conducted, as summarized below:

- CAC Meeting No. 1 was held March 29, 2007, at Benjamin Franklin Library, 2200 E. 1st Street. Seventeen (17) members attended the meeting. The PDT presented project information to CAC members and informed them about the objective of the CAC meetings and the role of its members. All members were provided the opportunity to ask questions related to the proposed project and express their concerns.

- CAC Meeting No. 2 took place May 10, 2007, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Fifteen (15) members and 2 guests attended the meeting. The members were divided into 5 small groups to discuss the issues and opportunities associated with the proposed project.

- CAC Meeting No. 3 took place June 28, 2007, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Thirteen (13) members attended the meeting. The objective of this meeting was to provide CAC members with an opportunity to participate in development of the purpose and need statement for use as a guide in proposed project alternative development and in the environmental document preparation.

- CAC Meeting No. 4 took place August 28, 2007, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Seventeen (17) members attended the meeting. The objective of this meeting was to provide CAC members with an opportunity to view possible replacement bridge types. CAC members also participated in a workshop for expressing their personal preferences among numerous potential bridge types, as input for the project team. Results of the votes received from the CAC members are presented in Figure 3 of Appendix N (Alternative Development Process), with the existing bridge type or abutment-to-abutment replication (Through Arches Category) receiving the highest number of votes at 16 and the extradosed concrete box girder (Cable Type Category) receiving 8 votes. The bridge concepts that received the third highest votes at 6 are steel half-through arch cast-in-place (CIP) girder approaches (Through Arches Category) and concrete slant leg frame concept (Deck Arches Category).

- CAC Meeting No. 5 took place November 8, 2007, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Eighteen (18) members attended the meeting. The objective of this meeting was to update CAC members on the screening of replacement bridge types and alignments, retrofit technologies, and status of the environmental review process.

- CAC Meeting No. 6 took place March 26, 2008, at the 6th Street Viaduct site. Fifteen (15) CAC members participated in the site tour. They had an opportunity to see first-hand the cracks in structural concrete elements as a result of the alkali silica reaction (ASR) and the constraints affecting project implementation.

- CAC Meeting No. 7 took place October 28, 2008, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Eleven (11) members attended the meeting. The objective of this meeting was to update CAC members on the current project status and present a status update of the environmental analysis process. CAC members expressed various preferences for bridge types, including replica and modern.

- CAC Meeting No. 8 took place February 12, 2009, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Fifty (50) people were present at the meeting. Representatives of Council District 14, the President of the City of Los Angeles Board of Public Works, and the City of Los Angeles City Engineer participated in the meeting. The objective of this meeting was to brief the CAC members on the Administrative Draft EIR/EIS that was under review by Caltrans Headquarters and Legal Office. Four CAC members expressed their dislike of the staff-recommended modern bridge Concept 4 (Dual Tower Extradosed [cable supported]) and their concern that staff had disregarded previous CAC support for a replica concept. The team explained to the CAC that no final decision had been made regarding project alternatives, and that the public would have opportunities to provide input about the proposed project alternatives during the circulation and public hearing for the Draft EIR/EIS.

- CAC Meeting No. 9 took place on April 7, 2009, at the Boyle Heights Senior Center, 2839 E. 3rd Street, Los Angeles. Approximately forty (40) people were present at the meeting. The Council member for Council District 14 and the City Engineer participated in the meeting. The objective of the meeting was to brief the members about modifications made to the Draft EIR/EIS based on feedback received during the previous meeting. In addition, the design team solicited input from members regarding architectural elements that should be considered as part of the various replacement bridge types. The City displayed renderings of 7 bridge types for review and feedback from the members. The team explained that the members and the public will have opportunities to provide feedback related to the bridge type during the public review process. The team informed the members that the Draft EIR/EIS will not include a staff-recommended bridge type.

- CAC Meeting No. 10 took place on July 29, 2010, at the Boyle Heights Youth Technology Center, 1600 E. 4th Street. Thirty (30) people were present at the meeting (based on the sign-in sheet). Representatives of Council District 14 and the City of Los Angeles City Engineer participated in the meeting. The objective of this meeting was to provide an update on the progress of the 6th Street Viaduct Seismic Improvement Project since CAC Meeting No. 9 in April 2009; explain preferred alternative evaluation process; discuss schedule milestones; and present a potential design expression for Bridge Concept 4A. The City Engineer informed the CAC members that Alignment 3B and Bridge Concept 4A have been identified as the preferred alternative. Mr. Jesse Leon, a representative of Council District 14, informed the CAC members that Council Member Jose Huizar values the input of the CAC members and that they should attend upcoming City of Los Angeles public hearings for the project.

Mr. Leon reiterated the need to replace the 6th Street Viaduct due to the ASR damage and seismic safety concerns. Mr. Leon stated that mitigation efforts for businesses and residents will be part of the process to ensure that an equitable process takes place. Mr. Leon also informed the CAC members that several agencies still need to review the final draft of the Final EIR/EIS prior to document certification. During the question and answer session, several CAC members expressed their support for the preferred Bridge Concept 4A.

Additional CAC meetings will be held as the proposed project proceeds to keep the public informed of project progress and to allow them to provide input at key milestones.

5.3 Scoping Process

The scoping process was initiated by widespread notification of government agencies and the public via publication of a Notice of Intent (NOI) and a Notice of Preparation (NOP) announcing initiation of the EIR/EIS. The NOI was published in the *Federal Register* (Volume 72, Number 169) on August 31, 2007, in accordance with NEPA. The NOP was posted on the City of Los Angeles Web site[110], the project's public Web site[111], and with the Los Angeles County Clerk/Recorder throughout the public review period (July 23, 2007, to September 13, 2007), in accordance with CEQA. Other notification activities included placement of public notices in newspapers of general circulation; mailing the NOP to potentially affected government agencies, residents, and businesses; and translation of public documents from English to Spanish. Other project information was also posted on the public Web site indicated above.

5.3.1 Mailings

The NOP was mailed to government agencies, business groups, neighborhood associations, property owners, and other stakeholders on July 23, 2007. These groups were invited to scoping meetings held on August 14 and 16, 2007.

A scoping meeting invitation, which gave details about the proposed project and announced the times and locations of the public scoping meetings, was mailed to more than 1,500 occupants within a 2,000-ft radius of the proposed project corridor.

[110] http://eng.lacity.org/techdocs/emg/Environmental_Review_Documents.htm
[111] http://www.la6thstreetviaduct.org/TheProject/ documents/NOP_Public.pdf

5.3.2 Public Noticing

Advertisements announcing the scoping meetings were placed in the *Los Angeles Times* and *La Opinion*. The *Los Angeles Times* is circulated throughout the county and read by millions of subscribers. *La Opinion* is circulated to the Latino community of Los Angeles.

The notices were published in English and Spanish to accommodate the diversity of the affected communities. An English advertisement was placed in the *Los Angeles Times* on July 27, 2007, and a Spanish advertisement was placed in *La Opinion* on July 27, 2007.

5.3.3 Scoping Meetings

Two separate scoping meetings were held on August 24, 2007; one was for government and public agencies and the other for the general public. The meetings were held at the Artshare Los Angeles, which is located at 326 S. Hewitt Street in Los Angeles on the west side of the Los Angeles River. The agency meeting took place from 2:00 p.m. to 4:00 p.m., and the general public meeting took place from 6:00 p.m. to 8:00 p.m. Another scoping meeting was held on August 26, 2007, at the Boyle Heights Youth Technology Center, which is located at 1600 E. 4th Street on the east side of the river and within the Boyle Heights community.

The agenda for these meetings included an introduction of the proposed project team members, a PowerPoint presentation on the proposed project, and a question and answer period. Attendees also participated in an open house. Display boards illustrating the proposed project limits and alternatives were placed throughout the room for attendees to view and interact with project representatives. The meetings were staffed by individuals representing the City of Los Angeles and the project consultant team. At both public meetings, Spanish interpreters were available to accommodate any non-English speakers.

5.3.4 Participating Agency Coordination

Section 6002 of SAFETEA-LU requires that all transportation projects requiring an EIS, for which the original NOI was published in the *Federal Register* after August 10, 2005, must have a plan established for coordinating public and agency participation and comment during the environmental review process. It is the responsibility of the lead agencies to develop the coordination plan to facilitate and document the interaction between the lead agencies and participating and cooperating agencies and the public.

As of July 1, 2007, Caltrans assumed FHWA's authority and responsibility for compliance with NEPA and other environmental laws. The Memorandum of Understanding (MOU) between FHWA and Caltrans concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program allows Caltrans to serve as the federal lead agency on this project.

As part of the Scoping Process and in accordance with the Section 6002 requirement, Caltrans prepared a Coordination Plan for this proposed project (see Appendix J). A summary of the coordination activities is provided below:

5.3.4.1 Invitation to Become Cooperating/Participating Agencies

Cooperating agencies are the federal agencies, other than the federal lead agency, which have jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. Cooperating agencies are also participating agencies. No cooperating agencies were identified for this project.

Participating agencies are federal, state, regional, or local agencies that may have an interest in the project. A list of pertinent federal, state, and local agencies was developed. A letter of invitation to participate in the project was sent on July 26, 2007, to agencies likely to have an interest. The rest of the agencies on the list received notification regarding the project through the NOI and NOP. Nine agencies responded to the letter of invitation, as shown in Table 5-1.

5.3.4.2 Coordination Meetings

Three coordination meetings were held during the Section 6002 environmental review process. The first meeting was held on October 31, 2007, at the Caltrans District 7 Office to provide the participating agencies with project information and to discuss the roles and responsibilities of the participating agencies. Caltrans provided the participating agencies with the opportunity for their involvement in developing the draft purpose and need statement. The meeting also allowed the participating agencies to advise and provide input on the technical studies. In addition, Caltrans provided the agencies with information regarding the range of alternatives being considered and further studied. They commented on this material, and a brief discussion was held after this information was presented. A site visit was also conducted following the first meeting.

The second participating agency meeting was held on February 4, 2008. An update of the project status was presented to the agencies. Caltrans outlined the next stages in the participating agency role in the environmental review process, including discussion of technical studies and methodologies, as well as social, economic, and environmental impacts within the project area. In addition, Caltrans provided the agencies with the opportunity to comment on anticipated issues that might arise in the future. Floodplain issues, railroad concerns, and the Los Angeles River Revitalization Plan were the main topics that the agencies noted.

Table 5-1
Participating Agency List

Participating Agencies	Contact Person/Title	Phone/E-mail/Address
U.S. Army Corps of Engineers	Theodore Masigat, Engineering Division, Operations, Los Angeles District	(213) 452-3393; theodore.j.masigat@usace.army.mil 915 Wilshire Boulevard, Los Angeles, CA 90017
U.S. Army Corps of Engineers	Phuong Trinh, Regulatory Division, Los Angeles District	(213) 452-3372; Phuong.h.trinh@usace.army.mil 915 Wilshire Boulevard, Los Angeles, CA 90017
*U.S. Army Corps of Engineers	Gabe Brooks, Right-of-Way Division, Los Angeles District	915 Wilshire Boulevard, Los Angeles, CA 90017
*U.S. Army Corps of Engineers	Ken Wong, Permits, Los Angeles District	915 Wilshire Boulevard, Los Angeles, CA 90017
U.S. Environmental Protection Agency	Susan Sturges Environmental Review Office Community and Ecosystems Division	(415) 947-4188; sturges.susan@epa.gov 75 Hawthorne Street, San Francisco, CA 94105
Advisory Council on Historic Preservation	Carol Legard Federal Highway Liaison Office of Federal Agency Programs	(202) 606-8522; clegard@achp.gov 1100 Pennsylvania Avenue NW Suite 809 Old Post Office Building Washington, DC 20004
*U.S. Department of Housing and Urban Development Los Angeles Field Office	William Vasquez CPD Field Office Director	611 West 6th Street, Suite 800 Los Angeles, CA 90017
*U.S. Department of Commerce	Environmental Review Section	14th and Constitution NW, Room 6800 Washington, DC 20230
U.S. Department of Homeland Security Federal Emergency Management Agency	Gregor Blackburn, CFM, Branch Chief Floodplain Management and Insurance Branch	(510) 627-7190 1111 Broadway, Suite 1200, Oakland, CA 94607-4052
*U.S. Department of Energy	Environmental Review Section	1000 Independence Avenue SW 4G-064 Washington, DC 20585
*Federal Railroad Administration; Office of Railroad Development	David Valenstein	400 Seventh Street SW MS20 Washington, DC 20590
City of Los Angeles Department of Parks and Recreation	David Attaway Environmental Supervisor	(213) 928-9130 4155 S. Saint Louis Street, Los Angeles, CA 90033
City of Los Angeles Bureau of Engineering Real Estate Group	Frank Viramontes Chief Real Estate Officer II	(213) 485-5447; frank.viramontes@lacity.org Department of Public Works, Bureau of Engineering Real Estate Division 600 S. Spring Street, 7th Floor, Stop 515 Los Angeles, CA 90014
Los Angeles County Metropolitan Transportation Authority	John C. Miller, P.E. Engineering Project Manager	(213) 922-2000; millerjo@mta.net 1 Gateway Plaza Mail Stop: 99-22-1 Los Angeles, CA 90012-2932
SCRRA—Metrolink	Laurene Lopez Community Relations/Environmental Review Administrator	(213) 452-0288; lopezl@scrra.net SCRRA—Metrolink 700 South Flower Street, 26th Floor Los Angeles, CA 90017

Note: * Federal agency not responding to the letter of invitation to become a participating agency.

Per SAFETEA-LU, a federal agency invited shall be designated as a participating agency unless the agency declines the invitation by the deadline specified and states that the agency (1) has no jurisdiction or authority with respect to the project, (2) has no expertise or information relevant to the project, and (3) does not intend to submit comments on the project.

The third meeting was held on October 20, 2008. Caltrans provided an update to the participating agencies on the project status. A summary of the Alkali Silica Reaction (ASR) Workshop was presented. In addition, Caltrans discussed the environmental analysis results. Additional participating agency meetings will be held as the EIR/EIS progresses.

A list of all agencies invited to become a participating agency or cooperating agency is located in the Coordination Plan (Appendix J).

During the project development period, Caltrans had several meetings with public agencies. Caltrans, City of Los Angeles, and State Historic Preservation Officer (SHPO) held a meeting on April 6, 2009. The main focus was the discussion of Alkali Silica Reaction and possible mitigation measures. A field review was conducted after the meeting.

Caltrans and the City of Los Angeles held a meeting on February 4, 2009, with the Los Angeles Office of Historic Resources. The main purpose of this meeting was to discuss the proposed measures to be included in the Section 106 Memorandum of Agreement (MOA) for the various bridges undergoing improvement.

In addition, Caltrans, the City of Los Angeles Department of Public Works Bureau of Engineering, and the City of Los Angeles Planning Department had a meeting with the Los Angeles Conservancy on October 29, 2007. The purpose of this meeting was to provide detailed information about the project development process and other background information. The meeting also provided a forum for the Los Angeles Conservancy to ask questions and gain a better understanding of the issues surrounding the project.

Additional coordination meetings with federal, state, and local agencies are ongoing, and they will continue throughout the planning stage of the proposed project. In addition, various historical society/historic preservation groups and Native American individuals/organizations have been contacted and kept informed about the status of project development.

5.4 Public Participation

Public participation has been an important aspect of this project. A series of meetings with affected property owners, community groups, and interested agencies has been carried out throughout the project development period and will continue as the project moves forward. Representatives from the City of Los Angeles Department of Public Works Bureau of Engineering, Caltrans, and the project consultant team have presented project information and answered questions from the attendees at numerous meetings. Several methods were used to inform the public of meetings, such as newspaper notices, invitations sent to affected property owners and community groups, invitations to become a participating agency and/or cooperating agency, and the NOP/NOI.

The community meetings carried out during the Draft EIR/EIS preparation consisted of the following:

- Boyle Heights Neighborhood Council Land Use Committee – February 13, 2007
- Boyle Heights Neighborhood Council Quadrant 4 – March 12, 2007
- Downtown Los Angeles Neighborhood Council – March 13, 2007
- Boyle Heights Neighborhood Council Quadrant 3 – May 9, 2007
- Boyle Heights Resident Homeowner Association – May 19, 2007
- Downtown Arts District Business Improvement District – October 3, 2007
- Community Redevelopment Agency of Los Angeles, Eastside Region – October 4, 2007
- Los Angeles Conservancy – October 29, 2007
- City of Los Angeles Interdepartment Planning Staff – March 24, 2008
- City of Los Angeles Interdepartment Planning Staff – April 4, 2008
- American Institute of Architects – April 23, 2008
- ASR Workshop – August 27, 2008
- Central City East Association – December 3, 2008
- City of Los Angeles Office of Historic Resources – February 4, 2009

In addition to the above-mentioned meetings, a CAC was formed, and ten meetings have been conducted. Refer to Section 5.2.2 for more detailed information regarding the CAC.

The Public Outreach Report[112] was also prepared to summarize the project outreach activities and the comments received. The report is available for review at the City of Los Angeles Department of Public Works Bureau of Engineering, Bridge Improvement Program, and Caltrans District 7 office.

5.5 Business Survey

A business survey was conducted to acquire information on business operations and identify issues and concerns of businesses located within the vicinity of the project construction limits. More than 100 survey questionnaires were distributed to local businesses within the project area. Forty (40) businesses were interviewed by the outreach team. The information collected was evaluated to determine the potential effects on businesses and employees as a result of project implementation.

[112] Public Outreach Report – Scoping Phase for 6th Street Viaduct Seismic Improvement Project. September 2008.

5.6 Comments and Responding to Comments

Numerous questions and concerns were raised at the public information meetings, scoping meetings, and coordination meetings. In addition, 24 written comments were received during the scoping period.

The main issues and concerns that were expressed include:

- Historic resource preservation
- Public safety
- Costs and funding
- Preference for either retrofit or replacement of the viaduct
- Design and development opportunities
- Management of homeless residents
- Integration of the proposed Los Angeles River Revitalization Project
- Business impacts due to right-of-way acquisitions
- Construction impacts, including traffic detours
- Traffic volumes and speed on the viaduct
- Loss of industrial land use area
- Impacts to railroad operation

Most of the comments raised at the various meetings were responded to by the project team to the extent that the information was available at the time. Written responses to selected substantive comments were prepared, and follow-up meetings with the commenting parties were held to respond to the issues of concern. All comments received were considered during the project development/preliminary design phase and in the Draft EIR/EIS preparation.

5.7 Public Review of Draft EIR/EIS

This section provides a summary of public involvement activities undertaken during the review period for the Draft EIR/EIS. All notices and announcements prepared as part of the public involvement process including public hearing information are contained in the Public Involvement Activities Report – Environmental Preparation Phase, October 2011. The report is available for review at the City of Los Angeles Bureau of Engineering, Environmental Management Office.

5.7.1 Draft EIR/EIS Distribution

Caltrans and the City circulated the Draft EIR/EIS for public review between June 16, 2009, and August 24, 2009. The Notice of Availability (NOA) was published in the *Federal Register* on July 10, 2009 (Volume 73, Number 131 *EIS No. 20090226)*. The Draft EIR/EIS was mailed to elected officials, government agencies, and interested parties. The NOA and invitation to public hearings were prepared in English and Spanish.

5.7.2 Notices of Public Hearings

Advertisements announcing the Draft EIR/EIS public hearings were placed in the *Los Angeles Times*, *La Opinión*, *Eastside Sun,* and *Los Angeles Downtown News* newspapers. In addition, public notices written in English and Spanish were mailed to current residents located within a 2,000-foot (ft) radius of the 6th Street Viaduct.

5.7.3 Public Hearings

Three Draft EIR/EIS public hearings were held. The first public hearing was held at the Caltrans District 7 Headquarters at 100 S. Main Street in Los Angeles, on July 14, 2009, from 2:00 p.m. to 4:00 p.m. Based on the sign-in sheet, 24 individuals attended the meeting (10 City staff, 10 Caltrans staff, and 4 interested parties). The second public hearing was held on the east side of the project at the Boyle Heights Senior Center at 2839 East 3rd Street in Los Angeles, on July 14, 2009, from 6:00 p.m. to 8:30 p.m. Based on the sign-in sheet, 37 individuals attended the meeting (6 City staff, 1 Caltrans staff, and 30 interested parties). The third and final public hearing was held on the west side of the project at the Inner City Arts Building at 720 Kohler Street in Los Angeles, on July 21, 2009, from 5:00 p.m. to 7:00 p.m. Based on the sign-in sheet, 32 individuals attended the meeting (2 Council District 14 staff, 7 City staff, 1 FHWA staff, 2 Caltrans staff, and 20 interested parties).

The agenda for all of the hearings included an open house viewing of project displays, introduction of project team members, a project presentation, and public testimony with a court reporter. The project display boards included aerial photographs, engineering drawings, photo simulations, and bridge concept models for attendees to view while interacting with project representatives. A Spanish-language translator was available at all the public hearings.

5.7.4 Verbal Comments Received during Public Hearings

The public hearings included an opportunity for public comments which were recorded by a court reporter. Attendees were asked to complete a comment card if there was a specific comment or question that needed to be answered by the panel. Table 5-2 presents a summary of the verbal testimony received and answers to questions provided by staff. Comments and substantive responses are summarized below are included in their entirety in the Transcripts of Public Hearing kept on file at the City of Los Angeles Bureau of Engineering Bridge Improvement Program and the Caltrans District 7 Office. No comments were received at the first hearing held at the Caltrans office.

Table 5-2
Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
Boyle Heights Senior Center, 2839 East 3rd Street, Los Angeles, July 14, 2009, 6:00 p.m. to 8:30 p.m.			
Art Geilman, Shalom and Sons	Will there be any tax consequence for any local businesses? Will there be any state or federal money for disruption of business?	No. Yes, state and federal money. Mostly federal money.	33
Unknown Commentor	What plan is there to protect businesses and buildings that are along the alignment during demolition? How much of the property are you going to use in order to accomplish that? Are you going to use the property alongside the bridge to bring it down? Are you going to take some of the property, or are they going to be affected in any way?	Many means and methods would be used by the demolition contractor, generally in the form of debris walls, monitoring, and pre-inspection. Typically, specifications are made with the contractor. For instance, monitoring devices are installed to measure the vibration to determine the degrees of movement. Physical surveys of existing buildings to document their condition before, during, and after the start of demolition are also conducted. Screen walls may also be erected between existing buildings and the project. When the bridge is brought down vertically, then crews have to remove the debris and will be using local roads. Or, depending on the contractor, the bridge will be brought down in pieces, staying within the footprint of the existing bridge. Eventually the contractor will have to get outside that footprint to remove the bridge.	34
Rafael (no last name or residence given)	How will the bridge be taken down with bringing it down on our building, which is situated partly under the bridge, or blocking our access?	A vertical wall would be built between your building and the bridge. Your access is currently through City right-of-way underneath the bridge, so to address your concerns for access, we'd need to look at your lease agreement with the City.	36
Geilman (no last name given)	We wouldn't be able to access the building with forklifts and trucks if you're putting a wall there.	Currently, if you have access from underneath the bridge into your building, that access is through City right-of-way, and so we would have to look at the lease agreement that you currently have with the City in leasing their property to get access that's not on a public road.	38
Rosalie Guroa, Boyle Heights Resident	Whatever the final design of the bridge, I'd like it to be closer to the original, which is a landmark in our community.	The EIR is looking deeply into that issue. Traffic was modeled for the streets that traffic would be diverted to. We did traffic modeling of the streets that the traffic would be diverted	39

Table 5-2
Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
	When the bridge is closed, it will have major impacts to my community, especially traffic on 4th Street. How are you addressing that?	to, like 4th Street, 7th Street, Soto, Boyle, and on the other side, Alameda, Central. We have traffic growing forecasts, and we have come up with measures to make it better, but it won't be perfect. We won't try to gloss over the fact that there will be impacts because there are 13,000 cars that we have to move off that bridge for about four years, so we're going to do our utmost with good design and planning and working with our partner agencies to make the affected intersections and streets run as smoothly as possible.	
Arturo Vera, Boyle Heights Resident and member of the Boyle Heights Homeowners Association	What will happen to the final bridge design if there's not sufficient money?	This project competes with other projects throughout the state of California and even at the federal level. Currently, the City is working on a financial plan to figure out how to finance the project over a number of years. Financing is a key issue for the project.	42
Victoria Torres, Boyle Heights Historical Society	Concerned over the speed limit on the widened and straightened bridge.	The speed limit on the bridge is not expected to be changed.	44
Carol Armstrong, City of LA River Project Office	Would like to see the project as a retrofit; if a new bridge is required, incorporate "riverly" elements. It is important that the high-speed rail and its future impacts be considered with this project.	The comment is acknowledged by the moderator.	45
Joaquin Castellanos, Boyle Heights Resident	The cable bridge looks beautiful, but there are already too many cables in the area. Prefers the bridge design to reflect the history of the community.	The comment is acknowledged by the moderator.	45
Jim Zant, Cal Hono Freight	Cal Hono Freight subleases a property that might be affected by the demolition of the bridge. The gate for the truck maneuvering area is adjacent to the pylons.	If the loading docks or travel/maneuvering area is underneath the bridge, that land is currently City right-of-way.	46
Mike Bueller, Los Angeles Conservancy	Regarding bridge design Alternative 1-A, is it described somewhere, because it isn't included in the EIR? What are that alternative's differences other than additional columns in the railroad right-of-way? Why are right-of-way costs higher for the replication alternative? Can we assume that those parcels/ buildings designated for acquisition would be demolished?	The full replica abutment is not documented in the Draft EIR/EIS. It will all be documented in the Final EIR/EIS. The alternative has differences in construction and higher right-of-way costs/impacts. The bridge is wider and has more columns/footings. They would be demolished and businesses relocated.	46
Paul Habib, From Councilman Jose Huizar's Office	If Alternative 3-B is the preferred alignment, it would cost a hundred million more and it affects the most	The PDT is looking into modifying Alignment 3-B in an effort to minimize overall right-of-way takes.	51

Table 5-2
Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
	amount of properties. Why was that selected as opposed to 3-A or another one with a little less impact?		
Miguel Afaro, Boyle Heights Resident and Resurrection Church member	He and members of Resurrection Church prefer the futuristic look of the bridge. Some of the designs have big walls that will attract graffiti. Also the lighting and pylons in the middle of the street are a hazard.	The comment is acknowledged by the moderator.	51
Martha Cisneros, Boyle Heights Resident	In favor of the replica bridge and opposes all other bridges due to the fact that we are a historic area.	The comment is acknowledged by the moderator.	51
Gilman (No last name given)	Will there be any state or federal money for disruption of businesses.	Yes, mostly federal money	52
Inner City Arts Building, 720 Kohler Street, Los Angeles, July 21, 2009, 5:00 p.m. to 7:00 p.m.			
Alana Linn, Little Tokyo Resident	Would like future public hearings to be in public libraries or schools that are more accessible on bike. Would like the public hearings videotaped and available on the Internet. Believes a short break between presentation and question/answer sessions would be useful.	The comment is acknowledged by the moderator.	29
John McShane, Silver Seed Company	Silver Seed Company was not surveyed for the project.	Silver Seed Company was surveyed. (The survey of affected property owners was performed in September 2007. The survey team received the response to the questionnaire back from Silver Seed Company. The information from the survey form was summarized in Table 3.4-2).	34
Paul Habib, From Councilman Jose Huizar's Office	If Alternative 3-B is the preferred alignment, it would cost a hundred million more and it affects the most amount of properties. Why was that selected as opposed to 3-A or another one with a little less impact?	The PDT is looking into modifying Alignment 3-B in an effort to minimize overall right-of-way takes. The design of the bridge is only 5 to 10% complete, so another 90% of design work still needs to be done. (Note, Mr. Habib also attended the July 14 meeting and would like to make the same comment for record).	36
Estella Lopez, Arts District BID	What is the radius that you are using for the outreach to the business owners around the impact zone? What is the impact zone on this side of the bridge? Concern is for the emerging live/work units in old industrial buildings that are not readily visible from the street.	A 2,000-foot radius around the bridge was used for mailing notices for this public hearing. At the start of the project, the community outreach and business outreach consultants canvassed the project area and have compiled a detailed database of inhabited and uninhabited businesses.	38
Jim Bickley, Spilo Worldwide	How will the modified 3-B alternative affect properties on the northwest side of the bridge?	The alignment on the west side remains the same, so it's really no change to that area.	41

Table 5-2
Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
	So where is the reduction in right-of-way costs?	The major change is along the south side.	
Alana Linn, Little Tokyo Resident	The bridge and project could represent not only earthquake preparedness but green initiatives. It would be a very tangible way of presenting these important issues for all of Los Angeles.	The comment is acknowledged by the moderator.	42
Tiffany Sum, Downtown Resident	The LA River Revitalization Initiative is aligning with this project and may be aligned with cultural activities or interest with the development of the City.	The comment is acknowledged by the moderator.	43

5.7.5 Comments Received from Public Agencies and Interested Parties

During the Draft EIR/EIS public review period, 26 e-mails and letters were received, as summarized in Table 5-3. An additional written comment was received during CAC 10 meeting in July 2010. Responses to all written comments are provided in Appendix M of this Final EIR/EIS.

Table 5-3
Summary of Written Comments Received on Draft EIR/EIS

Comment Letter No.	Name	Date Received	Issues
1	Hill, Farrer & Burrill LLP (representing Spilo Worldwide)	June 29, 2009	• Concerns over acquisition of property • Impacts to access • Construction noise and dust
2	Federal Emergency Management Agency (FEMA)	July 13, 2009	• Comply with the Flood Insurance Rate Maps requirements • Comply with the National Flood Insurance Program requirements
3	Martha Cisneros	July 14, 2009	• In support of Alternative 1A and opposed to all others
4	Juaquin Castellanos	July 14, 2009	• In support of Alternative 1A
5	Victoria Torres	July 14, 2009	• In support of Alternative 1A
6	Kevin Break	July 14, 2009	• Ensure bridge is “pigeon-proof” • Provide outlets for 120/220/480 voltage to accommodate filming at the bridge
7	Art Herrera	July 14, 2009	• In support of Alternative 4A
8	Tiffany Sum	July 14, 2009	• In support of Alternative 4A
9	John Fisher	July 14, 2009	• Incorporate original design elements of existing bridge in the new bridge, including the pyramid shape, art deco light standards, and flower design (pictures provided)
10	Cal Hono Freight	July 15, 2009	• Concerns over potential partial acquisition and construction staging areas

Table 5-3
Summary of Written Comments Received on Draft EIR/EIS

Comment Letter No.	Name	Date Received	Issues
11	City of Los Angeles Cultural Heritage Commission	July 30, 2009	• Designation as Historic-Cultural Monument (HCM) not mentioned in Draft EIR Executive Summary • Identify alternatives that will allow bridge to retain its HCM status • Provide full replication/reconstruction alternative • Reconsider artificial constraints guiding project alternative analysis • Provide an additional partial preservation alternative • Inadequate mitigation measures for Alternative 3-Replacement • Potentially inappropriate location for the retention and reuse of the bridge's original steel arches • Effects of the proposed alternatives on architectural elements not physically connected to the bridge but in close proximity • Cite guidelines for Historic Rehabilitation and Replacement by the American Association of State Highway and Transportation Officials • MM-4 and MM-15 imply MOA already executed • SHPO's role unclear in concurrence with a finding of eligibility and with the HPSR • Clarify CAC support of full replication alternative • Draft EIR presented information inconsistent with CAC meeting minutes • Incorrect contact information for Office of Historic Resources
12	City of Los Angeles Bureau of Street Lighting (BSL)	July 28, 2009	• Nighttime glare and light pollution • Clarify historic lighting replacement objectives and design standards
13	Glacier Cold Storage	July 29, 2009	• Concerns over potential partial acquisition and construction staging areas
14	County of Los Angeles Department of Public Works	August 6, 2009	• In support of project • Impacts to Los Angeles River Master Plan (LARMP) objectives • River pollutants
15	State of California Public Utilities Commission	August 13, 2009	• Design criteria must comply with Commission General Orders • Arrange meeting with the Rail Crossings Engineering Section of the Public Utilities Commission
16	Central City East Association	August 14, 2009	• Impacts to Arts District during construction • Hire business impact specialist to accommodate businesses during construction • Open/recreational space creation
17	Stover Seed Company	August 14, 2009	• Impacts to 6th Street frontage road would eliminate access and reduce parking • Public involvement initiated too late in environmental process
18	Hill, Farrar & Burrill LLP (representing Spilo Worldwide)	August 14, 2009	• Cumulative effects of related projects (high-speed rail) • Concerns over potential acquisition • Impacts to access during construction • Amend mitigation measures to allow for more notice time for relocation/acquisition (90 days is insufficient notice) • Document typos
19	Hager Pacific Properties	August 17, 2009	• In support of Bridge Concept 4 and Alignment 3B • Concerns over potential acquisition • Impacts to access and parking • Construction time frame

Table 5-3
Summary of Written Comments Received on Draft EIR/EIS

Comment Letter No.	Name	Date Received	Issues
20	Friends of the Los Angeles River	August 17, 2009	• Community identity and cohesion • In support of bridge replacement that is appropriate, unique, and iconic (pictures provided) – further design analysis required • Stakeholder involvement • Address LARRMP goals
21	California Archives	August 19, 2009	• Misleading description of existing bridge design • Historic identity • In support of bridge restoration
22	United States Environmental Protection Agency (EPA)	August 24, 2009	• In support of Alternatives 2 and 3 • Expand upon cumulative impacts analysis • Historic and cultural resources • Environmental justice impacts • Aquatic resources impacts • Air quality/construction mitigation • Bike/pedestrian facilities
23	Department of Interior	September 3, 2009	• Executed MOA should be included in the Final EIR/EIS • Mitigation measures should be included in the MOA.
24	Office of Planning and Research	September 18, 2009	• No comments were received from any state agency.
25	Gabrieleno Band of Mission Indians	October 30, 2009	• Native American monitor should be onsite during excavation activity
26	CRA/LA	July 29, 2010	• Impacts to potential 500-600 Anderson Street Historic District

5.7.6 Meetings with Property Owners

The City Real Estate staff made visits to several businesses within the potentially affected area of the proposed project during the project development and public review period of the Draft EIR/EIS. The meetings were to answer questions and provide relevant information pertaining to the right-of-way process. The record of these meetings is presented below:

- ACE Beverage – 1600 E. 6th Street (November 25, 2008)
- Shalom and Sons – 638 S. Anderson Street (June 16-18, 2009, and July 21, 2009)
- Spilo Worldwide – 585 S. Santa Fe Avenue (June 10, 2009, and June 16-18, 2009)
- City of Los Angeles Bureau of Street Services – 1149 South Broadway Avenue (June 16-18, 2009)
- Hager Pacific, Glacier Cold Storage, LTD (Tenant), and Cal Hondo Freight (tenant) – 2233 Jesse Street (June 16-18, 2009)
- Lumary's Tire Service (Owner) – 600 S. Santa Fe Avenue (June 16-18, 2009)
- Stover Seed Company (Owner) – 1415 E. 6th Street (June 16-18, 2009)

- Colin & Beverly Shorkend (Owner) and Un Deux Trois (Tenant) – 1425 E. 6th Street (June 16-18, 2009)
- Peter Alexandra Furniture –1427 E. 6th Street (June 16-18, 2009)
- Butterfield Trails (Owner) – 590 S. Santa Fe Avenue (film studio) (June 16-18, 2009)
- Chalmers Malt, LLC (Owner) – 633 S. Mission Road (May 27, 2009, and June 16-18, 2009)
- Senegram Holding Company (Owner) and Leaf Organics (Tenant) – 631 S. Anderson Street (June 16-18, 2009)
- Cal Fiber (Tenant) – 627 S. Anderson Street (June 16-18, 2009)
- J & W Holdings (Owner) and E-Lady Enterprises Inc. (Tenant) – 631 S. Anderson Street (June 16-18, 2009)
- Duesenberg Investment Co. (Owner), Ace Beverage Co. & Mission Beverage – 550 S. Mission Road (June 16-18, 2009)
- Eddie & Shirley Glass (Owner) and Wild Honey (Tenant) – 2325 Jesse Street, Unit B (one of three tenants) (June 16-18, 2009)
- Gustavo and Violeta Ulloa (Owner), Bell Craft Office Furniture, Upholstery Manufacturer – 651-653 S. Clarence Street (June 16-18, 2009)
- Aristspacela (Owner) – 650 S. Clarence Street, spoke to owner's agent (vacant and for sale) (June 16-18, 2009)

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Chapter 6
List of Preparers

Chapter 6 List of Preparers

6.1 Lead Agency Staff

City of Los Angeles

Jim Treadaway, P.E.	Program Manager
John Koo, P.E.	Senior Project Manager
Jim Wu, P.E.	Project Manager
Linda Moore	Environmental Supervisor
Wally Stokes	Environmental Facilitator and Reviewer
Bearj Sarkis, P.E.	Transportation Engineer, Traffic Analysis Reviewer
Frank Viramontes	Real Estate Division Officer
Uriel Jimenez	Real Estate Division Officer
Gloria Casabona	Real Estate Officer

California Department of Transportation

Carlos Montez, Branch Chief	Environmental process oversight, Document Reviewer
David Lewis, Environmental Planner	Document Coordinator and Reviewer
Mine Struhl, Associate Environmental Planner	Document Coordinator and Reviewer
Gary Iverson, Senior Environmental Planner	Cultural Resources Reviewer
Claudia Harbert, Associate Architectural Historian	Cultural Resources Reviewer
Andrew Yoon, Transportation Engineer	Air Quality Study Reviewer
Jin Lee, Senior Noise Engineer	Noise Study Reviewer
Gene Kimmel, Landscape Architect	Visual Impact Assessment Reviewer
Linda Tong, Senior Right-of-Way Agent	Draft Relocation Impact Report Reviewer
Gustavo Ortega, Senior Engineering Geologist	Draft Foundation Report Reviewer
Ayubur Rahman, Hazardous Waste Branch Chief	Initial Site Assessment Reviewer
Paul Caron, Senior Biologist	NES Reviewer

6.2 Report Preparers

Parsons Transportation Group, Inc.

Jeffery Bingham, Senior Project Manager	Environmental Project Director, Section 4(f) Evaluation preparer, technical reviewer
Anne Kochaon, QEP, Project Manager	Environmental Project Manager, Community Impact Assessment, EIR/EIS document coordinator, technical report peer reviewer, and EIR/EIS report preparer
Nasrin Behmanesh, Ph.D., Principal Air Quality Specialist	Air Quality Technical Report preparer
Angela Schnapp, Senior Planner	Initial Site Assessment preparer
Jeff Lormand, Principal Landscape Architect	Visual Impact Assessment preparer
Thanh Luc, Noise Specialist	Noise Study Report preparer
Francesca Smith, Senior Architectural Historian	Historical Property Survey Report preparer
Kip Harper, Senior Cultural Resources Specialist	Historic Property Survey Report preparer
Carrie Chasteen, Senior Architectural Historian	Finding of Effect Report preparer
Pika Rosario, Associate Planner	Data collection and Land Use analysis
John Moeur, Principal Ecologist	Natural Environment Study (NES) Update
Leslie Provenzano, Associate Planner	Data collection, Document publication coordinator
Ron Carbone, Senior Graphic Designer	Visual simulation and graphics preparer
Elizabeth Koos, Technical Editor	Document editor

David Evans and Associates

Steve Thoman, S.E., Project Design Manager	Project Manager, Coauthor of Bridge Type Selection Advance Planning Study and Bridge Type Selection Structure Type Screening Phase

Brett Jones, P.E., Project Manager	Bridge Engineer, Project Study Report and Project Report preparer
Brian Hansen, P.E., Bridge Engineer	Bridge Engineer, Coauthor of Bridge Type Selection Advance Planning Study Phase Kent Cordtz, S.E., Bridge Project Engineer Bridge Engineer, Coauthor of Bridge Type Selection Advance Planning Study and Bridge Type Selection Structure Type Screening Phase

IDC Consulting Engineers, Inc.

Shafi Sharifan, Ph.D., P.E., Principal	Bridge Engineer, Coauthor of Bridge Type Selection Structure Type Screening Phase Report

Don MacDonald Architects

Donald MacDonald, AIA	Bridge Architect, Contributor to the Bridge Type Selection, Advance Planning Study Phase Report.

Moffatt & Nichol, Inc.

Walt Quesada, P.E., Project Manager	Roadway Lead and Technical Contributor, Technical Reviewer
Suhash Patel, P.E., Senior Roadway Engineer	Right-of-Way Task Leader
Nicholas Schilling, Roadway Engineer	Roadway Designer and Utilities Coordinator
Weixia Jin, Ph.D., P.E., Senior Hydrology Engineer	Hydraulics and Hydrology
Steve Robinson, Senior Railroad Engineer	Railroad Coordination
S. R Chan, P.E./S.E., Senior Project Manager	Technical Reviewer
Goska Nichol, P.E., Senior Roadway Engineer	Technical Reviewer

ACT Consulting Engineers

Hon Yow, P.E.	Traffic Analysis Report preparer

PacRim Engineering

David L. Francke, PE, Senior Project Manager	Traffic Analysis Report preparer

Paragon Partners

Konstantin Akhrem	Real Estate Right-of-Way Investigations
Darryl Root	Real Estate Right-of-Way Investigations
Craig Chong	Real Estate Right-of-Way Investigations
Richard Saretsky	Real Estate Right-of-Way Investigations

BonTerra Consulting, Inc.

Pamela G. Castens, Senior Project Manager	Technical Reviewer of NES, Archaeological Study Report (ASR), and Paleontological Investigation Report (PIR).
Amber S. Oneal, Senior Project Manager	Ecologist, NES preparer
Brian Daniels, Senior Biologist	NES preparer
Andrea Edwards, Ecologist	NES preparer
Patrick Maxon, RPA, Director Cultural Resources	Reviewer of ASR and PIR
Brian K. Glenn, RPA, Cultural Resources Manager	ASR preparer

Paleo Environmental Associates

Bruce Lander, Ph.D., Principal Paleontologist	PIR preparer

CH2M Hill

Yoga Chandran, Ph.D., G.E., Senior Project Manager	Program Manager and Coordinator
Craig Leszkiewicz, P.E.	Project Geotechnical Task Leader, Foundation Report preparer
Partha Bora	Hazardous Material Specialist, Site Investigation Task Leader

De Leon, Inc.

Domingo Leon, P.E., Principal	Utilities Search

Diverse Strategies for Organizing

Tony Torres, Vice President	Public Outreach Manager
Glenda Silva, Outreach Specialist	Public Outreach Coordinator

Chapter 7
Distribution List

Chapter 7 Distribution List

7.1 Draft EIR/EIS

The Draft EIR/EIS was made available for review by the general public, government agencies, and other interested parties. The public notification process announcing availability of the Draft EIR/EIS is summarized below.

7.1.1 Federal Register

Availability of the Draft EIR/EIS was published in the *Federal Register* on July 10, 2009.

7.1.2 Notice of Completion

The Notice of Completion (NOC) announcing release of the Draft EIR/EIS was filed with the Office of Planning and Research, the County Clerk, and the City Clerk in June 2009.

7.1.3 Notice of Availability

The Notice of Availability of the Draft EIR/EIS containing the project description, the locations where the Draft EIR/EIS can be reviewed, the comment period, and the invitation to the public hearing was directly mailed to affected residents, businesses, and all occupants in the proposed project study area in June 2009. The mailing area covered all businesses and residences situated within a 2,000-ft radius from the 6th Street Viaduct. The public review and comment period for the Draft EIR/EIS was 70 days.

The public notice and invitation to attend public hearings was published in local newspapers, including the *Los Angeles Times, Eastside Sun, Los Angeles Downtown News,* and *La Opinion* approximately 2 weeks before the scheduled hearing dates.

7.1.4 Locations Where the Draft EIR/EIS can be Viewed

Copies of the Draft EIR/EIS were available for viewing at the following locations:

- City of Los Angeles Department of Public Works Bureau of Engineering, Bridge Improvement Program, 221 N. Figueroa Street, Suite 350, Los Angeles, CA 90012
- City of Los Angeles Department of Public Works Bureau of Engineering, Environmental Management Group, 1149 South Broadway, Suite 600, Los Angeles, CA 90015

- Caltrans, District 7 Office, Environmental Group, 100 S. Main Street, Los Angeles, CA 90012
- Benjamin Franklin City Library, 2200 E. 1st Street, Los Angeles, CA 90033
- Little Tokyo Branch City Library, 203 S. Los Angeles Street, Los Angeles, CA 90012
- Council District 14 Information Desk, 200 N. Spring Street, RM 465, Los Angeles, CA 90012, and field office at 1870 E 1st Street, Los Angeles, CA 90033.
- The City of Los Angeles Web site: http://eng.lacity.org/projects/fwp/project.htm
- Caltrans website at http://www.dot.ca.gov/dist07/resources/envdocs/
- Public Website at http://www.la6thstreetviaduct.org

7.1.5 Draft EIR/EIS Distribution List

The following officials, agency representatives, and interested parties received either a copy of the draft environmental document or a notice informing them of its availability.

7.1.5.1 Elected Officials

Federal

Congressperson Xavier Becerra (District 31)
Congressperson Lucille Roybal-Allard (District 34)
Senator Barbara Boxer
Senator Diane Feinstein

State

State Assembly Member Kevin de León, District 45
State Assembly Member John Pérez, District 46
State Senator Member Gilbert Cedillo, District 22

Local

Los Angeles County Supervisor Gloria Molina, District 1

City of Los Angeles

Councilman Jose Huizar, Council District 14
Councilman Ed Reyes, Council District 1
Mayor Antonio Villaraigosa

7.1.5.2 Government Agencies

Federal

U.S. Fish & Wildlife Service

U.S. Army Corps of Engineers – Los Angeles District

U.S. Environmental Protection Agency Region 9

U.S. Federal Emergency Management Agency

U.S. Department of Transportation, Federal Highway Administration

U.S. Department of Energy

U.S. Department of Housing and Urban Development

U.S. Department of Interior

Federal Railroad Administration

Native American Tribal Councils

Advisory Council on Historic Preservation

State

Office of Planning and Research, State Clearinghouse

- California Air Resources Board
- California Department of Fish and Game
- California Department of Parks and Recreation
- California Department of Justice
- California Highway Patrol
- California Resources Agency
- California Public Utilities Commission
- California Integrated Waste Management Board
- California Native plant Society

California Regional Water Quality Control Board

California Transportation Commission

California Native American Heritage Commission

Regional

Southern California Association of Governments

South Coast Air Quality Management District

Los Angeles County

County Clerk

County of Los Angeles Department of Regional Planning

County of Los Angeles Community Development Commission

County of Los Angeles Metropolitan Transportation Authority

County of Los Angeles Department of Public Works

County of Los Angeles Sheriff Department

7.1.5.3 Local Jurisdictions

City of Los Angeles

Planning Department

Housing Department

Community Development Department

Environmental Affairs Department

Fire Department

Police Department

General Service Department

Department of Transportation

Department of Building Safety

Department of Public Works, Bureau of Engineering, Bridge Improvement Program

Department of Public Works, Bureau of Engineering, Environmental Management Group

Department of Public Works, Bureau of Street Lighting

Department of Public Works, Bureau of Engineering

Department of Public Works, Bureau of Street and Trees

Department of Public Works, Bureau of Street Services

Department of Recreation and Parks

Department of Water and Power

Cultural Affairs Department

Cultural Heritage Commission

City Clerk

City Attorney

Los Angeles River Revitalization Master Plan Committee

Community Redevelopment Agency of the City of Los Angeles

- Adelante Eastside Redevelopment Project
- Central Industrial Redevelopment Project

Other Interested and Potentially Affected Parties

Historical Society of Southern California
Los Angeles City Historical Society
Los Angeles Conservancy
County of Los Angeles Bicycle Coalition
Friends of the Los Angeles River
Union Pacific Railroad
AMTRAK National Railroad Passenger Corporation
Metrolink – Southern California Regional Rail Authority
BNSF Railway Company
Los Angeles Neighborhood Initiative
Boyle Heights Home Owners Association
Boyle Heights Chamber of Commerce
Boyle Heights Department of Neighborhood Empowerment
Boyle Heights Neighborhood Council
Boyle Heights Neighbors Organization
Boyle Heights Historical Society
Little Tokyo Business Association
Los Angeles Times
La Opinion
The Los Angeles Downtown News
Downtown Center Business Improvement District
Downtown Neighborhood Council
Los Angeles Unified School District
Central Library
Little Tokyo Branch City Library
Benjamin Franklin City Library
East Los Angeles County Library
Hinimoto Library
Malabar Library
California Archives (Portia lee)

7.1.5.4 Community Advisory Committee Members

Michele Arce, Boyle Heights Chamber of Commerce
Carol Armstrong, LA River Revitalization Committee
Shelly Backlar, Friends of the LA River
Ken Bernstein, Dept. of City Planning Historical Resources

Elizabeth Blaney, Boyle Heights Neighborhood Council
Jim Bickley, Spilo World Wide
Kevin Break, Break Photography Studio
Shannon Buhmaster, Downtown Los Angeles Neighborhood Council
Mike Buhler, LA Conservancy
Sonia Campos, Office of the Speaker
Joaquin Castellanos, Boyle Heights Resident
Rebecca Delgado, Boyle Heights Historical Society
Tony Dominguez, Arte Calidad & Festival de la Gente
Frank Gallo, Ranch Cold Storage
Smith Geoffrey, LA Film
Tammy Goss, Boyle Heights Neighborhood Council
Rosalie Gurrola, Boyle Heights Neighborhood Council
Arturo Herrera, Boyle Heights Resident Homeowner Association
Leslie Kendall, Petersen Museum
Peter Khan III, Business Owner of Cal Fiber
David Knutson, Stover Seed
Jesse Leon, Council District 14
Joe Linton, Livable Places
Estela Lopez, Central City East Association
George Magallanes, Ed Reye's Office
Teresa Marquez, Boyle Heights Resident, Homeowner Association & Neighborhood Council Quadrant 3
Michelle Mowery, Bicycle Advisory Committee LADOT
Jack Richter, Arts District Police Department Lead Officer
Colin Shorken, Owner of Un Deux Trois
Geoffery Smith, LA Film
Marc Spilo, Spilo World Wide
Vicky Torres, Boyle Heights Historical Society
Arturo Torres, Boyle Heights Historical Society
Marcello Vavala, Los Angeles Conservancy
Edgar Garcia, Dept. of City Planning Historical Resources
Ross Valencia, Boyle Heights Resident Homeowner Association
Marcello Vavala, LA Conservancy
Magnus Walker, Serious Clothing

7.1.5.5 Businesses and Residents

All residents and businesses within a 2,000-ft radius of the 6th Street Viaduct. The following potentially affected properties, shown in Figure 3.4-2, are on the project mailing list:

Stover Seed Company
Alexandra Furniture
Shorkend Colin & Beverly
Lucky Head & Un Deux Trios
1435 E. Sixth LLC
Spilo Worldwide
Butterfield Trails, LP
Long Term, Inc.
Chalmers Santa Fe LLC
Lumary's Tire Service, Inc.
Wilsey Holsum Foods LLC (now Chalmers Malt)
Duesenberg Investment Co
Ace Beverage, Inc.
Senegram Holdings
Variety Specialties Produce
Cal Fiber, Inc.
Fitusi Shalom Trust
Pacific Industrial Partners
Cal Hondo Freight Forwarder
Glacier Cold Storage
Union Pacific Land Resources Co
Shalom and Sons Wholesale Foods
J&W Holdings
Elady Company (formerly Best Buy, Inc.)
Jerry & Orit Kohen
Gustavo & Violeta Ulloa
Bell Craft Furniture, Inc.
Rubel Raul
Peppard Brothers
2974 Properties Inc
Jaimimage, Inc.
Eddie & Glass
Clarence Sunrise Properties

7.2 Final EIR/EIS Distribution List

The Notice of Availability of the Final EIR/EIS will be published in the Federal Register. The current officials, agency representatives, and interested parties on the Draft EIR/EIS distribution list are on the Final EIR/EIS distribution list to receive a Notice of Availability of the Final EIR/EIS and either a hard copy or an electronic copy of the Final EIR/EIS. All potentially affected property owners and those who commented on the Draft EIR/EIS will receive a CD containing an electronic copy of the Final EIR/EIS.

The Notice of Availability of the Final EIR/EIS will be published in the local newspapers (*La Opinión*, *Eastside Sun*, and *Los Angeles Downtown News*). A copy of the Final EIR/EIS will be available at the City of Los Angeles Bureau of Engineering, Bridge Improvement Program (1149 South Broadway, Suite 750, Los Angeles, CA 90015); Caltrans District 7 Building (100 S Main St, Los Angeles CA 90012). Benjamin Franklin City Library (2200 E 1st St., Los Angeles, CA 90033); Little Tokyo Branch City Library (244 S. Alameda St., Los Angeles, CA 90012); and Los Angeles City Council District 14 (1870 E 1st Street, Los Angeles, CA 90033). The report can also be accessed through the Project Website at http://www.la6thstreetviaduct.org; City Website at http://eng.lacity.org/techdocs/emg/Environmental_Review_Documents.htm; and Caltrans website at http://www.dot.ca.gov/dist07/resources/envdocs/.