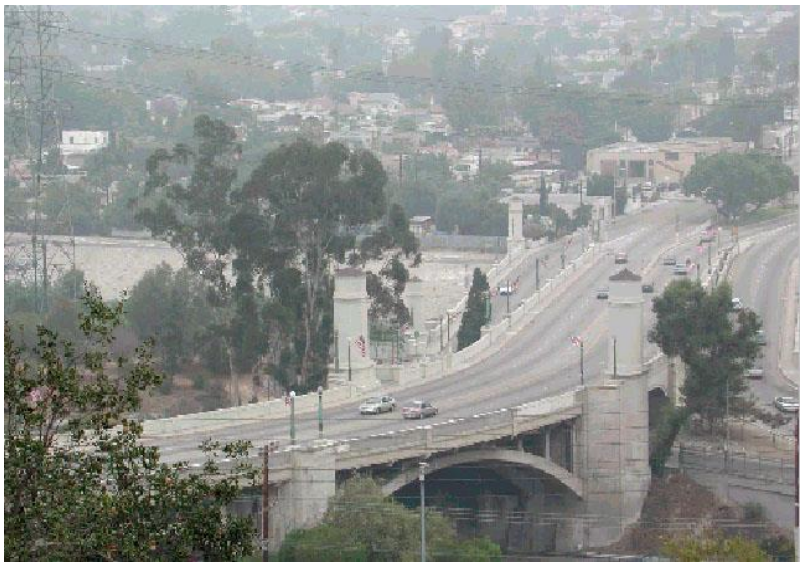
Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project

BHLS-5006 (181), BRLSZD-5006 (337),
BHLS-5006 (186), BHLS-5006 (187)

Bridge Nos. 53C-1881; 53C-1882; 53C-1883;
53C-1884; 53-1069; 53C-1179

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7–LA–5, PM 23.6/23.9 BHLS 5006 (170)

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment and Programmatic Section 4(f) Evaluation



Prepared by
State of California Department of Transportation
and City of Los Angeles

August 2013

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.

TRANSMITTAL 1

SCH #: 2007011107
LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7–LA–5 PM 23.6/23.9

BHLS-5006 (181), BRLSZD-5006 (337), BHLS-5006 (186), BHLS-5006 (187)

The City of Los Angeles and California Department of Transportation propose to improve the Glendale Boulevard-Hyperion Avenue Complex of Bridges between Ettrick Street and Glenfeliz Boulevard.

INITIAL STUDY with Proposed Mitigated Negative Declaration / ENVIRONMENTAL ASSESSMENT and Programmatic Section 4(f) Evaluation

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

CITY OF LOS ANGELES
Department of Public Works

THE STATE OF CALIFORNIA
Department of Transportation

9-4-13
Date of Approval

James E. Doty
Manager
Environmental Management Group
Department of Public Works Bureau of Engineering
City of Los Angeles

9/4/13
Date of Approval

Carrie Bowen
Acting District Director
Division of Environmental Planning, District 7
California Department of Transportation

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CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
ROOM 395, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT
PROPOSED MITIGATED NEGATIVE DECLARATION
(Article I, City CEQA Guidelines)

LEAD CITY AGENCY AND ADDRESS: Public Works Bureau of Engineering
1149 Broadway, Suite 750
Los Angeles, CA 90015-2213

PROJECT TITLE: Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project

PROJECT LOCATION: Glendale Boulevard and Hyperion Avenue between Ettrick Street and Glenhurst Avenue in the communities of Atwater Village and Silver Lake

COUNCIL DISTRICT 4 & 13

PROJECT DESCRIPTION:

- Modify the viaduct complex to correct safety and operational deficiencies, meet current seismic performance standards, and to restore original design details to the railings. Specifically, the proposed project would:
- Seismically strengthen viaduct complex structures.
- Improve the Hyperion Ave. viaduct roadway by adding a median barrier, consolidating the existing two sidewalks into a single sidewalk along the west side of the viaduct, adding a pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge, and restriping to provide new lane widths (12-foot inner and 14-foot-wide curb lanes).
- Widen the Glendale Boulevard bridges over the Los Angeles River by approximately eight feet each.
- Replace all the railings with balustrades based on the original design.
- Realign the I-5 northbound off-ramp to northbound Glendale Blvd. to connect with Glendale Blvd. south of the current exit to allow left-hand turns onto southbound Glendale Blvd.; signalize the new intersection.
- Add an access ramp from northbound Glendale Blvd. to the LA River bike path.
- Install a detention/infiltration basin utilizing the construction staging area between the I-5 and the LA River northwest of the complex for the purpose of permanent treatment of storm water runoff from a portion of the viaduct complex.
- As a mitigation measure to address construction impacts to pedestrians, construct an alternate pedestrian crossing over the LA River across the existing piers of the former Red Car (downstream of the viaduct complex) to connect the bike path along the right bank of the river with Glendale Blvd. northeast of the river.

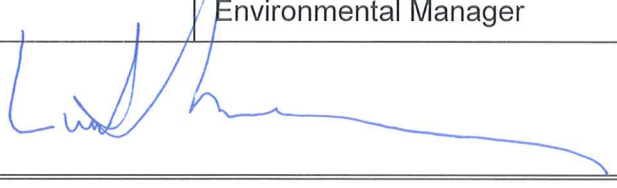
NAME AND ADDRESS OF APPLICANT IF OTHER THAN CITY AGENCY:

PROPOSED FINDING: The **City Engineer** of the City of Los Angeles has determined the proposed project will not have a significant effect on the environment because mitigation measures have been included in the project to avoid potentially significant effects.

SEE THE ATTACHED PAGES FOR ANY MITIGATION MEASURES IMPOSED

THE INITIAL STUDY PREPARED FOR THIS PROJECT IS ATTACHED

PERSON PREPARING THIS FORM:	**TITLE:**	**CONTACT:**
Linda Moore	Bridge Improvement Program Environmental Manager	Phone 213-485-5751 Linda.moore@lacity.org

SIGNATURE (Official): 

DATE: 8-22-2013

CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
ROOM 395, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

REVISED PROPOSED MITIGATED NEGATIVE DECLARATION

(Article I, City CEQA Guidelines)

LEAD CITY AGENCY AND ADDRESS: Public Works Bureau of Engineering 1149 Broadway, Suite 600 Los Angeles, CA 90015-2213	**COUNCIL DISTRICT** 4 and 13
PROJECT TITLE: Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project	**T.G.** 594 – C3, D2, D3

PROJECT LOCATION: Glendale Boulevard and Hyperion Avenue between Ettrick Street and Glenhurst Avenue in the communities of Atwater Village and Silver Lake.

DESCRIPTION:
Modify the viaduct complex to correct safety and operational deficiencies, meet current seismic performance standards, and to restore original design details to the railings. Specifically, the proposed project would:

- Seismically strengthen viaduct complex structures.
- Improve the Hyperion Ave. viaduct roadway by adding a bike lane in each direction, consolidating the existing two sidewalks into a single sidewalk along the west side of the viaduct, adding a pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge, and restriping to accommodate bike lanes.
- Widen the Glendale Boulevard bridges over the Los Angeles River by approximately eight feet each.
- Replace all the railings with balustrades based on the original design.
- Realign the I-5 northbound off-ramp to northbound Glendale Blvd. to connect with Glendale Blvd. south of the current exit to allow left-hand turns onto southbound Glendale Blvd.; signalize the new intersection.
- Add an access ramp from northbound Glendale Blvd. to the LA River bike path.
- Install a detention/infiltration basin utilizing the construction staging area between the I-5 and the LA River northwest of the complex for the purpose of permanent treatment of storm water runoff from a portion of the viaduct complex.
- As a mitigation measure to address construction impacts to pedestrians, construct an alternate pedestrian crossing over the LA River across the existing piers of the former Red Car (downstream of the viaduct complex) to connect the bike path along the right bank of the river with Glendale Blvd. northeast of the river.

NAME AND ADDRESS OF APPLICANT IF OTHER THAN CITY AGENCY:

PROPOSED FINDING: The **City Engineer** of the City of Los Angeles has determined the proposed project will not have a significant effect on the environment because mitigation measures have been included in the project to avoid potentially significant effects.

SEE THE ATTACHED PAGES FOR ANY MITIGATION MEASURES IMPOSED

THE INITIAL STUDY PREPARED FOR THIS PROJECT IS ATTACHED

PERSON PREPARING THIS FORM: Maria Martin	**ADDRESS:** 1149 S. Broadway, Suite 600 Los Angeles, CA 90015	**TELEPHONE NUMBER:** (213) 485-5753
SIGNATURE (Official): Maria Martin, Environmental Affairs Officer Environmental Management Group		**DATE:** March 2015

NOTE: The following items were added to this document in March of 2015 after it had been circulated for public comment: Revised Proposed Negative Declaration, Chapter 8, and Appendix F.

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APPENDICES

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Summary

S.1 Introduction and Overview of the Project Area

The Glendale Boulevard-Hyperion Avenue Viaduct Complex (viaduct complex) is located between Atwater Village to the north and Silver Lake and Los Feliz to the south, in the City of Los Angeles. Figure 1-1 shows the overall project vicinity. The viaduct complex, completed in 1929, spans approximately 1,190 feet over the Los Angeles River, Interstate 5 (I-5), and Riverside Drive. Figure 1-2 shows the project location and depicts the viaduct complex and the immediate area.

The viaduct complex consists of the following structures:

- Waverly Drive Bridge (Bridge Number 53C-1179)
- Hyperion Avenue Viaduct, over Riverside Drive (53C-1882)
- Hyperion Avenue Viaduct, over I-5 (53-1069)
- Hyperion Avenue Viaduct, over the Los Angeles River (53C-1881)
- Southbound Glendale Boulevard Bridge, over the Los Angeles River (53C-1883)
- Northbound Glendale Boulevard Bridge, over the Los Angeles River (53C-1884)

The viaduct complex is generally aligned along a southwest-northeast axis and is bounded by Ettrick Street on the south and Glenfeliz Boulevard on the north. The width of the existing roadway on Glendale Boulevard is approximately 34 feet in each direction. The width of the existing roadway on Hyperion Avenue is 54 feet total in both directions.

S.2 Purpose and Need

The purpose of the proposed project is to:

- Reduce vulnerability of the Glendale Boulevard-Hyperion Avenue viaduct complex in major earthquake events
- Resolve design deficiencies of the Glendale Boulevard-Hyperion Avenue viaduct complex
- Improve traffic circulation to improve the operational efficiency of the viaduct complex

With the exception of the Waverly Drive Bridge, each of the bridge structures of the viaduct complex requires seismic retrofitting to meet current design standards of the City of Los Angeles ("City") and State of California. The Federal Highway Administration (FHWA) Sufficiency Rating (SR) of the existing viaduct complex was determined to be "functionally obsolete." The project would reduce the current risk to public safety due to inadequate design characteristics of the Complex and the potential for catastrophic damage resulting

from the recently revised Maximum Credible Earthquake (MCE) design criteria. In addition, existing geometric configurations of the several complex components do not meet current design standards for operational safety. There are also nearby circulation issues that detract from the operational efficiency of the viaduct complex, and would need the reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard.

S.3 Proposed Action

The City, in conjunction with the Department of Transportation ("Caltrans") and FHWA, is proposing to modify the existing viaduct complex to correct existing safety and operational deficiencies, address pedestrian safety issues, meet current seismic performance standards, and to restore original design details to the railings. Specifically, the proposed project would accomplish the following:

- Seismically strengthen vulnerable viaduct complex structures.
- Improve the Hyperion Avenue viaduct roadway by adding a center median barrier to physically separate northbound and southbound traffic, consolidate the existing two sidewalks into a single sidewalk along the west side of the complex, add a pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge, and restripe the travel lanes to provide new lane widths (12-foot inner and 14-foot-wide curb lane).
- Widen the northbound and southbound Glendale Boulevard bridges over the Los Angeles River by approximately eight feet.
- Replace the existing deteriorated covered railings along both Glendale Boulevard bridges, along Hyperion Avenue, and along the Waverly Bridge with replica balustrades based on the original railing design.
- Realign the existing I-5 northbound off-ramp to northbound Glendale Boulevard to connect with Glendale Boulevard south of the current exit to allow left hand turns onto southbound Glendale Boulevard and signalize the new intersection.
- Add an access ramp from northbound Glendale Boulevard to the bike path along the Los Angeles River with an adjacent mini green space.
- Install a detention/infiltration basin utilizing the construction staging area between the I-5 and the Los Angeles River northwest of the viaduct as a permanent water quality–best management practice (BMP) for the purpose of permanent treatment of storm water runoff from a portion of the viaduct complex.
- As a mitigation measure to address pedestrian traffic and community impacts, construct an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex) to connect the bike path along the southwest side of the Los Angeles River with Glendale Boulevard on the northeast side of the River.

S.4 Project Alternatives

Seven project alternatives were considered during the project development phase. Section 1.3 in Chapter 1 provides a detailed description of the project alternatives. These alternatives were developed and screened based on the capacity to meet the project purpose and need, the extent of environmental impacts and community disruptions associated with each, and comparative cost effectiveness.

S.4.1 No Build Alternative

Under a No Build Alternative, no improvements to the viaduct complex would be undertaken, including seismic retrofit/rehabilitation. Existing roadway, pedestrian, and rail deficiencies would remain along the viaduct complex as would its existing seismic vulnerability.

The No Build Alternative would not meet the project's purpose and need.

S.5 Joint CEQA/NEPA Document

The project is subject to federal as well as state environmental review requirements because the City proposes the use of federal funds from the FHWA and/or the project requires a FHWA approval action. FHWA's responsibility for 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 Section 6005 of SAFETEA-LU codified at 23 U.S.C. 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and Caltrans has assumed, all the USDOT Secretary's responsibilities under NEPA. Caltrans is the NEPA lead agency and the City is the California Environmental Quality Act (CEQA) lead agency.

The City, as the CEQA lead agency, proposes to adopt a Mitigated Negative Declaration (MND) based on the information in this joint environmental document. Further information specific to the CEQA analysis is contained in Chapter 3 and Appendix A.

Following receipt of public comments on this Initial Study/Environmental Assessment, the lead agencies will consider the comments and take actions regarding the environmental document and the project. Before making a decision on approval of the project, the City will determine whether to adopt a MND or require preparation of an Environmental Impact Report (EIR) under CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require preparation of an Environmental Impact Statement (EIS) under NEPA.

S.6 Summary of Environmental Impacts

Environmental impacts resulting from the proposed project, Build Alternative 1, and the No Build Alternative, as analyzed in Chapter 2, are summarized in Table S-2 at the end of this chapter. CEQA Guidelines (Section 15126.2) require the disclosure of significant environmental effects that cannot be avoided if a project is implemented.

S.7 Coordination with Public and Other Agencies

The proposed project would require permits, approvals, or coordination with various agencies, as summarized in Table S-1.

Table S-1: List of Agency Approvals and Permits

Agency	Permit/Approval	Status
California Department of Transportation	Encroachment Permit for viaduct construction (seismic) over I-5, and permit/design/construction approval for reconfiguration of the northbound I-5 off-ramp at Glendale Boulevard.	To be implemented during design and construction.
California Department of Fish and Game	Streambed Alternation Agreement	To be obtained prior to construction.
Los Angeles Regional Water Quality Control Board (LARWQCB)	Permit approval under the General Construction Activities Stormwater Permit. 401 Certification.	To be obtained prior to construction.
U.S. Army Corps of Engineers	404 Permit for discharge of dredged or fill material. Permit to construct access ramp(s) in the Los Angeles River channel, Approval of diversion plan.	To be obtained prior to construction.
State Historic Preservation Officer/Advisory Council on Historic Preservation (SHPO/ACHP)	Concurrence with HPSR and Findings of Effect documents; Approval of the Memorandum of Agreement (MOA)	MOA to be submitted to SHPO prior to project implementation
County of Los Angeles, Department of Public Works	Approval to enter and work in the Los Angeles River.	To be obtained prior to construction.
City of Los Angeles, Department of Transportation	Approval of work area traffic control plan (traffic management plan), lane closures, and establishment of traffic control and safety measures.	To be established during project design or prior to construction, and implemented during construction.
City of Los Angeles, Bureau of Sanitation	Permit to discharge treated extracted groundwater to the sewer system.	To be implemented during construction, if necessary.
City of Los Angeles, Board of Public Works	Permit to perform work or affect a traffic lane closure during peak traffic hours, including possible exemption from related prohibitions (Mayor's Directive No. 2).	To be implemented prior to construction.
City of Los Angeles, Police Commission	Permit to perform limited night construction	To be obtained prior to construction.
City of Los Angeles, Department of Water and Power	Approval of temporary easement for off-ramp realignment construction	To be obtained prior to construction.

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Land Use and Planning				
Proposed Project	**Temporary Impacts**			
	Access to local streets would be maintained during construction and residential and commercial land uses would not be adversely affected.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	A minor amount of construction would occur on a narrow sliver of landscaped median along northbound Glendale Boulevard and the majority of the landscaped median would remain unaffected during construction.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	During the seismic upgrades, the abutment strengthening would occur from the area beneath the viaduct complex, which would require the temporary suspension of the revocable permit to two businesses. The City would have full control of the areas prior to construction.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts			
	The widening of the Glendale Boulevard bridges over the Los Angeles River would occur within the public right-of-way and would not affect the land use designations for the surrounding area.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The widening of the northbound Glendale Boulevard Bridge would require tapering of the new bridge width to the current roadway width just north of the bridge. This would utilize a small portion of landscaped median in the Glendale Boulevard right-of-way. No new right-of-way would be required and no trees would be removed.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Land Use and Planning				
Proposed Project	**Permanent Impacts** Because the proposed project would occur within existing right-of-way, it would not result in changes to adjacent land uses. The proposed project represents improvements to the existing viaduct complex and would not physically divide an established community or conflict with any land use plan, redevelopment plan, policy, or regulation.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	**Temporary Impacts** The No Build Alternative would not result in land use impacts.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts The No Build Alternative would not result in land use impacts.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
Land Use and Planning– Parks and Recreational Facilities				
Proposed Project	**Temporary & Permanent Impacts** The project would not require the use of any parks and recreational facilities. The project would not result in a change in existing land use, and does not have the potential to affect Griffith Park.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The project would not conflict with any regional and local community plans/programs, and would conform to existing land uses.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not result in impacts to parks and recreational facilities	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Community Impacts – Community Character and Cohesion				
Proposed Project	**Temporary Impacts**			
	Construction of the proposed project would require traffic and parking restrictions, but would not substantially affect community character or cohesion because land uses and land use patterns would not be affected.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	During construction, vehicular and bicycle access would be maintained along all roadways, and cohesion between the Silver Lake and Atwater Village neighborhoods would not be substantially affected.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction of viaduct complex improvements would have traffic lane restrictions, but such effects would not diminish the historic nature of the bridge or affect community cohesion or character.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction along northbound and southbound Glendale Boulevard Bridges over the Los Angeles River would prohibit pedestrian access across the bridges	CEQA- Significant NEPA- Adverse	Implement **T-2**	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Community Impacts – Community Character and Cohesion				
Proposed Project	**Permanent Impacts**			
	Over the long-term, the seismic improvements would result in the continued cohesion of the Silver Lake and Atwater Village neighborhoods through the maintenance of vehicular and pedestrian access between the two neighborhoods.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The reconfiguration of the existing I-5 off-ramp would allow motorists exiting this off-ramp the option of turning left on Glendale Boulevard Blvd. (southbound) rather than having to make a U-turn at (Glenfeliz Boulevard Avenue) to then travel south on Glendale Boulevard. The option would slightly reduce total vehicle miles traveled and reduce weaving from merging northbound traffic from Hyperion Avenue and Glendale Boulevard.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would improve pedestrian safety along the viaduct complex, which would improve community cohesion and character.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would increase access to the Los Angeles River bike path through the provision of a new access path from northbound Glendale Boulevard, which would improve community cohesion or character through increased community access to commuter resources.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would provide replica railings based on the original balustrade design, which would improve community character through the provision of more accurate sense of the historic bridge's details.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Community Impacts – Community Character and Cohesion				
No Build Alternative	**Temporary Impacts** Because no changes to the viaduct complex would occur under the No Build Alternative, no temporary effects to community character or cohesion would occur.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts The No Build Alternative would not result in any changes to community cohesion and character.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
Community Impacts – Environmental Justice				
Proposed Project	**Temporary Impacts** Construction of the proposed project would not result in adverse air, traffic or noise impacts, as discussed in Sections 2.4, 2.10, and 2.11. Construction along northbound and southbound Glendale Boulevard Bridges over the Los Angeles River would prohibit access across the bridges. As a mitigation measure for this impact, an alternate pedestrian crossing would be constructed over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex). The pedestrian crossing would provide a detour route around the Glendale Boulevard Bridges during construction. With implementation of this mitigation measure, the impact is not considered adverse. Since construction of the proposed project would not result in adverse impacts there would be no significant adverse impacts to disproportionately affect minority populations.	CEQA-Not Applicable NEPA- No High and Adverse Impact to a minority or low-income population.	None Required	CEQA-Not Applicable NEPA- No High and Adverse Impact to a minority or low-income population.

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Community Impacts – Environmental Justice				
	Permanent Impacts The proposed project would result in moderate losses of historic fabric from both Glendale Boulevard bridges over the Los Angeles River. The impacts to these resources relate to the structures' eligibility for listing in the NHRP and do not result in direct impacts to humans. Although the loss of historic fabric from the Glendale Boulevard bridges are not likely to affect the structure's continued eligibility for listing by the NRHP, the loss of historic fabric itself is considered to be a permanent adverse impact. However, because the adverse impact is related to the loss of historic fabric and no adverse aesthetic impacts were identified, the adverse impact does not have the capacity to disproportionately and adversely affect either minority or low income populations.	CEQA-Not Applicable NEPA-Not Adverse	None Required	CEQA-Not Applicable NEPA-Not Adverse
	The proposed project would not result in adverse impacts that could permanently and disproportionately affect either minority or low-income populations.	CEQA-Not Applicable NEPA-Not Adverse	None Required	CEQA-Not Applicable NEPA-Not Adverse
No Build Alternative	**Temporary and Permanent Impacts** The No Build Alternative would not result in new or additional impacts to the community (social, economic) or environmental justice issues relative to existing conditions.	CEQA-Not Applicable NEPA-Not Adverse	None Required	CEQA-Not Applicable NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Utilities/Emergency Services				
Proposed Project	**Temporary Impacts**			
	Construction of the proposed project would not result in substantial disruptions in utility services because underground utilities are identified and planned for during the project design process. The proposed project would follow the underground service alert (Dig Alert) program, as required by standard contract specifications.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction is not expected to substantially affect the accessibility or response time of fire protection or police protection response units because the existing network of local streets provide alternative routes and because the Contractor would be required to prepare a Traffic Management Plan (TMP) subject to approval by the Los Angeles Department of Transportation (LADOT).	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction of the proposed project would result in generation of some demolition debris and construction debris. A high fraction of construction debris is typically recycled or reused because of its economic advantage over new materials. The fraction of debris deemed not suitable for recycling or reuse could be disposed of in an inert landfill, thereby saving valuable sanitary landfill capacity in municipal landfills.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts			
	The proposed project would not result in additional demands for utilities or public services, or substantially affect the availability of or access to public facilities and services.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not result in new or additional impacts to utilities or emergency service providers relative to existing conditions because no construction would occur. The No Build Alternative would not provide needed seismic improvements to the viaduct complex, and would remain vulnerable to earthquakes.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Traffic and Transportation/Pedestrian and Bicycle Facilities				
Proposed Project	**Temporary Impacts**			
	Construction of the proposed project would not increase traffic, but would temporarily reduce the capacity of the affected streets because there would be some lane closures. Temporary on-street parking restrictions along southbound Glendale Boulevard between Valleybrink Road and the viaduct complex and along the frontage roads that connect Waverly Drive to Rowena Avenue are also required. Staged construction in accordance with the approved TMP would be implemented with LADOT oversight and coordination.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Prior to construction and demolition work along the viaduct complex, protective barriers would be constructed along the exteriors of the structures to contain any debris, tools, or materials that could fall on sidewalks, roadways, property, or the Los Angeles River below. The placement of the protective barriers could require temporary detours or traffic lane restrictions during the evenings for one to two days at each location.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Some voluntary diversion of Hyperion Avenue through traffic (between San Fernando Road and Rowena Avenue) utilizing Fletcher Drive or Los Feliz could occur but should not be substantial due to the additional travel distances, additional signalized intersections, and peak hour congestions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Pedestrian access along the southbound and northbound Glendale Boulevard bridges could be prohibited during construction.	CEQA- Significant NEPA- Adverse	Implement **T-2:** Construct an alternate pedestrian crossing on the Red Car piers that connects both banks of the LA River. The bridge, in conjunction with the new access to the LA River bikeway (from N/B Glendale Boulevard, will provide a detour around the Glendale Blvd. Bridges during construction.	CEQA- Not Significant NEPA- Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Traffic and Transportation/Pedestrian and Bicycle Facilities				
Proposed Project	**Permanent Impacts** Key intersections in the project area, Glendale/Glenfeliz, Glendale/Riverside, and I-5 Northbound Off-ramp/Glendale would operate at acceptable levels of service.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard would install a new signalized intersection at the terminus of the reconfigured off-ramp to allow left turns onto southbound Glendale Boulevard. This could create a potential sight distance issue as southbound traffic travels under the viaduct complex. This distance limit is considered potentially significant or adverse.	CEQA-Significant NEPA-Adverse	**T-1:** The signalization for the realigned off-ramp intersection will include traffic control for southbound Glendale Boulevard traffic, north of the Hyperion Bridge overcrossing. Traffic control will include, but not limited to, signalization to allow traffic to stop north of Hyperion Bridge overcrossing rather than at the new realigned off-ramp intersection.	CEQA-Not Significant NEPA-Not Adverse
	Because the proposed project would not permanently affect traffic volume/capacity relationships along the viaduct or surrounding area, would not increase operational congestion at intersections, would not be a traffic generator, and would not affect local or regional traffic service standards or congestion management requirements, adverse impacts would not occur.	CEQA-Not Significant NEPA-Not Adverse	None Required None Required	CEQA-Not Significant NEPA-Not Adverse
	The new bike path access from northbound Glendale Boulevard would allow bicyclists in the surrounding area another option to access the bike path.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would improve pedestrian safety along the viaduct complex and pedestrian access to the Los Angeles River bike path.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would provide seismic retrofits to the existing viaduct complex and increase the likelihood that the bridge would remain operational following a major seismic event.	CEQA-Not Significant NEPA-Not Adverse		CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Traffic and Transportation/Pedestrian and Bicycle Facilities				
No Build Alternative	The No Build Alternative would not result in temporary or permanent impacts to traffic transportation/pedestrian and bicycle facilities; but would also not minimize the potential for damage of the viaduct complex from seismic events.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
Visual/Aesthetics				
Proposed Project	**Temporary Impacts** Temporary minor degradation of viaduct complex views would accompany project construction but because these effects would be temporary, would occur in a staged manner, and occur in urbanized areas where temporary view interruptions are common and necessary occurrences, these effects are not considered significant.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Although construction would occur along the viaduct complex along Glendale Boulevard and at the abutments adjacent to Riverside Drive, construction would not affect the resources that form the basis for their designation as scenic highways.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts The proposed project would restore the original balustrade style railing system, which would be a visual improvement over the current covered railing system. Although the proposed project would also include crash-resistant protective barriers between the travel lanes and restored balustrades along Hyperion Avenue, as well as a center divider which would partially conceal the restored railing system, portions of the railing would be visible and the effect would be an improvement in the overall visual character of the viaduct complex.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would reinforce the spandrel columns with fiber wrap and shotcrete. These improvements are not expected to appreciably change the appearance of the columns or side views of the complex's arch support structures because all spandrel columns would be reinforced and because the general form and appearance would not be altered.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Visual/Aesthetics				
Proposed Project	**Permanent Impacts** The proposed project would not change existing shade or shadow characteristics of the viaduct complex.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed project would refurbish and reuse the light poles and globes currently present on the viaduct complex. Additional electroliers (light poles) may be added in order to increase the illumination at the roadway, as required by the City's Bureau of Street Lighting. However, the new lighting would not introduce a new source of glare or intrude on nearby properties because the light would be diffused.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The proposed viaduct complex improvements would not affect the landscaped median along Glendale Boulevard and would therefore not affect its scenic highway status. Similarly, the proposed improvements would not affect Riverside Drive or its scenic highway designation.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The pedestrian crossing connecting the left and right banks of the Los Angeles River utilizing the existing Red Car piers is visually consistent with the landscape unit, and does not intrude onto the aesthetic features of the viaduct complex.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would result in no new or additional impacts to visual/aesthetic quality relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Cultural Resources				
Proposed Project	**Temporary Impacts** Construction activities associated with implementing seismic reinforcement and other bridge improvements would result in construction noise, dust, and traffic lane restrictions, but such effects would not diminish the historic nature of the bridge.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts The deteriorated railing would be restored along Waverly Drive over Hyperion Avenue, which would not adversely affect the bridge (53C1179)	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	None of the modifications (sidewalks, median, barriers, railings, etc.) planned for the viaduct complex would have an adverse effect on the three Hyperion Avenue bridge structures (53C1882, 531069, and 53C1881).	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The seismic improvements to the Complex would minimally alter the physical characteristics of these bridges and would be designed so that the size and scale of the new features do not adversely impact the original features. These changes would not introduce visual elements that diminish the integrity of the bridge.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Pedestrian enhancements are planned for the vicinity of both Glendale Boulevard bridges, but these enhancements would not have an adverse affect on either of the bridges because these activities do not entail removing, changing or altering any historic features or fabric of these bridges.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Cultural Resources				
Proposed Project	**Permanent Impacts** The project would have an adverse effect on the viaduct complex through the loss of historic fabric of both the Southbound Glendale Boulevard Bridge (53C1883) and the Northbound Glendale Boulevard Bridge (53C1884), which would be altered and widened. These improvements would result in a loss of historic fabric.	CEQA-Significant NEPA-Adverse	**H-1:** Recordation to Historic American Engineering Record Specifications pursuant to Section 110(b) of the National Historic Preservation Act, etc. **H-2:** Disseminate copies of the HABS/HAER report to appropriate local libraries, etc. **H-3:** Online publication of historical information from HAER report. **H-4:** Produce a video documentary about the bridge and its place among the famous bridges spanning the LA River. **H-5:** Prepare traveling exhibits that address the history of the viaduct complex. **H-6:** Consult with the SHPO regarding replication of original elements, etc. **H-7**: Prepare construction monitoring plan and conduct periodic monitoring of construction activities.	CEQA- Not Significant NEPA- Resolved
No Build Alternative	The No Build Alternative would not result in new or additional impacts to historic resources relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Archaeological Resources				
Proposed Project	**Temporary and Permanent Impacts** Temporary impacts to archaeological resources are not anticipated from the proposed project due to the lack of such resources within the project APE and the disturbed nature of the project area. Although no archaeological resources are expected to be encountered during construction, a professional archaeologist would monitor all ground disturbing activities as requested by the Chairman of the Gabrielino/Tongva Tribal Council	CEQA-Not Significant NEPA-Not Adverse	**A-1:** A professional archaeologist would monitor all ground disturbing activities during construction and would act according to the Special Order and Caltrans policies if archaeological resources are discovered. If buried cultural materials are encountered, work in the area of the resource would be halted and applicable actions under City of Los Angeles and Caltrans policy would be implemented.	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not result in new or additional impacts to archeological resources relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Hydrology, Water Quality, Stormwater Runoff				
Proposed Project	**Temporary Impacts** No adverse impacts to water quality would occur due to implementation of the SWPPP and construction of the detention/infiltration basin.	CEQA- Not Significant NEPA- Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts Although the proposed project would slightly widen the Glendale Boulevard bridge structures over the Los Angeles River, no substantial increases in pollutant deposition to the roadway would occur because increased vehicular travel would not occur.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The pier extensions for the Glendale Boulevard bridges and the walkway along the north River bank would be designed to not affect channel hydraulics.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Although the widening of the Glendale Boulevard bridges over the Los Angeles River represents an increase in paved area, it would not result in the generation of additional storm water runoff as the widened area would capture rainfall that would otherwise fall or be conveyed to the Los Angeles River. None of the other project elements would increase runoff to flow to the Los Angeles River.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not result in new or additional impacts to hydrology, water quality, and stormwater runoff relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Hazardous Waste/Materials				
Proposed Project	**Temporary Impacts** During pile installation, contaminated groundwater could seep into the drilled holes, and when the piles are casted with concrete, the contaminated groundwater would be displaced to the river channel as the concrete fills the bottom of the drilled hole.	CEQA- Not Significant NEPA-Adverse	**Note:** HZ-1 through HZ-4 are legal requirements, and are included here for informational purposes only. **HZ-1:** Require the selected contractor to prepare and implement a management plan in the event that hazardous wastes are encountered during construction. All contaminated groundwater, contaminated soil, and hazardous wastes and debris encountered or generated during construction would be properly excavated, stored, tested, treated and/or disposed in accordance with all federal, state, and local laws and regulations.	CEQA-Not Significant NEPA-Not Adverse
	Yellow traffic striping present along the center of Hyperion Avenue and Glendale Boulevard may contain lead chromate pigments, and if removed by sand blasting or grinding, aerial dispersion of the material could occur; therefore, there is a potential for adverse health impacts to workers and the public.	CEQA- Not Significant NEPA-Adverse	**HZ-2:** Perform representative sampling and testing of yellow traffic paint in areas that could be affected by construction. If hazardous materials in the paint exceed standards, abate the traffic paint and properly dispose of the material prior to construction.	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Hazardous Waste/Materials				
Proposed Project	**Temporary Impacts**			
	The landscaped area currently adjacent to the relocated northbound I-5 off-ramp may contain aerially deposited lead (ADL), which could pose safety hazards to workers or the public.	CEQA- Not Significant NEPA-Adverse	**HZ-3:** Perform representative sampling and testing of the area ramp alignment area for the presence of ADL. If ADL is present above action levels, abate the ADL-contaminated soil, in accordance with all applicable laws and regulations, prior to construction of the reconfigured ramp. A Health and Safety Plan by Contractor would be required pursuant to GC/GR requirements	CEQA-Not Significant NEPA-Not Adverse
	There is the potential for asbestos-containing material (ACM) to be present in bridge joints and lead-based paint (LBP) to be present on the bridge rails or abutments. If present, the ACM and/or LBP could be disturbed during demolition activities.	CEQA- Not Significant NEPA-Adverse	**HZ-4:** Perform a survey (during the design phase or prior to construction) for ACM in the bridge joints and for the presence of LBP in areas of the viaduct complex to be removed. If present, remove the ACM and/or LBP prior to or as part of the demolition process, in accordance with all applicable laws, regulations, and rules. A Health and Safety Plan by Contractor would be required pursuant to GC/GR requirements.	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Hazardous Waste/Materials				
Proposed Project	**Permanent Impacts** Once roadway improvements are constructed, traffic operations on these roadways would not result in the generation of hazardous wastes that could impact the corridor.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would result in no new or additional impacts related to hazardous waste/material relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
Air Quality				
Proposed Project	**Temporary Impacts** During construction, all the criteria pollutant emissions would not exceed SCAQMD's daily significance thresholds and, would not result in a temporary adverse impact. None of the criteria pollutant emissions are predicted to exceed localized significance thresholds. Therefore, localized impacts from criteria pollutant emissions would not result in a significant impact to air quality.	CEQA-Not Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse	None Required None Required	CEQA-Not Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Air Quality				
Proposed Project	**Permanent Impacts** Project operation would not result in an incremental increase of greenhouse gases relative to the No Project alternative. The proposed project is included in the 2011 FTIP under project IDs LA0F007, LA0F008, and LA0F009. Because the proposed project would not increase traffic throughput or increase the capacity of the viaduct complex, no increases in criteria pollutants would result that could cause adverse impacts to air quality. In addition, the new signalized intersection at the reconfigured northbound I-5 off-ramp to Glendale Boulevard would save vehicle miles traveled (VMT) and would operate at a free flowing level (LOS B), so no CO or particulate matter hotspots are expected to occur from project operation. Similarly, this new intersection is not expected to result in PM2.5 hotspots due to the free flowing level of service and saved VMT.	CEQA-Not Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse	None Required None Required	CEQA-Not Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would result in no new or additional impacts related to air quality relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Noise				
Proposed Project	**Temporary Impacts**			
	Construction activities would be noisy but would be conducted in compliance with all applicable laws, including the Los Angeles Municipal Code.	CEQA- Not Significant NEPA- Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts			
	The Glendale Boulevard bridges would be widened, but the traffic lanes would not be noticeably moved from their current locations, as road shoulders would be installed. As a result, noticeable changes in traffic noise levels are not expected to occur.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	The reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard would reduce vehicle miles traveled along Glendale Boulevard, resulting in a slight reduction in traffic noise along Glendale Boulevard.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would result in no new or additional impacts related to noise relative to existing conditions.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Wetlands				
Proposed Project	**Temporary Impacts**			
	The in-river work area is completely paved and contains only a small area (approximately 2,000 square feet) of common wetland plants. This vegetation would have to be removed to accommodate the proposed retrofits but would not represent a substantial loss of wetland habitat.	CEQA-Not Significant NEPA-Not Adverse	None required	CEQA-Not Significant NEPA-Not Adverse
	Construction activity would be limited to the existing in-river concrete pad and would not encroach into the wetlands present 50 feet upstream and 120 feet downstream of the concrete work area. As a result, no direct loss of this wetland vegetation would occur.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction related activities occurring within or above the river channel could pollute surface waters in the channel and carry pollutants downstream into wetland habitat.	CEQA-Significant NEPA-Not Adverse	**B-1:** Coffer dams or other approved flow diversions should be erected in the existing concrete channel during project construction.	CEQA-Not Significant NEPA-Not Adverse
	In-river flow diversion structures have the potential to reduce the availability of water to wetlands immediately downstream of construction site.	CEQA-Significant NEPA-Not Adverse	**B-2:** Maintain the regular flow of the river across the full width of the channel immediately downstream of the construction site, keeping the downstream wetlands watered.	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Wetlands				
Proposed Project	**Permanent Impacts** Because none of the project's pier extensions or foundations would encroach into any unlined portion of the Los Angeles River, no adverse permanent impacts to wetlands or wetland communities would occur.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Sparse freshwater emergent plants have established along the base of pier abutments. This vegetation would have to be removed to accommodate the proposed retrofits.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction related activities occurring within or above the river channel could pollute surface waters in the channel and carry pollutants downstream into wetland habitat.	CEQA-Significant NEPA-Not Adverse	Implement Measure **B-1.**	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and as such, would not result in any impacts to wetlands.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Plant Species				
Proposed Project	**Temporary Impacts** The in-river work area is completely paved and is therefore unlikely to support special status plant species.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	In-river flow diversion structures have the potential to reduce the availability of water to wetlands immediately downstream. Therefore, Davidson's bush mallow, Parish's gooseberry, and San Bernardino aster could be adversely affected if present and flow is not restored adequately.	CEQA-Significant NEPA-Not Adverse	Implement Measure **B-2.**	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts The in-river work area is completely paved and is therefore unlikely to support special status plant species.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not improve the viaduct complex, and would not result in any impacts to special-status plant species.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Animal Species				
Proposed Project	**Temporary Impacts**			
	Because impacts to wetland vegetation often affect the animals that utilize them as habitat, potential impacts to wetlands and plants also apply to wildlife.	CEQA-Significant NEPA-Adverse	Implement Measures **B-1, B-2,** and implement Measure **B-3**: a Worker Environmental Awareness Program (WEAP) will be presented to all construction personnel on site.	CEQA-Not Significant NEPA-Not Adverse
	If project construction would occur during the bird nesting season (between February 15th and August 31st) there is potential for construction noise to disrupt breeding activities for Peregrine falcon and migratory birds protected under the MBTA.	CEQA-Significant NEPA-Not Adverse	**B-4:** A qualified biologist should conduct pre-construction nest surveys of riparian habitat and viaduct complex structures to identify any nests within 500 feet of the work area. **B-5**: Retain a biological monitor on site for the duration of construction activities during nesting bird season.	CEQA-Not Significant NEPA-Not Adverse
	Construction-related activities occurring within or above the river channel could pollute surface waters in the channel and carry pollutants downstream into wetland habitat and increase water turbidity which could impact the arroyo chub, a CDFG species of special concern. Pollutants include construction materials, dust, debris, soils and construction related water wastes.	CEQA-Significant NEPA-Not Adverse	**B-6:** A qualified biologist should conduct a preconstruction survey of the concrete pad immediately below the viaduct complex for arroyo chub. If any arroyo chub are found, they will be collected with seine netting and relocated downstream. **B-7:** Install turbidity curtains at the downstream end of the work zone for the duration of in-channel construction. Turbidity curtains will be inspected weekly and prior/following storm events.	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Animal Species				
Proposed Project	**Temporary Impacts** If project construction occurs during the bat breeding season (April 15th through August 1st), there is potential for construction to disrupt breeding/roosting activities for four special status bat species. **Permanent Impacts** Because no project construction activities would occur in or above an unlined portion of the river channel, no significant permanent adverse impacts to habitat for special status animal species would be expected to occur.	CEQA-Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse	**B-8:** Conduct pre-construction surveys for bats. If they are found, implement further measures defined in **B-8**. None Required	CEQA-Not Significant NEPA-Not Adverse CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and as such, would not result in any impacts to special-status animal species that may occur in the project vicinity.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Table S-2. Summary of Environmental Effects

Resource Areas and Alternatives	Environmental Impacts	Impact Determination (CEQA/NEPA)	Mitigation Measures (CEQA) Minimization Measures (NEPA)	Impact after Minimization or Mitigation (CEQA/NEPA)
Threatened and Endangered Species				
Proposed Project	**Temporary Impacts**			
	The in-river work area is completely paved and does not contain suitable habitat for Gambel's water cress or the Southwestern willow flycatcher. As a result, construction activities would not reduce habitat for these federally listed species.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
	Construction related activities occurring within or above the river channel could pollute surface waters in the channel and carry pollutants downstream into wetland habitat containing Gambel's water cress and Southwestern willow flycatcher.	CEQA-Significant NEPA-Adverse	Implement Measure **B-1**	CEQA-Not Significant NEPA-Not Adverse
	In-river flow diversion structures have the potential to reduce the availability of water to wetlands immediately downstream which could negatively impact Gambel's water cress.	CEQA-Significant NEPA-Adverse	Implement Measure **B-2**	CEQA-Not Significant NEPA-Not Adverse
	If project construction would occur during breeding season for the Southwestern willow flycatcher, there is potential for construction noise to disrupt its breeding activities.	CEQA-Significant NEPA-Adverse	Implement Measure **B-3**	CEQA-Not Significant NEPA-Not Adverse
	Permanent Impacts			
	The in-river work area is completely paved and does not contain suitable for Gambel's water cress or the Southwestern willow flycatcher. As a result, construction activities would not reduce habitat for these federally listed species.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse
No Build Alternative	The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and as such, would not result in any impacts to threatened or endangered species that may occur in the project vicinity.	CEQA-Not Significant NEPA-Not Adverse	None Required	CEQA-Not Significant NEPA-Not Adverse

Chapter 1 Proposed Project

1.1 Introduction

The Glendale Boulevard-Hyperion Avenue Viaduct Complex (viaduct complex) is located between Atwater Village in the Northeast Los Angeles Community Planning Area and the Hollywood Community Planning Area of the City of Los Angeles. Figure 1-1 shows the project in its regional context. The viaduct complex, completed in 1929, spans approximately 1,190 feet over the Los Angeles River, Interstate 5 (I-5), and Riverside Drive. Figure 1-2 shows the project location and depicts the viaduct complex and the immediate area.

The viaduct complex consists of the following structures:

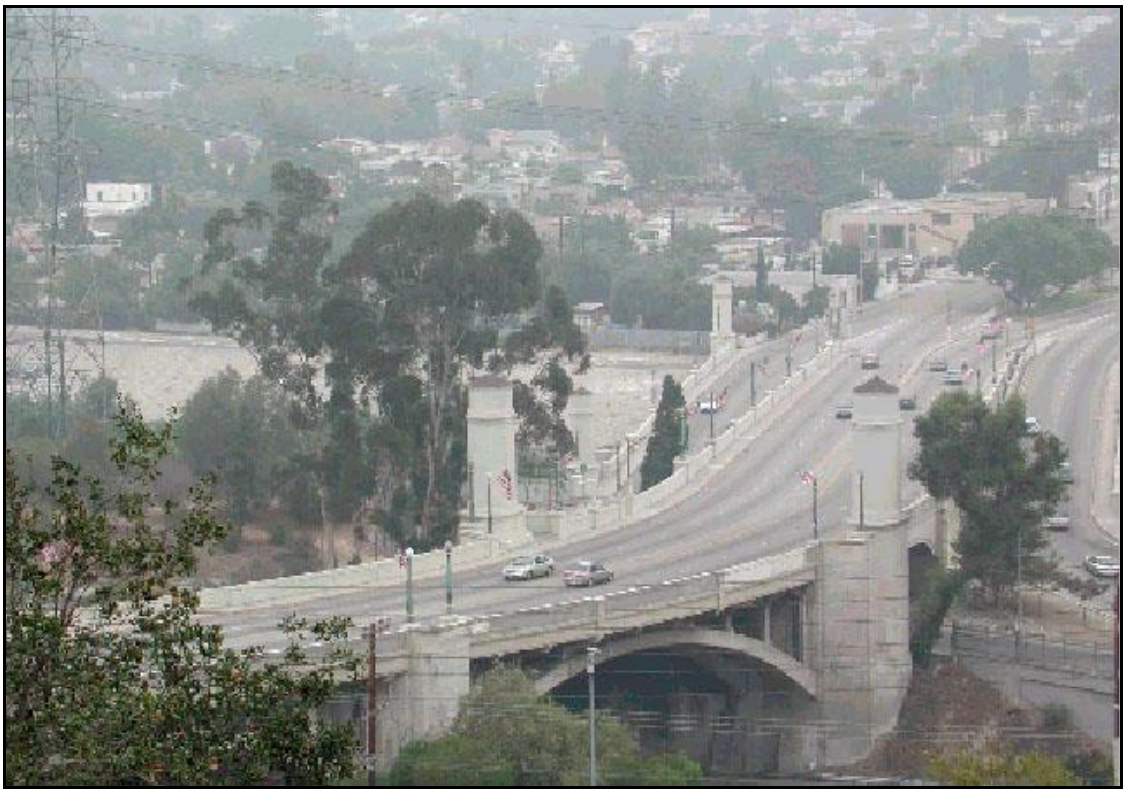
- Waverly Drive Bridge (Bridge Number 53C-1179)
- Hyperion Avenue Viaduct over Riverside Drive (53C-1882)
- Hyperion Avenue Viaduct over I-5 (53-1069)
- Hyperion Avenue Viaduct over the Los Angeles River (53C-1881)
- Southbound Glendale Boulevard Bridge over the Los Angeles River (53C-1883)
- Northbound Glendale Boulevard Bridge over the Los Angeles River (53C-1884)

The viaduct complex is generally aligned along a southwest-northeast axis and is bounded by Ettrick Street on the southwest and Glenfeliz Boulevard on the northeast, respectively. Photograph 1 shows the viaduct complex as seen from the hillside to the southeast. The width of the existing roadway on Glendale Boulevard is approximately 34 feet in each direction. The width of the existing roadway on Hyperion Avenue is 54 feet in both directions combined. A portion of the Hyperion Avenue Viaduct (531069) spans I-5 and is under the jurisdiction of the California Department of Transportation (Caltrans). Of the six structures comprising the viaduct complex, this is the only component that is part of the State Highway System. The five other structures are under the jurisdiction of the City of Los Angeles.

The viaduct complex connects Hyperion Avenue in the Griffith Park area of the Hollywood community with Glendale Boulevard in the Atwater area of the Northeast Los Angeles community.

The six structures that comprise the viaduct complex have been determined, in their entirety, to be eligible for listing in the National Register of Historic Places (NRHP). The viaduct complex is also designated as Los Angeles Historic-Cultural Monument Number 164.[1]

1 City of Los Angeles, "Historic-Cultural Monument (HCM) List," available online at: http://preservation.lacity.org/files/HCMDatabase111510_0.pdf.



Photograph 1: Northern View of the Glendale Boulevard-Hyperion Avenue Viaduct Complex

This project is included in the FY 2011/2012 Federal Transportation Improvement Program (FTIP) and is proposed for partial funding from the Highway Bridge Program (HBP) authorized by the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (*SAFETEA-LU), Public Law 109-59. In addition, the project is included in the 2011 Southern California Association of Governments (SCAG) Regional Transportation Improvement Program (RTIP).

The project is subject to federal as well as state environmental review requirements because the City proposes the use of federal funds from the Federal Highway Administration (FHWA) and/or the project requires a FHWA approval action. FHWA's responsibility for 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 Section 6005 of SAFETEA-LU codified at 23 U.S.C. 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and Caltrans has assumed, all the USDOT Secretary's responsibilities under the National Environmental Policy Act (NEPA). Caltrans is the NEPA lead agency and the City is the California Environmental Quality Act (CEQA) lead agency

Following receipt of public comments on this Initial Study/Environmental Assessment, the lead agencies will consider the comments and take actions regarding the environmental document and the project. Before making a decision on approval of the project, the City will determine whether to adopt a MND or require preparation of an Environmental Impact Report (EIR) under CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require preparation of an Environmental Impact Statement (EIS) under NEPA.

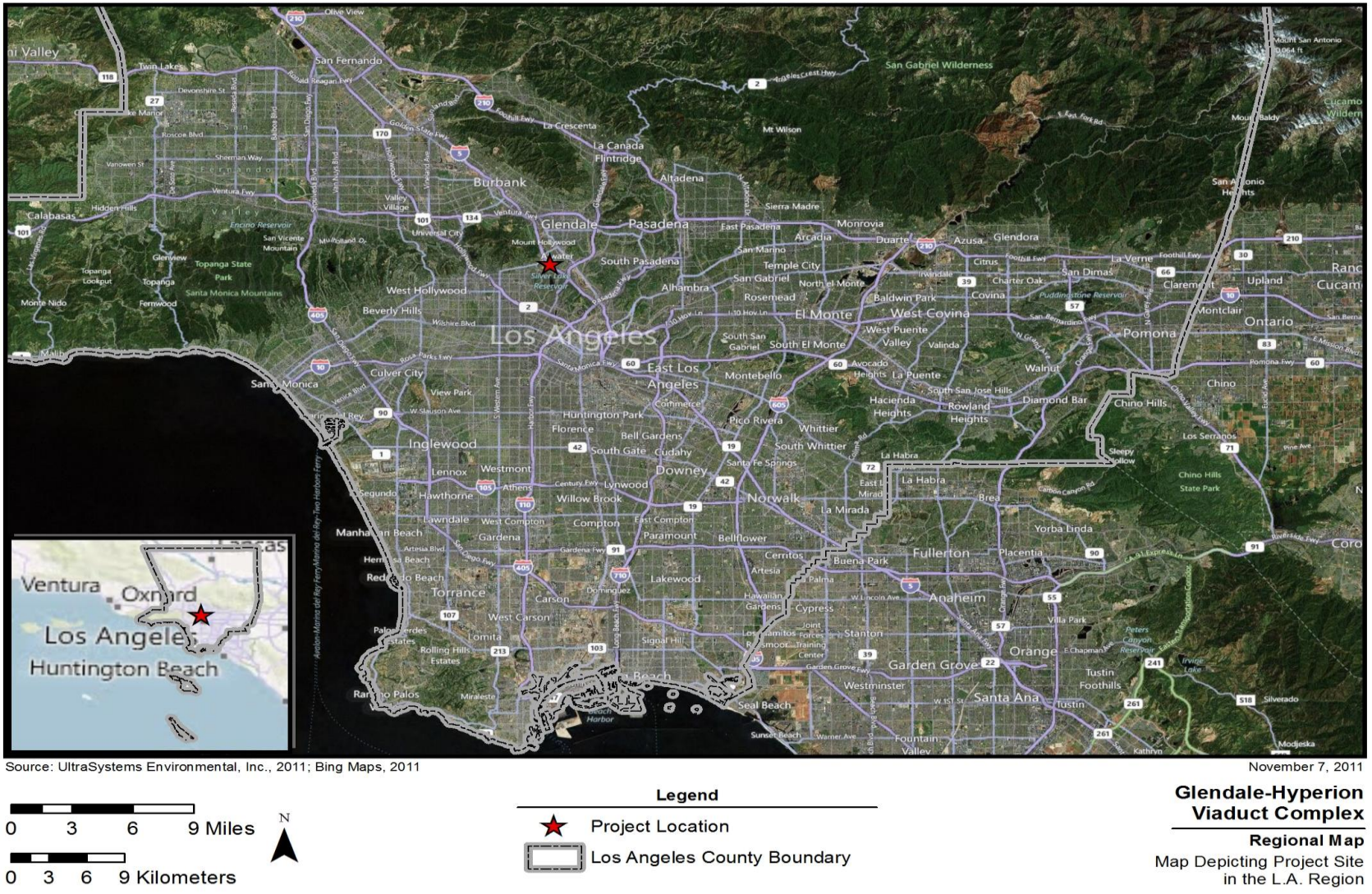


Figure 1-1: Regional Map



Figure 1-2: Project Overview Map

1.2 Project Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to:

- Reduce vulnerability of the Glendale Boulevard-Hyperion Avenue viaduct complex in major earthquake events
- Resolve design deficiencies of the Glendale Boulevard-Hyperion Avenue viaduct complex
- Improve traffic safety and traffic circulation to increase the operational efficiency of the viaduct complex

1.2.2 Need

A bridge must be geometrically adequate in order to function properly. The determination of geometric adequacy includes the consideration of several components, including the number of travel lanes; roadway width; shoulder width; approach roadway width; vertical clearance over the roadway, underclearances; horizontal clearances; sight distances across the bridge and at the approaches; proximity to intersections; and the functional classification of its associated roadways.

FHWA uses a sufficiency rating (SR) metric to indicate whether a bridge is structurally deficient (SD) or functionally obsolete (FO). These safety ratings are used to establish eligibility for (Highway Bridge Program) HBP funds and are derived from bridge inspection reports prepared in cooperation with Caltrans' Office of Structure Maintenance and Investigations (OSM&I). Each bridge inspection report includes SR, SD, FO, and other data. Bridges that are SD or FO with an SR under 80 (out of a possible 100) are considered deficient by FHWA and are candidates for placement on the Eligible Bridge List (EBL). The SR of the Glendale-Hyperion Viaduct Complex was determined to be 72, which classifies it as "functionally obsolete" under the FHWA ranking criteria.

With the exception of the Waverly Drive Bridge, each of the bridge structures of the viaduct complex requires seismic retrofitting to meet current design standards of the City of Los Angeles and State of California. In addition, existing geometric configurations of several of the viaduct Complex's structures do not meet current design standards for operational safety.

The design-related deficiencies of the viaduct complex include the following:

- Inadequate curb-to-curb width to meet major highway design standards.*
- Inadequate lateral clearance beneath the Hyperion Bridge (53C-1881).
- Absence of shoulders.*
- Deteriorated railings. *
- Inadequate pedestrian facilities along Hyperion Avenue and Glendale Boulevard.

* These deficiencies are common to all structures.

In addition to the design deficiencies listed above, there are other nearby circulation system issues that detract from the optimal operational efficiency of the viaduct complex. As an example, the northbound I-5 off-ramp to Glendale Boulevard terminates at Glendale Boulevard and only allows right turns onto northbound Glendale Boulevard. Motorists wishing to travel southbound on Glendale Boulevard must first make a right turn onto Glendale Boulevard, travel over the northbound Glendale Boulevard Bridge (over the Los Angeles River), merge to the far left lane to enter a turning pocket at Glenfeliz Boulevard, make a U-turn at this location, travel south on Glendale Boulevard over the southbound Glendale Boulevard Bridge, and after traveling under the Hyperion Avenue viaduct, continue south on Glendale Boulevard. Furthermore, the existing northbound I-5 off-ramp to Glendale Boulevard is deficient in that the sight distance at this ramp intersection does not meet Caltrans standards for corner sight distance for stop-controlled freeway exit traffic. Traffic volume and Level of Service (LOS) data are presented in Tables 2.4-1 through Tables 2.4-4. In order to improve the operational efficiency of the viaduct complex and related surrounding circulation system, there is also a need to reconfigure the northbound I-5 off-ramp to Glendale Boulevard.

1.2.2.1 Seismic Deficiencies

The current viaduct complex presents a risk to public safety due to the potential for collapse under recently revised maximum credible event (earthquake) design criteria. Each of the viaduct complex's component structures, except the Waverly Drive Bridge, requires seismic retrofitting to meet current Caltrans and City of Los Angeles design standards. These standards were revised based upon observations following the Loma Prieta and Northridge earthquakes.

In addition to the hazard to users associated with a potential for collapse under earthquake conditions, the viaduct complex extends over a portion of the I-5 freeway, thereby exposing users of that facility to an associated risk. Thus, there is a need to seismically strengthen the viaduct complex to minimize associated seismic risks to public safety and to minimize risks to the public transportation system.

1.2.2.2 Design Deficiencies

Curb-to-Curb Widths

Hyperion Avenue along the viaduct complex has two lanes in each direction, both of which are 12 feet wide. An 8-foot, double-striped median separates the traffic in each direction. Under American Association of State Highway and Transportation Officials (AASHTO) design standards, a minimum curb-to-curb width of 56 feet is required to remove the deficiency related to deck geometry. This includes 12-foot inner lanes, 14-foot curb lanes (12-foot travel lane and 2-foot shoulder), and a 4-foot median along Hyperion Avenue.

The Northbound Glendale Boulevard Bridge and the Southbound Glendale Boulevard Bridge (both over the Los Angeles River) have two 12-foot-wide travel lanes each, and these bridges do not meet AASHTO standards.

Lateral Clearance

The lateral clearance under Hyperion Avenue between the Abutment No. 4 and the left lane along southbound Glendale Boulevard (as it passes beneath the Hyperion Viaduct) is sub-standard, and there is a need to correct this deficiency.

Shoulders

Both Glendale Boulevard northbound and southbound bridges over the Los Angeles River currently lack shoulders. Since these connect to State Highway System (SHS) facilities (northbound and southbound I-5 ramps), a minimum shoulder width of four feet is required. The curb-to-curb widths of these two structures do not currently meet the design standard.

Railings

The railings along the viaduct complex were originally balustrades, but were covered with gunnite in 1962 as part of a rail repair project (CLA, 1962). The current railings are deteriorating with signs of spalling and cracking, with the covering along some sections showing physical separation. The railings are also considered to be deficient in certain sections due to damage caused by vehicle collisions.

Pedestrian Facilities

The current pedestrian facilities along Hyperion Avenue and Glendale Boulevard viaducts are inadequate and present safety hazards to pedestrians. Currently, 5-foot-wide sidewalks are along both the east and west sides of the viaduct complex's Hyperion Avenue roadway from the retaining wall near Waverly Drive northward to Hyperion Avenue's merger with north- and southbound Glendale Boulevard.

On the east side of Hyperion Avenue (southern end), the sidewalk terminates at the retaining wall, which supports the Waverly Drive Bridge (over Hyperion Avenue). However, a 2-foot-wide curb extends along the abutment/retaining wall adjacent to the northbound traffic. Pedestrians using the east sidewalk must walk along this narrow curb after the sidewalk ends and are exposed to vehicular traffic.

On the west side of the viaduct complex's Hyperion Avenue roadway, the sidewalk also terminates at a 2-foot-wide curb that extends along the retaining wall base. An ascending walkway aligned along the top of the west retaining wall provides an alternative for pedestrian use rather than navigating the 2-foot curb lying adjacent to the southbound traffic lane. However, despite the presence of this safer alternative, many pedestrians elect to use the 2-foot curb, which exposes them to traffic hazards.

The Hyperion Avenue roadway merges with and transitions to Glendale Boulevard at the northern end of the viaduct complex. A landscaped median extends from the merge point almost to Glenfeliz Boulevard to the north. Southbound and northbound Glendale Boulevard roadways extend on either side of both the merge point and the median. The existing sidewalks on either side of Hyperion Avenue terminate at the merge point and force pedestrians to cross either northbound or southbound Glendale Boulevard traffic without benefit of a designated cross walk against Glendale Boulevard traffic, which generally travels at a high rate of speed.

The existing pedestrian facilities on both northbound and southbound Glendale Boulevard viaducts over the Los Angeles River are approximately 3.5 to 4-foot-wide sidewalks. These extremely narrow sidewalks are inadequate, and expose pedestrians travelling this section of either side of Glendale Boulevard to safety hazards caused by high-speed vehicular traffic.

There are two staircases within the project area where pedestrians can access Hyperion Avenue and Glendale Boulevard. One, which connects Glendale Boulevard and Hyperion Avenue, is located on the west side of Hyperion Avenue. A second staircase provides pedestrian access

between Riverside Drive and Hyperion Avenue, and is also on the west side of Hyperion Avenue.

1.2.2.3 I-5 Ramp Deficiencies

The northbound I-5 off-ramp to Glendale Boulevard is configured for a right turn only onto northbound Glendale Boulevard. Under the current ramp configuration, vehicles exiting I-5 are confronted with a semi-blind right turn onto Glendale Boulevard and are obscured from the view of northbound motorists (approaching from the south). As shown in **Table 1-1**, the total actual accident rates along southbound I-5 and the northbound I-5 off-ramp to Glendale Boulevard are above the statewide average accident rates for similar facilities. Northbound I-5 and the northbound on-ramp from Glendale Boulevard are both below the statewide average accident rates for similar facilities.

Table 1-1: Actual and Statewide Average Accident Rates for I-5
From April 1, 2007 to March 31, 2010

Location	Actual			Statewide Average		
I-5 (Post Mile 23.0/24.0)	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
NB Off-Ramp to Glendale Blvd (Acc/MV)	0	0.12	1.07	0.006	0.33	0.90
NB On-Ramp from Glendale Blvd (Acc/MV)	0	0.25	0.52	0.003	0.22	0.6085

Acc/MVM: Accidents Per Million Vehicle Miles
Acc/MV: Accidents Per Million Vehicles

Source: MGE Engineering, Inc., Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project Draft Project Report, January, 2012 (MGE, 2012)

In addition, motorists exiting northbound I-5 at this location wishing to travel south on Glendale Boulevard must first travel north on Glendale Boulevard, weave across up to three lanes of traffic beyond the Hyperion Avenue merge point but before the intersection of Glendale Boulevard with Glenfeliz Boulevard (a distance of approximately 400 feet). The motorists must then execute a U-turn at Glenfeliz Boulevard to connect with southbound Glendale Boulevard. These maneuvers introduce a high level of operational inefficiency throughout the involved segment.

1.2.3 Independent Utility and Logical Termini

The proposed project is deemed to have independent utility and would meet logical termini requirements. Independent utility refers to the project's ability to independently function without additional transportation improvements in the area. Logical termini for a project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts.

The project would improve a functionally obsolete bridge that traverses a major freeway (I-5) and the Los Angeles River, as well as seismically strengthen the viaduct complex to meet current seismic standards. The project would also reconfigure the northbound I-5 off-ramp to Glendale Boulevard and install a new signalized intersection. The new signalized intersection would permit exiting northbound motorists to make left turns directly onto southbound Glendale Boulevard and eliminate the need to first travel north to execute U-turns at Glenfeliz Boulevard. The project has independent utility because it would correct current seismic and design deficiencies, and would improve the operational efficiency of a defined structure along an existing roadway without the need for additional improvements in the area. The defined structure, the viaduct complex, is bounded by Ettrick Street on the southwest and Glenfeliz Boulevard on the northeast. These points serve as logical termini, based on the project features to meet the purpose and need.

1.3 Project Description and Alternatives

This section describes the proposed action and the design alternatives that were developed by the City to achieve the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are the Proposed Action, No-Build Alternative, Transportation System Management/Transportation Demand Management Alternative, and five other Build Alternatives considered but withdrawn from further discussion.

Each alternative was evaluated based on its ability to meet project's purpose and need objectives, ability to avoid or substantially lessen significant impacts or result in minimum environmental impacts, costs, and implementation feasibility. Thus, the Proposed Action is considered most viable after careful evaluation and meets the described criteria for evaluation.

1.3.1 Proposed Action

The viaduct complex spans both I-5 and the Los Angeles River in the Northeast Los Angeles Community Planning Area of the City. The Proposed Action would modify the viaduct complex to address safety and operational deficiencies, pedestrian safety issues, and current seismic deficiencies. These efforts would be sufficient to remove the viaduct complex from the HBP EBL. In addition, the proposed project would restore original design details to the railings, and eliminate an existing sight-line hazard associated with the I-5 off-ramp. The current funding amount scheduled to complete the bridge improvement is approximately $35,595,000. The following descriptions of proposed improvements are organized by the components that comprise the viaduct complex. An overview of the project footprint is provided in Figure 1-3.

1.3.1.1 Hyperion Avenue from south of Waverly Drive to Glendale Boulevard

Modifications to this section of the viaduct complex would occur to the three Hyperion Avenue Bridges (53C-1881, 53C-1882, & 53-1069) and would include the following:

Sidewalk and Curb – East Side. The existing 2-foot curb along the east side of Hyperion Avenue (adjacent to the retaining wall beneath the Waverly Drive Bridge) and the 5-foot sidewalk along the east side of Hyperion Avenue (north of the retaining wall) would be eliminated, and a concrete crash barrier would be placed along the rails. Figure 1-4 below shows a typical cross-section for this portion of Hyperion Avenue.

Sidewalk and Curb – West Side. The existing 5-foot-wide sidewalk along the west side of the Hyperion Avenue Bridge and the 2-foot-wide curb adjacent to the retaining wall beneath Waverly Drive would be replaced with a new 8-foot-wide sidewalk (north of the retaining wall) that tapers from eight feet to four feet adjacent to the retaining wall (at approximately the point where the staircase from Riverside Drive meets Hyperion Avenue). This 4-foot-wide section of the sidewalk against the retaining wall would be about 1 foot high (above the roadway). North of the retaining wall, tubular railing atop a concrete safety barrier would be constructed between the widened sidewalk and the southbound traffic lanes to provide a physical barrier between vehicular traffic and the sidewalk for increased pedestrian safety (see Figure 1-4 for the cross sectional drawing).

Pedestrian Crossing. At the north end of the viaduct complex, a pedestrian crosswalk extended from the improved sidewalk along the west side of Hyperion Avenue to the west side of Glendale Boulevard (across southbound traffic on Glendale Boulevard) would be constructed (see Figure 3B above).

Hyperion Avenue Center Divider. The existing striped center divider along Hyperion Avenue on the viaduct complex would be replaced with a median barrier to physically separate northbound and southbound travel lanes in order to prevent cross-over accidents.

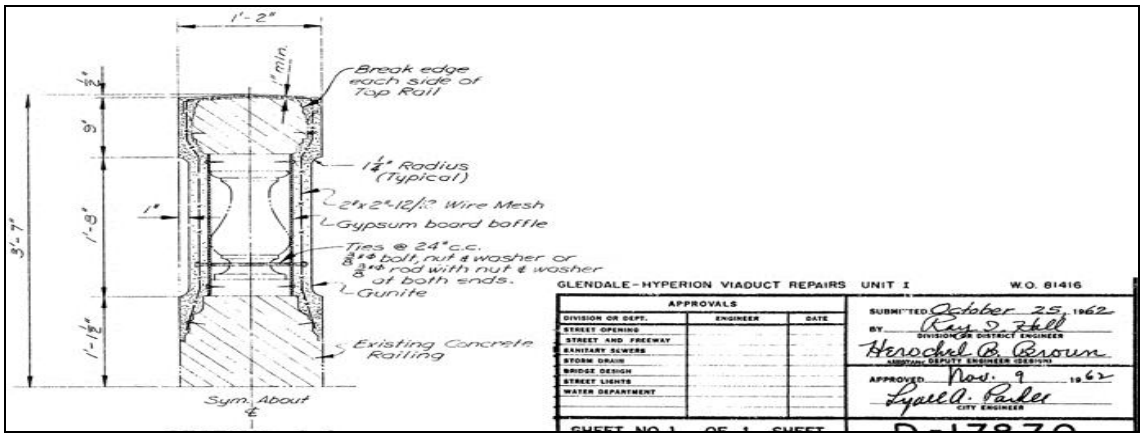


Photograph 2: Damaged Rail.

Traffic Lane Restriping. The proposed project would not include the addition of traffic lanes along the Hyperion Avenue segment of the viaduct complex. Rather, the existing four travel lanes would be retained and restriped to provide a new configuration of 12-foot-wide inner lanes and 14-foot-wide curb lanes along both travel directions of Hyperion Avenue.

Bridge Rail Replacement. The existing railings along the Hyperion Avenue and Glendale Boulevard viaducts, as well as the Waverly Bridge, were originally balustrades, but were covered with gunnite in 1962 and now have a solid appearance. There have been several accidents along Hyperion Avenue on the viaduct complex whereby vehicles have collided into the rails and have damaged the rails and covering. At one location, a loose original baluster can be seen through a hole in the concrete rail cover (Photograph 2).

The existing concrete coverings also make it more difficult to assess the integrity of the balustrade structures. The City identified an as-built plan sheet (from a 1962 repair project), which provides the detail for how the rail coverings were applied. According to this plan sheet, the sides of the top rails were broken away, presumably to provide better bonding of the reinforced gunnite covering. Inset 1 below shows the applicable portion of the as-built plan sheet for the repair project. The railings were also considered to be partially deficient due to deterioration and damage caused by collisions with vehicles.



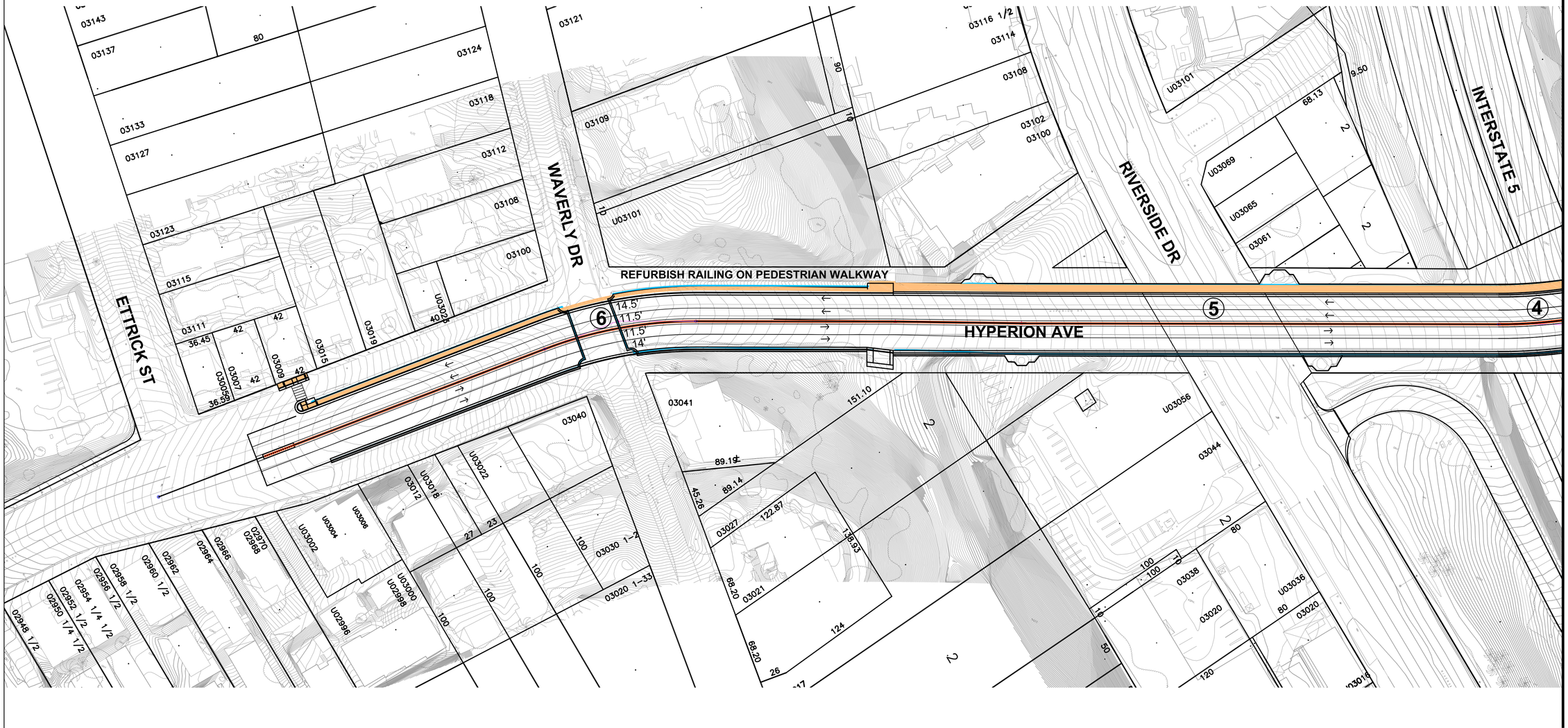
Inset 1: Balustrade Structures As-Built

The proposed project would restore the viaduct complex's railings to their original design, including the open balustrades, similar to those along the median at the north end.(see Photograph 3).



Photograph 3: Remnant Original Railing with Balustrade on Glendale Boulevard to be Replicated

Street Lighting. Construction of the replica balustrades would require work on the current pedestals on which lamp posts are mounted, which would necessitate the temporary removal of the existing lighting along the bridge. The existing posts would be carefully removed, stored, refurbished, and reused. Lighting fixtures would most likely be replaced with new LED Fixtures that meet the City's currently adopted lighting standards (the Illuminating Engineering Society of North America RP-8-00) (D. Nguyen, personal communication, October 5, 2007). Additional replica posts and fixtures could be added, if necessary, to meet the City's lighting standards.



PROPOSED BIKE/PEDESTRIAN TRAIL, SIDEWALK

PROPOSED HISTORIC RAILING REPLICATION

PROPOSED MEDIAN BARRIER

PROPOSED PEDESTRIAN CROSSWALK

50 25 0 50 100 150

1 INCH = 50 FEET

① GLENDALE BOULEVARD NB BRIDGE WIDENING
② GLENDALE BOULEVARD SB BRIDGE WIDENING
③ HYPERION AVENUE BRIDGE OVER LA RIVER REHABILITATION
④ HYPERION AVENUE BRIDGE OVER I-5 SEISMIC RETROFIT
⑤ HYPERION AVENUE BRIDGE OVER RIVERSIDE DRIVE SEISMIC RETROFIT
⑥ WAVERLY DRIVE OVER HYPERION AVE HISTORIC RAILING REPLICATION
⑦ INTERSTATE 5 NORTH BOUND RAMPS MODIFICATION
⑧ PEDESTRIAN & BICYCLIST LINKAGE IMPROVEMENT
⑨ BMP INFILTRATION BASIN

CITY OF LOS ANGELES FOUNDED 1781

ERIC GARCETTI
MAYOR

TOM LABONGE
COUNCILMEMBER
DISTRICT 4

MITCH O'FARRELL
COUNCILMEMBER
DISTRICT 13

FIGURE 1-3A
PROJECT FOOTPRINT MAP

GLENDALE - HYPERION STRUCTURES
(53C-1881, 53C-1883, AND 53C-1884)
REHABILITATION AND SEISMIC RETROFIT DESIGN

SEPT 2013



ERIC GARCETTI
MAYOR

TOM LABONGE
COUNCILMEMBER
DISTRICT 4

MITCH O'FARRELL
COUNCILMEMBER
DISTRICT 13

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1 INCH = 50 FEET

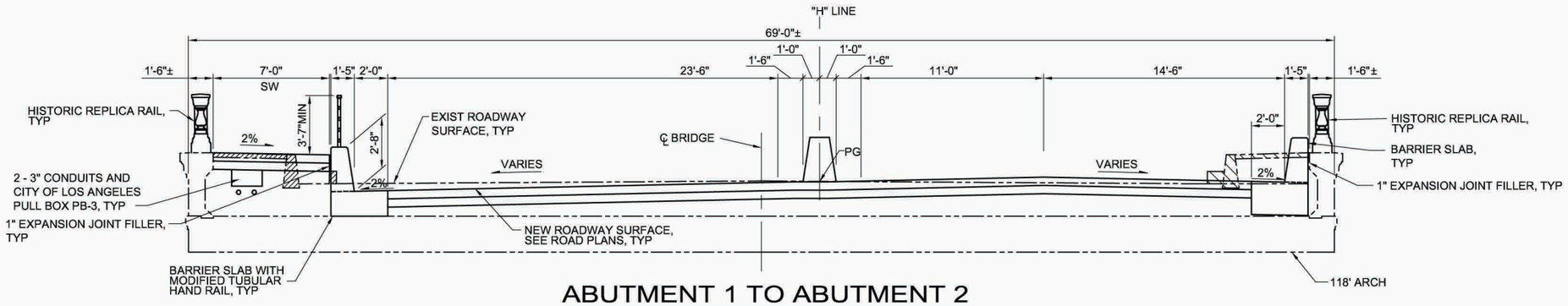
- PROPOSED BIKE/PEDESTRIAN TRAIL, SIDEWALK
- PROPOSED HISTORIC RAILING REPLICATION
- PROPOSED MEDIAN BARRIER
- PROPOSED PEDESTRIAN CROSSWALK

1. GLENDALE BOULEVARD NB BRIDGE WIDENING
2. GLENDALE BOULEVARD SB BRIDGE WIDENING
3. HYPERION AVENUE BRIDGE OVER LA RIVER REHABILITATION
4. HYPERION AVENUE BRIDGE OVER I-5 SEISMIC RETROFIT
5. HYPERION AVENUE BRIDGE OVER RIVERSIDE DRIVE SEISMIC RETROFIT
6. WAVERLY DRIVE OVER HYPERION AVE HISTORIC RAILING REPLICATION
7. INTERSTATE 5 NORTH BOUND RAMPS MODIFICATION
8. PEDESTRIAN & BICYCLIST LINKAGE IMPROVEMENT
9. BMP INFILTRATION BASIN

FIGURE 1-3B
PROJECT FOOTPRINT MAP

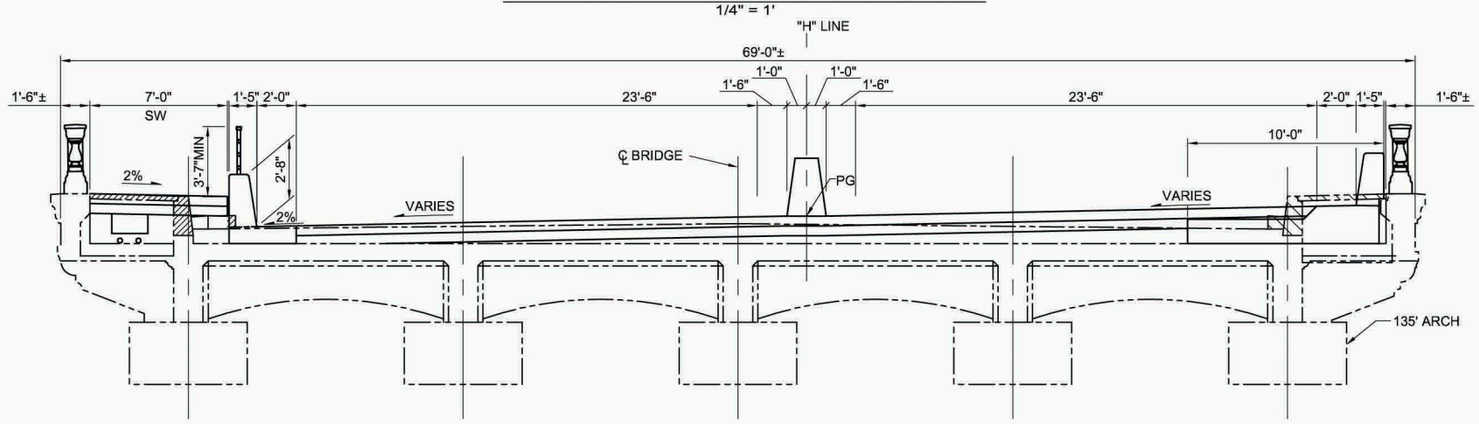
GLENDALE - HYPERION STRUCTURES (53C-1881, 53C-1883, AND 53C-1884) REHABILITATION AND SEISMIC RETROFIT DESIGN

SEPT 2013



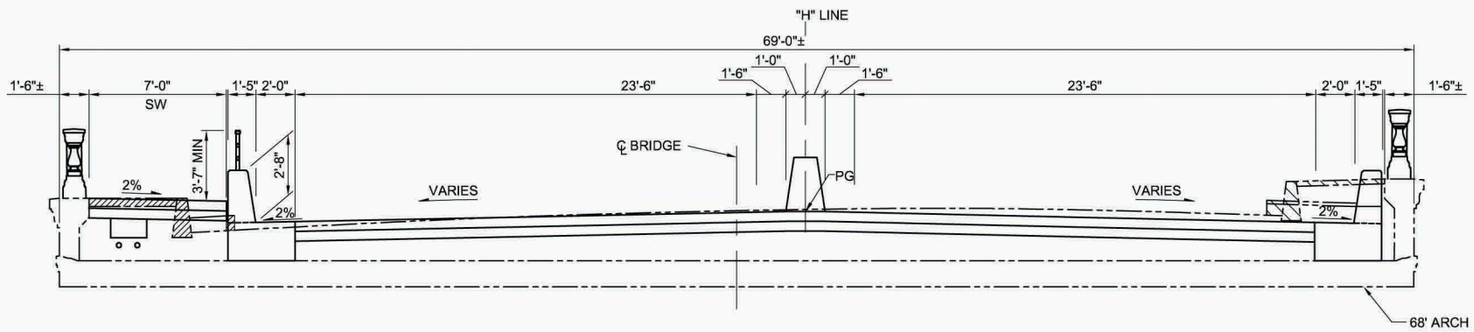
ABUTMENT 1 TO ABUTMENT 2

1/4" = 1'



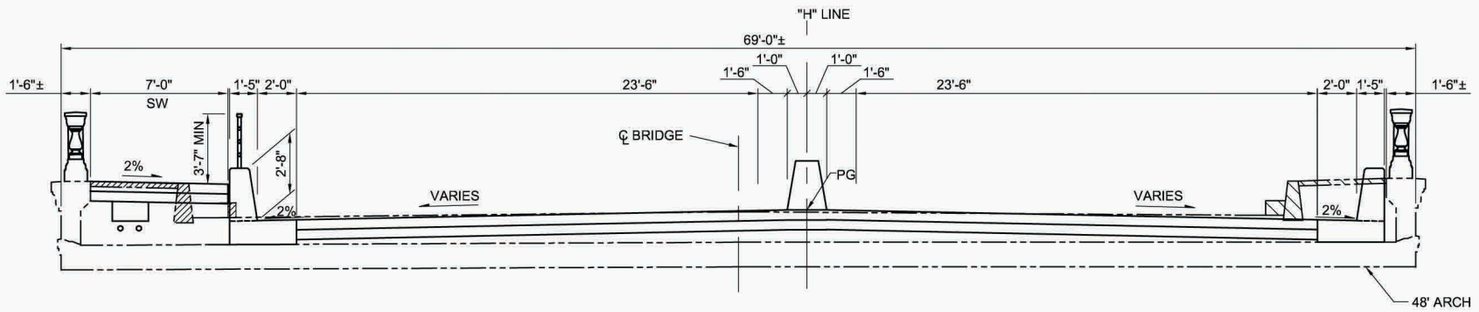
ABUTMENT 2 TO ABUTMENT 3

1/4" = 1'



ABUTMENT 3 TO PIER 3

1/4" = 1'



PIER 3 TO ABUTMENT 6

1/4" = 1'

LEGEND:

INDICATES BRIDGE REMOVAL PORTION

FIGURE 1-4
HYPERION AVENUE CROSS SECTIONS
(BR#53C-1882, BR#53C-1069 & BR#53C-1881)

JUN 2012

1.3.1.2 Waverly Drive Bridge

Bridge Rail Replacement. The existing covered railings along the Waverly Drive Bridge over Hyperion Avenue would be replaced with new balustrades that more closely follow the original design (Photograph 3).

1.3.1.3 Northbound Glendale Boulevard Bridge over the Los Angeles River

Bridge Widening. The Northbound Glendale Boulevard Bridge (53C-1884) over the Los Angeles River would be widened by eight feet by extending the deck and pier supports to the southeast. This would provide room for a widened sidewalk and curb lane, as well as the addition of a curbside shoulder. The shoulder would facilitate a bicycle route as a transportation element in the 2010 Bicycle Plan. No additional travel lanes would be added. The existing abutments would be removed and reconstructed approximately eight feet to the east. Photograph 4 shows the existing piers and abutments (including the northern-most pylon), as well as the bicycle path along the Los Angeles River. As part of the bridge widening, the existing decorative pylons at either end of the bridge would be carefully removed and repositioned (CLA, 2007b). The bridge widening would require tapering of the new bridge width to the current roadway width just north of the bridge. This would utilize a small portion (approximately 90 square feet) of a landscaped median[2] in the Glendale Boulevard right-of-way.

Bridge Rail Replacement. The existing covered railing system (shown in Photograph 4) would be removed and replaced with railings that replicate the original design. The bronze, pedestal-



Photograph 4: Northbound Glendale Boulevard over the Los Angeles River

mounted light poles would be carefully removed, stored, and re-mounted on restored pedestals as part of the restored railing system. The replacement replica balustrade along northbound Glendale Boulevard would utilize the original balustrade design (see Photograph 3 above) but

2 The landscaped median has been named "Red Car River Park" by the Friends of Atwater Village, but it is not an official park or recreation area, being entirely within the street right-of-way.

with spacing adjustments between the balusters to reflect current safety requirements. (The maximum center-to-center balustrade spacing would be up to 11.5 inches and would not allow a 6-inch diameter sphere to pass through.)

New Bike Path Access. A portion of the Los Angeles River Bikeway passes beneath the viaduct complex. Access to the bikeway is available from southbound Glendale Boulevard but not northbound Glendale Boulevard. The proposed project would construct a new access to the Los Angeles River bike path from northbound Glendale Boulevard, just south of the widened bridge.

Traffic Lane Restriping. The travel lanes would be restriped to accommodate a 6-foot shoulder and 5-foot 5-inch clear sidewalk.

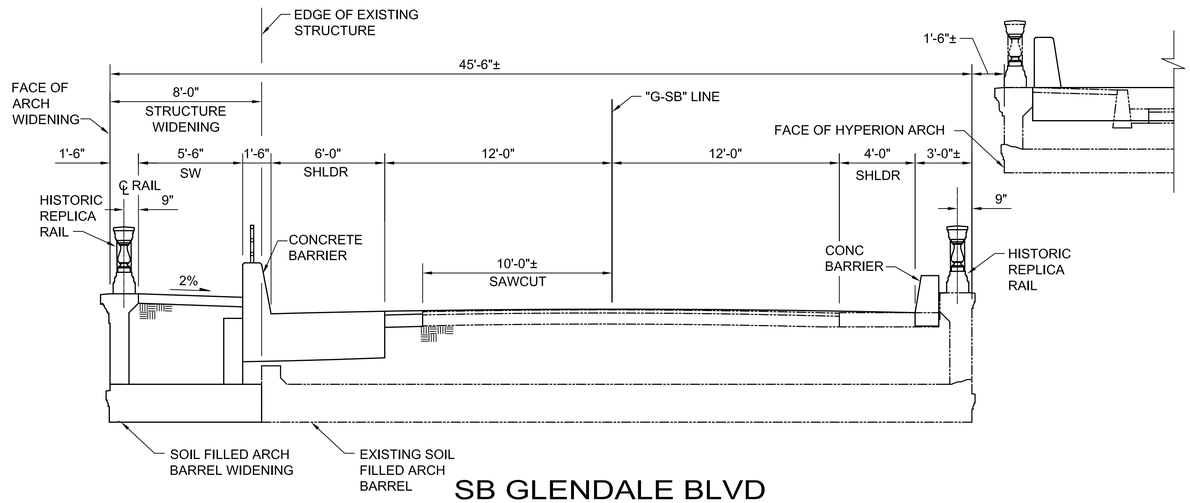
1.3.1.4 Southbound Glendale Boulevard Bridge over the Los Angeles River

Bridge Widening. The southbound Glendale Boulevard Bridge **(**53C-1883) over the Los Angeles River would be widened by eight feet by extending the deck and supports to the northwest. This would provide room for a widened sidewalk and curb lane plus the addition of a curbside shoulder. The shoulder would facilitate a bicycle route as a transportation element in the 2010 Bicycle Plan. No additional travel lanes would be added. Figure 1-5 shows a cross section of southbound Glendale Boulevard. The existing piers would be extended northwestward to support the widened deck. The existing abutments would be extended approximately eight feet to the northwest. Photograph 5 below shows the existing piers and abutments (including the northern-most pylon), as well as the Los Angeles River. As part of the bridge widening, the existing pylons at either end of the bridge would be carefully removed and repositioned at the end of the new railing. Pylons would be reinstalled in the same configuration the railing and roadway as they currently exist.

Bridge Rail Replacement. The existing covered railing system (shown in Photograph 5) would be removed and replaced with railings that replicate the original design. The bronze, pedestal-mounted light poles would be carefully removed, stored, and re-mounted on restored pedestals as part of the restored railing system. The replacement replica balustrades along the southbound Glendale Boulevard Bridge (see Photograph 5) would utilize the original design (see Photograph 3 above) but with spacing adjustments between the balusters to reflect current safety requirements (the maximum center-to-center balustrade spacing would be up to 11.5 inches and would not allow a 6-inch diameter sphere to pass through).

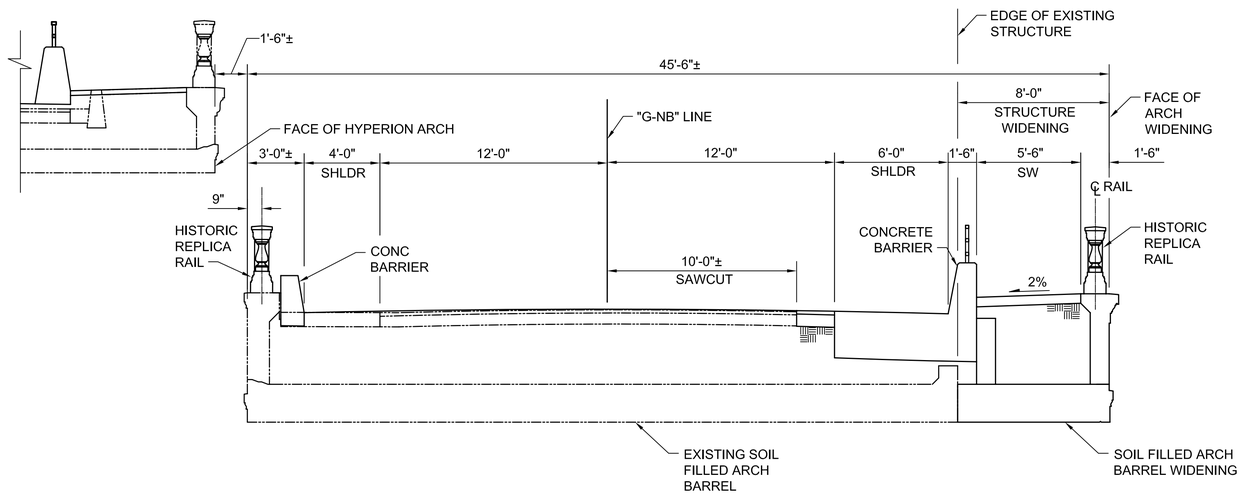
Southbound to Northbound Turn-Around. The turn-around beneath the Hyperion Bridge that allows cars traveling southbound on Glendale Boulevard to turn around and travel northbound on Glendale Boulevard would remain in its current configuration.

Traffic Lane Restriping. The southbound Glendale Boulevard viaduct would be restriped to accommodate a 6-foot shoulder and 5-foot 5-inch clear sidewalk.



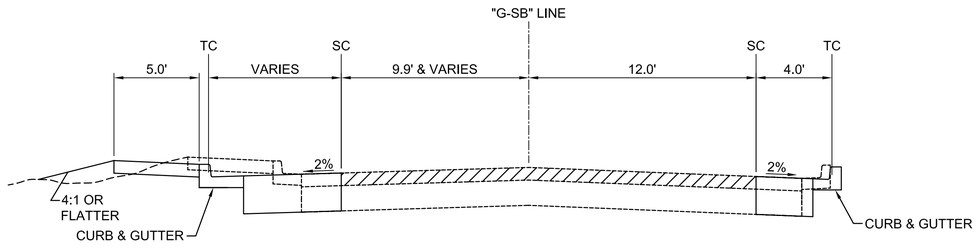
SB GLENDALE BLVD

"G-SB" STA 13+45.00 TO STA 16+80.00



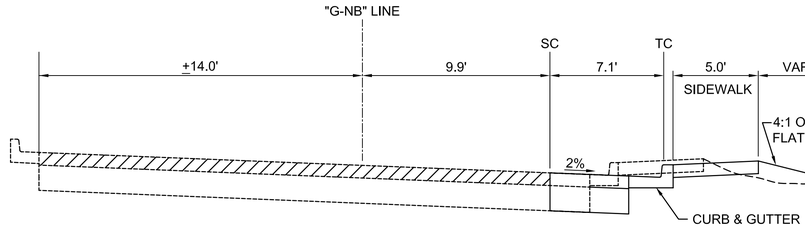
NB GLENDALE BLVD

"G-NB" STA 13+10.00 TO STA 16+60.00



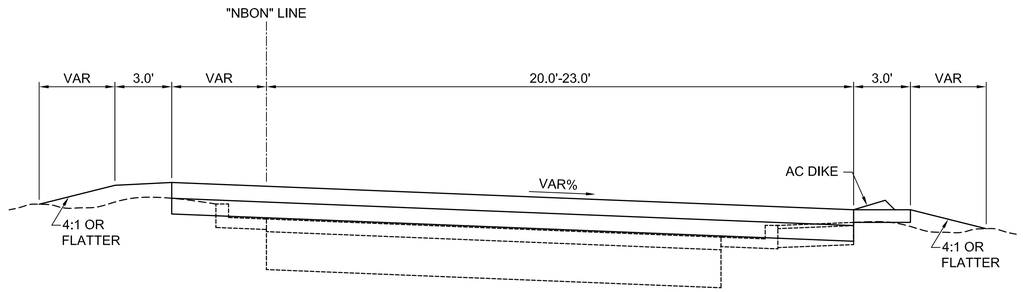
SB GLENDALE BLVD

"G-SB" STA 11+20.00 TO STA 13+45.00



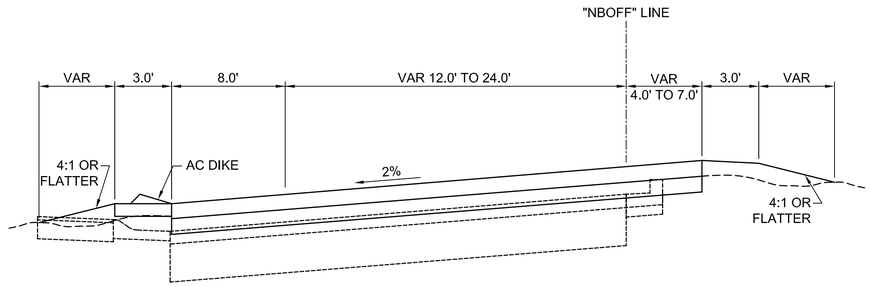
NB GLENDALE BLVD

"G-NB" STA 11+00.00 TO STA 13+10.00



I-5 NB ON RAMP

"NBON" STA 9+83.14 TO STA 11+40.00



I-5 NB OFF RAMP

"NBOFF" STA 10+00.00 TO STA 11+55.87

FIGURE 1-5
GLENDALE BOULEVARD CROSS SECTIONS

GLENDALE - HYPERION STRUCTURES
(53C-1881, 53C-1883, AND 53C-1884)
REHABILITATION AND SEISMIC
RETROFIT DESIGN

NOV 2011



Photograph 5: Southbound Glendale Boulevard over the Los Angeles River

I-5 On-Ramp Modifications. The existing northbound on-ramp approach to the I-5 from southbound Glendale Boulevard would be slightly realigned southward (see Figure 1-3B) to correspond with the traffic lane restriping along the widened southbound Glendale Boulevard bridge (over the Los Angeles River). Photograph 6 below shows the existing on-ramp.

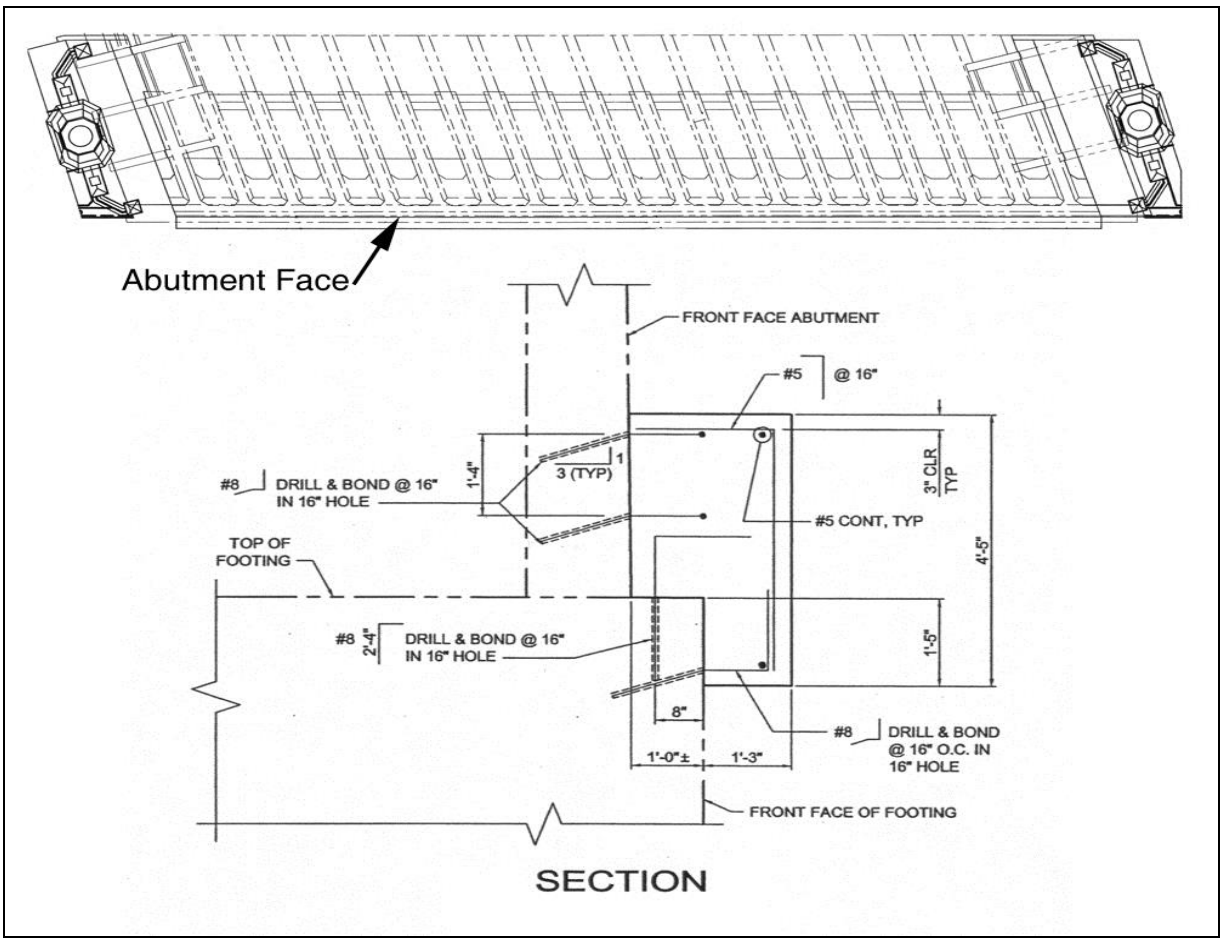


Photograph 6: Southbound Glendale Boulevard at the turn-around (left) and Northbound I-5 on-ramp

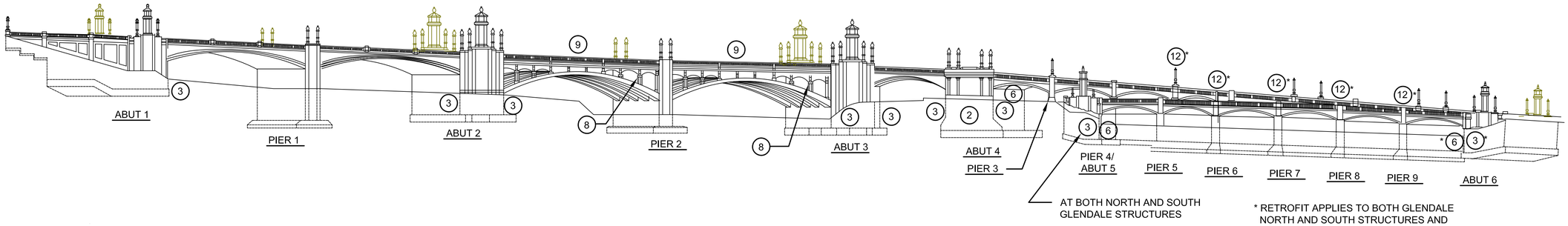
1.3.1.5 Seismic Improvements

Seismic improvements would primarily involve strengthening improvements to the substructure elements of the viaduct complex. Four categories of seismic retrofits would occur, and are described below. Figure 1-6 illustrates the overall proposed seismic retrofit plan that shows the location and type of seismic retrofit along the viaduct complex.

Abutment Transverse Wall Shear Friction Retrofit. This work would involve the addition of concrete bolsters between the abutment walls and abutment footing, which is below ground. This retrofit would require excavation along one side of each abutment to provide access to the footing. The bolster would then be installed along the base of the abutment and footing to strengthen the connection. Inset 2 shows typical details for this work and illustrates the strengthened wall-footing connection. Once the concrete bolsters are constructed, the excavation would be filled and the retrofit would be entirely buried.



Inset 2: Abutment Transverse Wall Retrofit Details



AT BOTH NORTH AND SOUTH GLENDALE STRUCTURES

* RETROFIT APPLIES TO BOTH GLENDALE NORTH AND SOUTH STRUCTURES AND HYPERION MAINLINE STRUCTURE ALONG RIVER SPANS

DEVELOPED ELEVATION

1" = 75'

NOTE: DETAILS ELIMINATED BY CATRANS ARE NOT SHOWN.

SEISMIC RETROFIT LEGEND

(2) BUTTRESS WALL STRENGTHENING

(3) ABUTMENT TRANSVERSE WALL SHEAR FRICTION RETROFIT

(6) ARCH SHEAR RETROFIT AND DUCTILITY RETROFIT

(8) SPANDREL COLUMN DUCTILITY RETROFIT

(9) INTERIOR SPANDREL WALL STRENGTHENING

(12) PIER WALL CHANNEL LINING RETROFIT

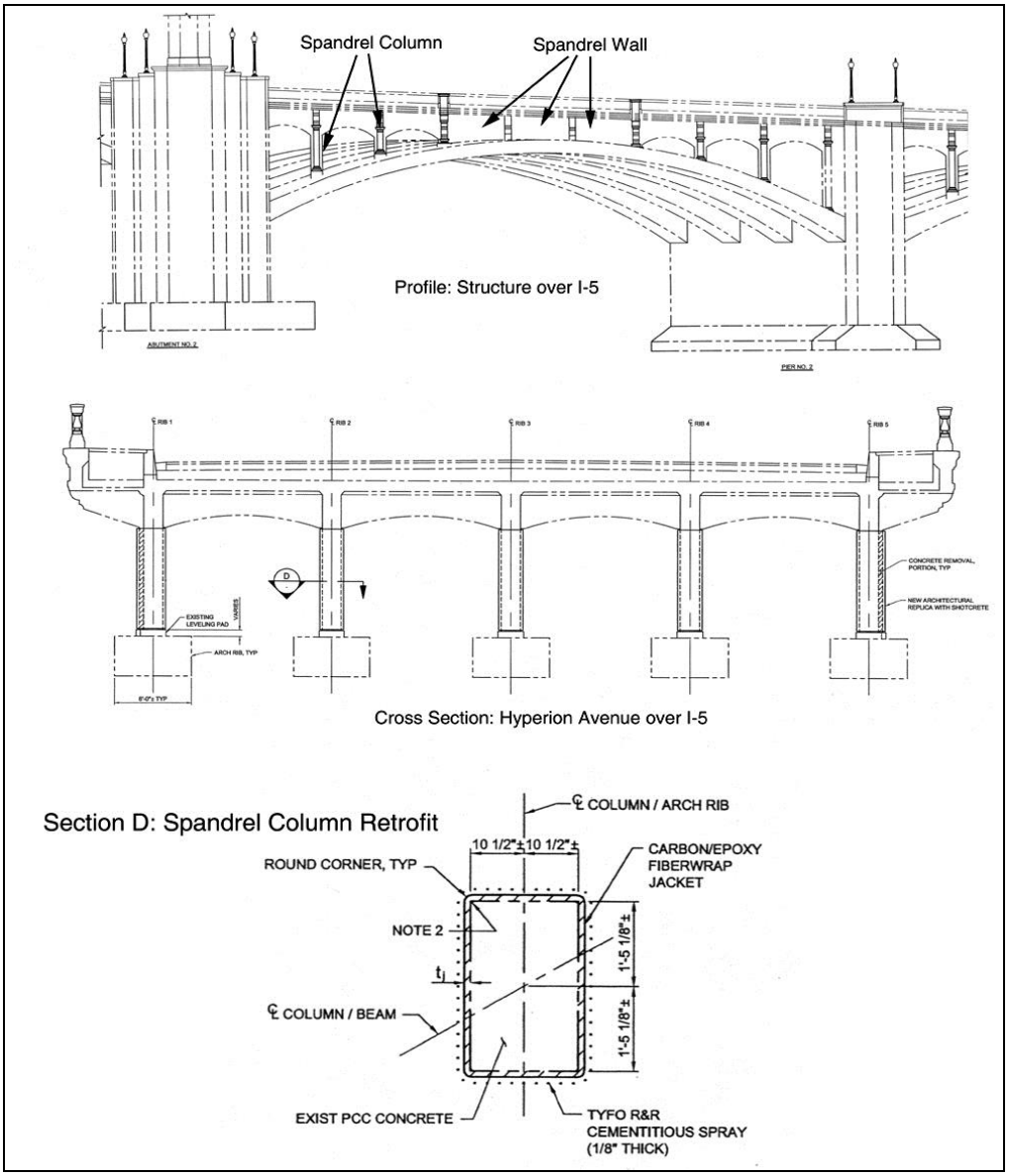
NOTE:
FOR RETROFIT DETAILS, SEE "RETROFIT DETAILS" SHEETS; LEGEND NUMBERS CORRESPOND TO RETROFIT DETAIL NUMBERS.

FIGURE 1-6
PROJECT SEISMIC RETROFIT PLAN

GLENDALE - HYPERION STRUCTURES
(53C-1881, 53C-1883, AND 53C-1884)
REHABILITATION AND SEISMIC
RETROFIT DESIGN

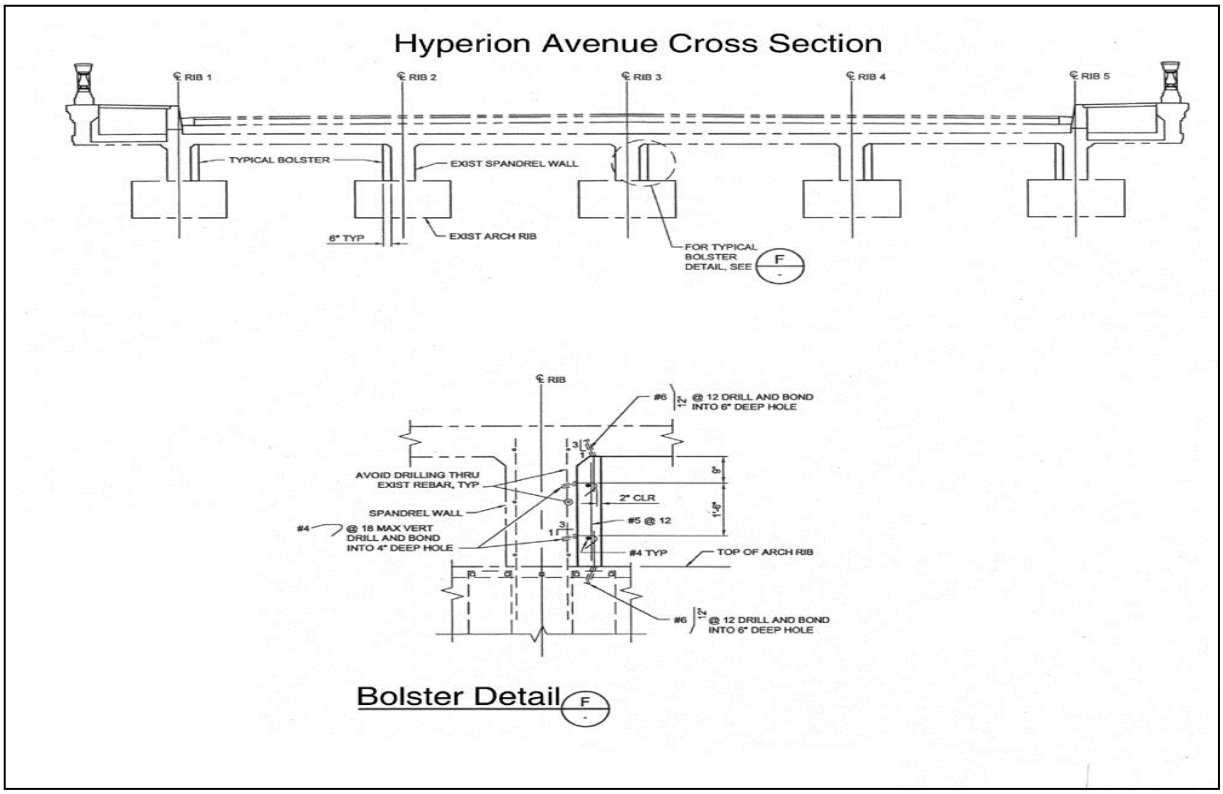
NOV 2011

Spandrel Column Ductility Retrofit. The section of the viaduct complex over I-5 is supported by two arched spans with an open spandrel design (see Figure 1-6). The deck above is supported by both spandrel columns and spandrel walls. Seismic strengthening of the spandrel columns would involve wrapping the existing spandrel columns with a carbon-epoxy fiber wrap. Once the columns have been wrapped, a layer of concrete, similar in texture and color, would be applied. Inset 3 shows typical details for this work.



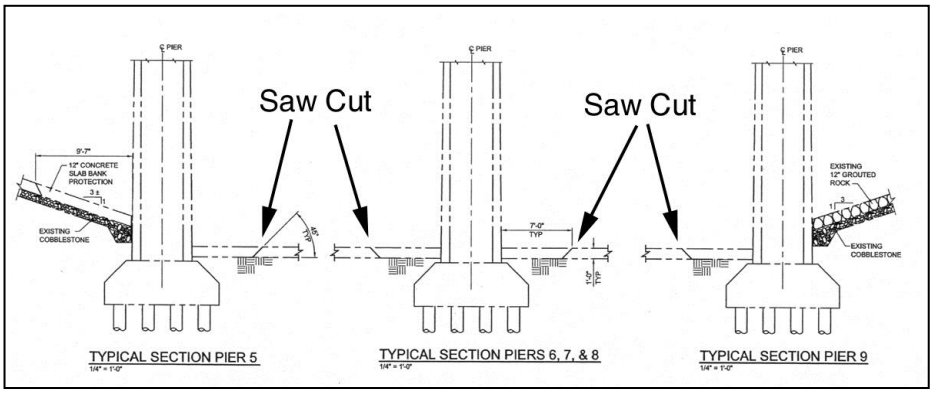
Inset 3: Spandrel Column Ductility Retrofit Details

Interior Spandrel Wall Strengthening. For the two arched spans over I-5, spandrel walls instead of columns are used to support the deck (above the arches). The seismic retrofit of the spandrel walls would involve the addition of concrete bolsters along one side of each spandrel wall (between the top of the arch and the deck) to increase the strength of the deck-arch connection. The bolsters would be constructed only on the interior faces of the walls so they would be mostly hidden from view. Inset 4 shows typical details for this work.



Inset 4: Spandrel Wall Retrofit (Bolster) Details

Pier Wall Channel Lining Retrofit. This work would involve cutting the existing channel lining so that the piers would be free to move during an earthquake, which would prevent damage to the base of the piers. An inclined saw cut would be placed parallel to the pier wall so that when the pier wall moves back and forth the channel lining would not restrict the movement. Inset 5 shows typical details for this work.



Inset 5: Pier Wall Channel Lining Retrofit

Section **1.3.1.6 [DELETED]**

1.3.1.7 I-5 Off-Ramp Reconfiguration

The existing I-5 northbound off-ramp to Glendale Boulevard would be realigned southward to connect with northbound Glendale Boulevard south of its current terminus (see Figure 1-3B). This realignment would improve the sight distance and operational safety issues faced by motorists exiting northbound I-5 at this location. In addition, the realigned off-ramp would be signalized and permit exiting northbound motorists to make left turns directly onto southbound Glendale Boulevard, eliminating the need to first travel north to execute U-turns at Glenfeliz Boulevard. The exact signal configuration has not been determined but would be designed and implemented in accordance with City and Caltrans requirements. After the ramp reconfiguration, the former ramp area would be landscaped. The signalized intersection would also provide a controlled pedestrian crossing across Glendale Boulevard, which would facilitate pedestrian access to Hyperion Avenue via the staircase (Photograph 7) from Glendale Boulevard (along the west side of the viaduct complex).



Photograph 7: Staircase from Glendale Boulevard Along West Side of Viaduct complex

1.3.1.8 Infiltration/Detention Basin

A detention/infiltration basin will be constructed just northwest of the viaduct complex as a permanent water quality best management practice (BMP) for purposes of controlling runoff from the viaduct complex. This area is currently part of the Caltrans I-5 Right-of-Way. Under agreement with Caltrans, the Contractor will utilize this area as a staging area prior to construction of the permanent basin. Hyperion Avenue storm water and a portion of the Glendale Boulevard (northbound and southbound) storm water in the vicinity of the basin will be directed into the basin in order to detain, infiltrate and treat a portion of it. The basin would provide detention and infiltration as a pre-treatment of stormwater prior to river discharge. It would be provided with metered drainage to prevent insect vector issues as well as provide for emergency overflow into the river as protection for adjacent transportation. This BMP will meet the City goals of not increasing net discharge and provide for improved treatment associated with the first flush of storm water. Several trees would be removed to construct the basin, and new trees and ground cover would be planted after contractor demobilization.

The basin will also be integrated into the proposed Sunnynook Park,[3] which is scheduled for construction in 2012 west of Glendale Boulevard, east of I-5, west of the Los Angeles River and south of the Sunnynook Pedestrian Bridge upstream of the project site. A perimeter path leads up to the basin, which has been shown as part of the Sunnynook Park project.

3 The Sunnynook River Park is a separate proposed project located in the vicinity of the proposed project. Refer to Table 1-4: Related Projects, for more information.

1.3.1.9 Project Construction

Project construction is expected to start in the summer of 2014 or later and occur over 2.5 years. Project components would be constructed in a phased manner that would maintain vehicular traffic and access on Hyperion Avenue and Glendale Boulevard (northbound and southbound) at all times (CLA, 2007b). The contractor would utilize staging areas to store equipment and supplies either within the construction work zone or at a nearby area such as the Caltrans right-of-way between I-5 and the Los Angeles River just northwest of the viaduct complex. Towards the end of construction, when that area is no longer required as a staging area, it would be excavated and the detention/infiltration basin, as described in Section 1.3.1.8, would be installed.

The contractor would be required to comply with all applicable rules, regulations, and standard specifications. Imported fill would not be required. In addition, construction would occur with an exemption from the Bureau's Special Order #01-0406 for implementing the Mayor's Executive Directive No. 2 (BOE, 2006) that sets requirements for rush hour construction on City streets. Further information on this directive is provided in Section 2.4.3.

In addition to the overall construction descriptions below, further construction phasing details are provided in the discussion of temporary traffic effects in Section 2.4.3.

Construction along Hyperion Avenue

Prior to construction and demolition work along the Hyperion Avenue structures, protective barriers would be constructed along the exterior of the viaduct complex to contain any debris, tools, or other materials that could fall on sidewalks, roadways, the river, or other property below. The protective barriers would be constructed of timber and plywood (similar to falsework), or other equally effective material. The protective barriers could require placement at night for up to two days at each location to minimize disruptions along thoroughfares such as Riverside Drive and I-5. Once the protective barriers are in place, construction of the improvements would begin.

While the railing replacement and the sidewalk work are occurring along Hyperion Avenue, temporary pedestrian detours around work zones would be established. In addition, a center work zone would be phased for median construction in Hyperion Avenue. At least one travel lane in each direction would be maintained at all times. K-rails would be utilized to protect the temporary pedestrian walkways and work zones from traffic.

Construction along the Glendale Boulevard Bridges

Prior to construction and demolition work along the Glendale Boulevard bridges, protective barriers would be constructed along the bridge exteriors to contain any debris, tools, or other materials that could fall into the river below or into the work zone established in the river channel.

During widening of the northbound and southbound Glendale Boulevard bridges, one of the two travel lanes on each structure would be converted to work zones, which would be physically separated from the remaining travel lane (most likely with K-rails). At least one travel lane along each bridge would be maintained at all times. Pedestrian access along both bridges during construction would likely have to be temporarily prohibited, and detoured around the work area.

During pier and abutment construction, a work zone would also be established in the river in the immediate area of the piers or abutments. This section of the river bottom is concrete-covered, and the work area would be confined to the concrete pad so as to not physically disturb the

unlined portions of the river upstream or downstream of the viaduct complex. Flow within the river would be diverted around the work area. Piles would be installed by augering holes, inserting support sleeves and/or reinforcing cages, and filling the drilled holes with concrete. Appropriate BMPs would be utilized. The bridge work would require intermittent closure of the existing bikeway underneath the bridge for the safety of bicyclists.

Construction of the Northbound I-5 Off-Ramp Realignment

The reconfiguration of the northbound I-5 off-ramp at Glendale Boulevard would be prioritized to occur in the first phase to allow left-turns to southbound Glendale Boulevard, which would minimize vehicular travel on Glendale Boulevard during construction of the other project components.

During construction of the realigned northbound I-5 off-ramp approach to northbound Glendale Boulevard, the existing off-ramp would be kept operational. The realigned portion of the off-ramp would first be constructed and then connected to the freeway exit during off-peak hours. A short-term overnight ramp closure may be required during the actual connection process. Realignment of the I-5 off-ramp would be phased with widening of the northbound Glendale Boulevard Bridge. Following the off-ramp realignment, the former off-ramp would be removed. A new access to the Los Angeles River bike path from northbound Glendale Boulevard would also be constructed and the area would be landscaped.

Construction of Seismic Retrofits

Seismic retrofit work involving the bridge abutments, columns, and piers would also be accomplished in a staged manner within established work zones to ensure that vehicular traffic (i.e. along Riverside Drive and I-5), pedestrian traffic, and bikeway traffic (along the Los Angeles River) would be safely maintained.

1.3.1.10 Pedestrian Overcrossing across the Los Angeles River

In the interest of reducing construction duration to minimize impacts and due to width restrictions during the widening construction phase, it is anticipated that both the NB and SB Glendale Boulevard bridges would be widened in a single phase. To provide adequate construction area for the contractor to perform the widening, pedestrian traffic would be excluded from both sides of both bridges. As a mitigation measure for this impact upon pedestrian transportation, the City would construct an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex) to connect the bike path along the southwest side of the Los Angeles River with Glendale Boulevard on the southeast side of the river. The pedestrian crossing, in conjunction with the new access to the Los Angeles River bikeway from northbound Glendale Boulevard, would provide a detour route around the Glendale Boulevard bridges during construction. In order for this measure to serve as an effective detour for pedestrians, the pedestrian crossing and the new access to the bike path would have to be fully constructed and operational before commencing the widening of the Glendale Boulevard bridges.

The Atwater Village and Silver Lake neighborhood councils have requested a pedestrian crossing over the Los Angeles River at this location during meetings and hearings on this Project. This crossing would provide an alternate, motorized-vehicle free access to the River, and encourage people from the residential community on the northeast side of the River to come to

the existing bike path on the west bank and to the new Sunnynook River Park. It would also encourage environmental education of the public by bringing non-motorized users to the river resources.

As a result, the City has committed to an upgrade from a temporary pedestrian bridge, as required for construction mitigation, to a permanent pedestrian facility, including meeting City lighting criteria. A pedestrian path would be installed to join the northeast touchdown of the crossing and the northbound Glendale Boulevard sidewalk.

1.3.2 No Build Alternative

Under the No Build Alternative, no improvements to the viaduct complex would be undertaken, including seismic retrofit/rehabilitation. The existing viaduct complex would remain seismically deficient and remain vulnerable to earthquake-induced forces, deformations, and possible failures. In the event of an earthquake, the existing structures would continue to pose a level of hazard to the public using the viaduct complex that is greater than would be the case for a structure rehabilitated to current seismic performance standards. The No Build Alternative would not meet the project purpose and need, as discussed in Section 1.2. Although the No Build Alternative would not meet the project objectives, it is being evaluated in this joint environmental document because it is required under CEQA and NEPA. Under CEQA, the No Build Alternative is equivalent to the No Project Alternative. Under NEPA, the No Build Alternative reflects the No Federal Action alternative.

1.3.3 Alternatives Considered but Eliminated from Further Discussion

In addition to the project alternatives described above, other alternatives were considered and withdrawn from further consideration because they would:

- Fail to meet the project's purpose and need objectives.
- Result in greater environmental impacts than the proposed project.
- Fail to avoid or substantially lessen the significant impacts of the proposed project.

These alternatives are summarized in Table 1-2, Summary and Comparison of Alternatives. These other alternatives were withdrawn from further consideration. Table 1-2 also includes the Build Alternatives and the No Build Alternative for comparison purposes.

Table 1-2: Summary and Comparison of Alternatives

Alternative	Meets Purpose and Need?	Impacts?	Advantages and Disadvantages	Cost?	Carried Forward?
Proposed Action	Yes	Low	Would remove the viaduct complex from the EBL, would provide seismic upgrades, would improve pedestrian safety, improve I-5 off-ramp, would improve bike path access, and would provide restoration of historic features.	High	Yes
Build Alternative 1: Seismic Retrofit Only	Partially	Low	Would provide seismic upgrades but would not improve roadway deficiencies, remove the viaduct complex from the EBL, or provide restoration of historic features.	Low	No
Build Alternative 2: Widen Hyperion by 44 feet & Glendale Bl. Bridges by 24 feet	Yes	Very High	Would widen bridge to meet current standards, but cause major community and traffic disruptions. Would require moderate right-of-way acquisition and relocations. Would accommodate pedestrians along both sides of Hyperion Avenue. The Glendale bridges would also have sidewalks on both sides. The viaduct complex would likely lose historic status.	Very High	No
Build Alternative 3: Widen Hyperion by 24 feet & Glendale Bl. Bridges by 16 feet	Yes	High	Would widen bridge to meet current standards, but cause major community and traffic disruptions. Would require low-moderate right-of-way acquisition and relocations. Would accommodate pedestrians only on the west side of Hyperion. The viaduct complex would likely lose historic status.	High	No
Build Alternative 4: New Bridge at Existing Location	Yes	Very High	Would provide a new bridge that meets current standards, but cause major community and commuter disruptions and require some right-of-way acquisitions and relocations. Would remove Historic-Cultural Monument.	Very High	No
Build Alternative 5: New Bridge at an adjacent New Location	Yes	Very High	Would require extensive right-of-way acquisitions and relocations. Seismic and geometric deficiencies of existing viaduct complex would remain. Would not provide	Very High	No

Table 1-2: Summary and Comparison of Alternatives

Alternative	Meets Purpose and Need?	Impacts?	Advantages and Disadvantages	Cost?	Carried Forward?
			restoration of historic features.		
No Build Alternative	No	Indirect	Would not address design or seismic deficiencies	None	Yes*
Transportation System Management and Transportation Demand Management Alternatives	No	Low	Would not address design or seismic deficiencies, and would not remove the viaduct complex from the EBL.	Low	No

* The No Build Alternative is being carried forward for further consideration as required by the California Environmental Quality Act (No Project alternative) and the National Environmental Policy Act (No Federal Action alternative).

1.3.3.1 Build Alternative 1 – Seismic Retrofit Only

Build Alternative 1 – Seismic Retrofit Only would sufficiently strengthen the existing viaduct complex to meet current seismic performance standards. This alternative would not remove the complex from the HBP EBL, but would only implement the seismic retrofit improvements previously described in Section 1.3.1.1.5 (the proposed project's seismic improvements). Aside from seismic improvement, no other improvements would be provided. The seismically retrofitted bridge structures would retain their current geometric configuration.

The widening of the Glendale Boulevard bridges over the Los Angeles River, enhanced pedestrian and traffic safety improvements, replacement replica balustrades, and new access to the Los Angeles River bike path from northbound Glendale Boulevard would not be implemented. Under this alternative, existing covered rails and other altered architectural design features would not be restored. Moreover, existing traffic hazards to pedestrians that walk along the 2-foot curbs adjacent to the retaining walls near Waverly Drive (along Hyperion Avenue) would remain.

Build Alternative 1 would not meet the project goal of removing the viaduct complex from the EBL under the HBP, but would bring the viaduct complex up to current seismic standards. In addition, Build Alternative 1 would not include the reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard and would not improve the operational efficiency of the viaduct complex.

Construction would require approximately one-year. The total cost for Build Alternative 1 is estimated to be approximately $5.5 million. The funding source for Build Alternative 1 would be State Seismic Retrofit funds.

1.3.3.2 Build Alternative 2 – Viaduct Widening by 44 Feet

Build Alternative 2 – Viaduct Widening by 44 Feet would widen the viaduct structures along Hyperion Avenue by 44 feet and the Glendale Boulevard bridges by 24 feet. This alternative would add four lanes to Hyperion Avenue (two lanes in each direction) and one additional lane each along the southbound Glendale Boulevard Bridge (over the Los Angeles River) and the northbound Glendale Boulevard Bridge.

Build Alternative 2 would require the acquisition of right-of-way on either side of the existing viaduct complex, including a strip of the greenscape to the east of the viaduct complex's northern end, which is now designated as Red Car River Park. In addition, this alternative would require the Waverly Diver Bridge to be removed and replaced with a wider bridge. This alternative would cost an estimated $95 million dollars (2005 dollars) and require approximately four years for construction.

This alternative would also result in substantial loss of the viaduct complex's historic fabric.

As part of the public coordination process, Build Alternative 2 was presented to Atwater Village, Silver Lake, and other stakeholders in 2002, and the stakeholders expressed opposition to it. Due to the high level of potential impacts during construction, the extent of potential loss of historic fabric, the high cost, and lack of community support, Build Alternative 2 was withdrawn from further consideration as a viable project alternative.

1.3.3.3 Build Alternative 3 - Viaduct Widening by 24 Feet

Build Alternative 3 – Viaduct Widening by 24 Feet would widen the viaduct structures along Hyperion Avenue by 24 feet and the Glendale Boulevard bridges by 16 feet. This alternative would include full standard shoulders and full standard sidewalks on both sides, and full standard median in the center of the Hyperion Avenue structure. No lanes would be added as part of this alternative. Standard shoulders and sidewalk would also be added to both Glendale Boulevard Bridges.

Build Alternative 3 would also require the acquisition of right-of-way on either side of the existing viaduct complex, including the greenscape to the east of the viaduct complex, which was designated as Red Car River Park. This alternative would also require demolition and replacement of the Waverly Bridge structure with a wider structure. This alternative would cost an estimated $60 million dollars (2005 dollars) and be constructed over approximately four years.

This alternative would also result in substantial loss of the viaduct complex's historic fabric.

As part of the public coordination process, Build Alternative 3 was presented to Atwater Village, Silver Lake, and other stakeholders in 2002, and, as with Build Alternative 2, the stakeholders were decisively opposed to it. Opponents cited the high level of potential impacts during construction, and the associated loss of historic fabric. In consideration of this proposal's high cost and lack of community support, Build Alternative 3 was eliminated from further consideration as a viable project alternative.

1.3.3.4 Build Alternative 4 – New Bridge at Existing Location

Build Alternative 4 – New Bridge at the Existing Location would require complete demolition of the existing viaduct complex and construction of an entirely a new bridge at the same location.

The new bridge provided by Build Alternative 4 would meet current standards for seismic performance and geometric design. Build Alternative 4 would result in construction-related impacts substantially greater than those of the other Build Alternatives because the viaduct complex is one of four key thoroughfares that cross the Los Angeles River in the extended project vicinity (the other three are Fletcher Drive, SR-2 or the Glendale Freeway, and Los Feliz Boulevard). This alternative would require the complete closure of the viaduct complex for an extended period of time, which would result in substantial impacts to commuters and the local circulation system during construction. In addition, this alternative would result in substantial economic impact to local businesses along Glendale Boulevard and Hyperion Avenue. Furthermore, Build Alternative 4 would result in the complete demolition of the historic viaduct complex, which is eligible for listing in the NRHP and is a City Historic-Cultural Monument.

The total cost for Build Alternative 4 is estimated to be in excess of $140 million (2005 dollars).

Build Alternative 4 was withdrawn from further consideration because it would have the greatest adverse effect on the historic resource, resulting from the demolition of the entire viaduct complex, and because the costs and other environmental impacts for this alternative would be substantially greater that other build alternatives.

1.3.3.5 Build Alternative 5 – New Bridge at New Location

Build Alternative 5 – New Bridge at a New Location would provide a replacement bridge for the existing viaduct complex, on either side of the viaduct complex. The existing viaduct complex would remain in place and retain its historic fabric, but would not be seismically improved. Moreover, Build alternative 5 would not cure the design or seismic defects of the existing viaduct complex.

Build Alternative 5 was briefly considered but withdrawn from further consideration because it was not considered to be a prudent and feasible alternative. Moreover, this alternative would require extensive right-of-way acquisition and reconfiguration of the entire street system at both ends of the viaduct complex, because there are other more viable and realistic alternatives that could be implemented, because the existing seismic concerns with the existing viaduct complex would not be addressed, and because of the high the level of anticipated environmental impacts and cost.

1.3.3.6 Transportation Systems Management (TSM) and Transportation Demand Management (TDM) Alternative

Because the Project is intended to bring the existing viaduct complex into compliance with current design and seismic performance/safety standards, rather than increase the volumetric flow of traffic by capacity enhancement or operational efficiency, implementation of a TSM and TDM Alternative would not address the purpose and need of the proposed project. TSM and TDM are not considered viable because they cannot resolve the current physical design or geometric deficiencies and reduce the vulnerability of the viaduct complex in case of major earthquake events.

1.4 Permits and Approvals Needed

Table 1-3 below contains a list of agency approvals that will be required for the proposed project.

Table 1-3: List of Agency Approvals and Permits

Agency	Permit/Approval	Status
California Department of Transportation	Encroachment Permit for viaduct construction (seismic) over I-5, construction of BMP infiltration basin in I-5 Right-of-Way, new bike path access ramp utilizing existing northbound I-5 off-ramp and permit/design/construction approval for reconfiguration of the northbound I-5 off-ramp at Glendale Boulevard.	To be implemented during design and construction.
California Department of Fish and Game	Streambed Alteration Agreement	To be obtained prior to construction.
Los Angeles Regional Water Quality Control Board (LARWQCB)	Permit approval under the General Construction Activities Stormwater Permit. Clean Water Act water quality certification.	To be obtained prior to construction.
U.S. Army Corps of Engineers	Clean Water Act Permit for discharge of dredged or fill material, Permit to construct access ramp(s) in the Los Angeles River channel, Permit to construct pedestrian bridge over Los Angeles River, Approval of water diversion plan.	To be obtained prior to construction.
State Historic Preservation Officer/Advisory Council on Historic Preservation (SHPO/ACHP)	Concurrence with HPSR and Findings of Effect documents; Approval of the Memorandum of Agreement (MOA)	MOA to be submitted to SHPO prior to final IS/EA.
County of Los Angeles, Department of Public Works	Approval to enter and work in the Los Angeles River. Permit to construct pedestrian bridge over Los Angeles River and easement in the Flood Control District.	To be obtained prior to construction.
City of Los Angeles, Department of Transportation	Approval of work area traffic control plan (traffic management plan), lane closures, and establishment of traffic control and safety measures	To be established during project design or prior to construction, and implemented during construction.
City of Los Angeles, Bureau of Sanitation	Permit to discharge treated extracted groundwater to the sewer system.	To be implemented during construction, if necessary.
City of Los Angeles, Board of Public Works	Permit to perform work or affect a traffic lane closure during peak traffic hours, including possible exemption from related prohibitions (Mayor's Directive No. 2).	To be implemented prior to construction.
City of Los Angeles, Police Commission	Permit to perform limited night construction	To be obtained prior to construction.
City of Los Angeles, Department of Water and Power	Approval of temporary easement for off-ramp realignment construction	To be obtained prior to construction.

1.5 Related Projects

The City has identified several approved or proposed projects within the vicinity of the proposed project that could contribute to cumulative impacts. These projects are listed in Table 1-4. Other development projects are planned for the project area; however, these projects would occur on private parcels and would not physically affect the street system in the project vicinity. Traffic from the development projects is accounted for in the traffic growth factor used to project future traffic in the project area.

Table 1-4: Related Projects

Project & Location	Description	Project Status
Silver Lake Reservoir Complex Storage Replacement Project	The Silver Lake Reservoir Complex Storage Replacement Project would remove Silver Lake and Ivanhoe reservoirs from direct service to the LADWP water distribution system. Water storage currently provided by the Silver Lake Reservoir Complex (SLRC) would be replaced by a 110-million-gallon (MG) buried storage reservoir at the former Headworks Spreading Grounds (HWSG site). The new storage reservoir would be accompanied by water conveyance facilities and a 4-megawatt (MW) hydroelectric power generating facility at the HWSG site to capture energy from the water pressure coming into the reservoir. A regulating station at the SLRC and a new bypass pipeline around the reservoir complex would convey water delivery flow to existing service areas, and Silver Lake and Ivanhoe reservoirs would cease to be operated as drinking water storage facilities. The bypass pipeline is the portion of this project that would be located in the vicinity of the proposed project. The bypass pipeline will extend along West Silver Lake Drive from Armstrong to below the reservoir. It will be jacked from the following 3 pits: 1) Ivanhoe/Armstrong, 2) West Silver Lake near the curve, and 3) terminus at the south end of the SLRC. (R. Pendergrass, personal communication, March 22, 2007)	Construction of the Bypass pipeline is currently scheduled to start on 1/2012 and end by 11/29/2013.
Los Angeles River Revitalization Master Plan	The Los Angeles River Revitalization Master Plan is a 20-year blueprint for development and management of the Los Angeles River. Objectives of the plan include the establishment of environmentally sensitive urban design guidelines, land use guidelines, and development guidelines for the river zone that will create economic development opportunities to enhance and improve river-adjacent communities by providing open space, housing, retail spaces such as restaurants and cafes, educational facilities, and places for other public institutions.	The plan was adopted by City Council in 2007.
Sunnynook River Park	The Sunnynook River Park is a priority project of the Los Angeles River Revitalization Master Plan It is a multi-benefit project that will create a greenway/infiltration park in a 5-acre area along the existing bike path on the west side of the Los Angeles River. The area will serve as a rest area for pedestrians and cyclists, be landscaped with native vegetation and include picnic areas, benches, educational signage and art.	Construction is scheduled to begin in May 2012 and will last 6 months.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

- Sole Source Aquifers – No sole source aquifers are located in the project area.
- Coastal Zone – The project site is inland near the Los Angeles civic center, and is not located in an area covered by the California Coastal Zone Management Plan.
- Wild and Scenic Rivers – No wild or scenic rivers are located in the vicinity of the project site.
- Agricultural Wetlands – The project area does not contain agricultural fields or agricultural wetlands.
- Farmlands/Timberlands – The project site is in an urban area, and no farmland/agricultural or timberlands are on or adjacent to the project site.
- Parking – The project would not change the parking prohibition on the viaduct or adversely affect parking.
- Growth – The proposed project would not provide additional capacity, and consequently it would not generate increases in traffic or promote more intensive uses of land or growth in the project area.
- Geology/Soils – The project area was previously disturbed to construct the freeway, river channel and past facilities, such as the Red Car Line and the original Glendale Boulevard.
- Paleontology – Work associated with the proposed project would occur in an area previously disturbed for the building of complex components that is not known to contain paleontological materials.

The analysis in this environmental 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 (for example, *Los Angeles Municipal Code* and Bureau of Engineering *Standard Plans*) or Caltrans standards, as applicable. Also, this analysis assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (for example, *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adapted by the City of Los Angeles (for example, City of Los Angeles Department of Public Works *Additions and Amendments to the Standard Specifications for Public Works Construction* [a/k/a "The Brown Book," formerly Standard Plan S-610]), and applicable Caltrans construction requirements.

Human Environment

2.1 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.

2.1.1 Regulatory Setting

California state law (Government Code Section 65300) requires that each city prepare and adopt a comprehensive, long-term general plan for its development. It must contain seven elements: land use, circulation, housing, conservation, open space, noise, and safety.

The City's General Plan contains a Framework Element, which addresses each of the State-mandated requirements and establishes overall planning policies for a city. The General Plan also contains citywide elements for all of the required topics, except land use. Other optional citywide elements include such topics as Service Systems, Circulation, and Air Quality. The Land Use Element comprises 36 Community Plans, each of which contains the land use policies and standards for a geographically distinct area.

The Land Use Element has the broadest scope of the General Plan elements required by the State. Since it regulates how land is to be utilized, many of the issues and policies contained in other plan elements are affected and/or have an effect on this element. California law requires that the Transportation Element be correlated with the Land Use Element and zoning. A component of the City's Transportation Element, the 2010 Bicycle Plan, designates the City's bikeway system and introduces a comprehensive collection of programs and policies.

Government Code Section 65302(a) requires that land use elements designate the proposed general distribution and general location and extent of uses of the land for housing; business and industry; open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty; education; public buildings and grounds; solid and liquid waste disposal facilities; and other categories of public and private uses of land.

2.1.2 Affected Environment

2.1.2.1 Existing and Future Land Use

The immediate project area includes residential and commercial land uses in the vicinity of Hyperion Avenue, Glendale Boulevard, and Riverside Drive, as well as I-5 and the Los Angeles River. The southern portion of the project area includes the Silver Lake and Los Feliz communities, and the northern portion of the project area includes Atwater Village. The viaduct complex serves as a key connecting roadway between these communities and other outlying neighborhoods. Glendale Boulevard has historically served as the main thoroughfare between Los Angeles and Glendale. These areas are generally built out, but have opportunities for use intensification and revitalization. Communities along the Los Angeles River have been proposed for revitalization by providing open space, housing, retail spaces such as restaurants and cafes, educational facilities, and places for other public institutions.

Adjacent land use through the Hyperion Avenue segment of the project area is predominantly commercial interspersed with some residential uses; particularly along the southern portion of the viaduct complex. Residential land uses are present along Waverly Drive to the east and west of the viaduct complex, with some of the residences situated along the top of a bluff that

overlooks the viaduct complex. Residential uses are also present along the Hyperion Avenue frontage roads connecting Waverly Drive with Hyperion Avenue.

There are few land uses along Glendale Boulevard south of I-5 due to the unique configuration of the surrounding area and the confluence of the Los Angeles River, I-5, and the roadway system. The west side of Glendale Boulevard north of the Los Angeles River is predominantly lined with commercial uses, with residential uses (predominantly single family homes) behind the commercial uses. There are some single and multi-family residences located along the frontage road opposite the landscaped median separating northbound Glendale Boulevard traffic from two-directional traffic on the frontage road to the east side of the north end of the viaduct complex (between the Los Angeles River and Greenward Road).

Riverside Drive crosses beneath the main viaduct complex (Hyperion Avenue) and is lined with commercial and industrial uses.

The bike path along the Los Angeles River forms an important commuter use in the project area. The bike path generally runs along the top of the river's southwest bank, but slants from the bank top, to go around an abutment, as it passes beneath the viaduct complex. This bike path is accessible via an access gate and ramp along southbound Glendale Boulevard near the northbound I-5 on-ramp.

The Northeast Los Angeles Community Plan identifies an equestrian trail along the east side of the Los Angeles River that extends from just north of Los Feliz Boulevard south to the confluence of the Arroyo Seco, where it extends north along the Arroyo Seco. In the project area, this designated equestrian trail has not yet been implemented, and the steep left bank of the river at the viaduct complex effectively prevents the use of the left bank of the Los Angeles River as an equestrian trail.

There are also several concurrent planning and development projects within the vicinity of the project area. These projects include the Los Angeles River Revitalization Master Plan, Silver Lake Reservoir Complex Storage Replacement Project, and Sunnynook River Park. Detailed discussion of these concurrent projects can be found in Table 1-4 Related Projects of Chapter 1. Other planned development projects would occur on private parcels and would not physically affect the street system of the project vicinity.

See Figure 2-1 for the existing zoning in the project area, and Figure 2-2 for a land use map.

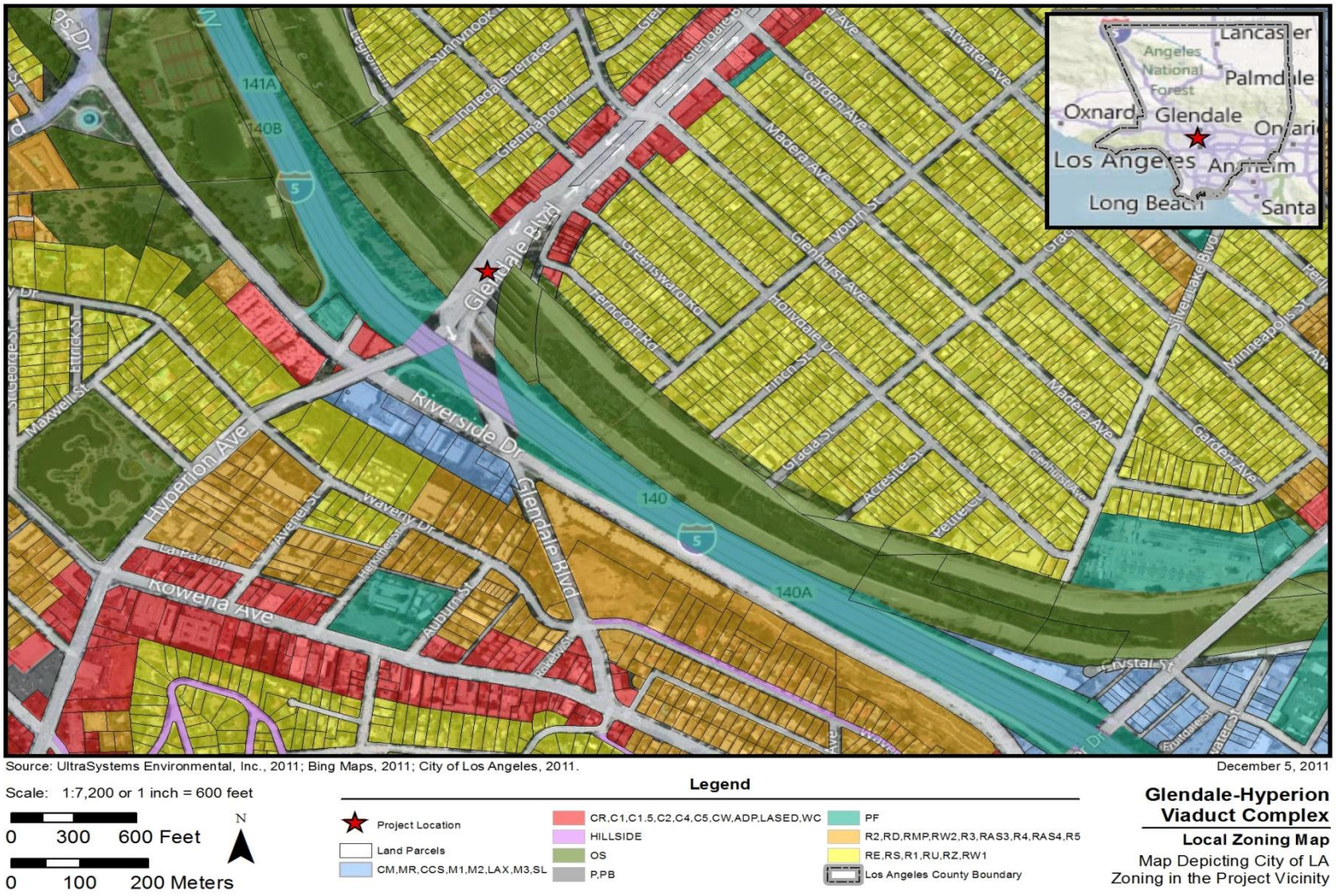


Figure 2-1: Zoning Designation of the Project Area

Source: ZIMAS, 2011

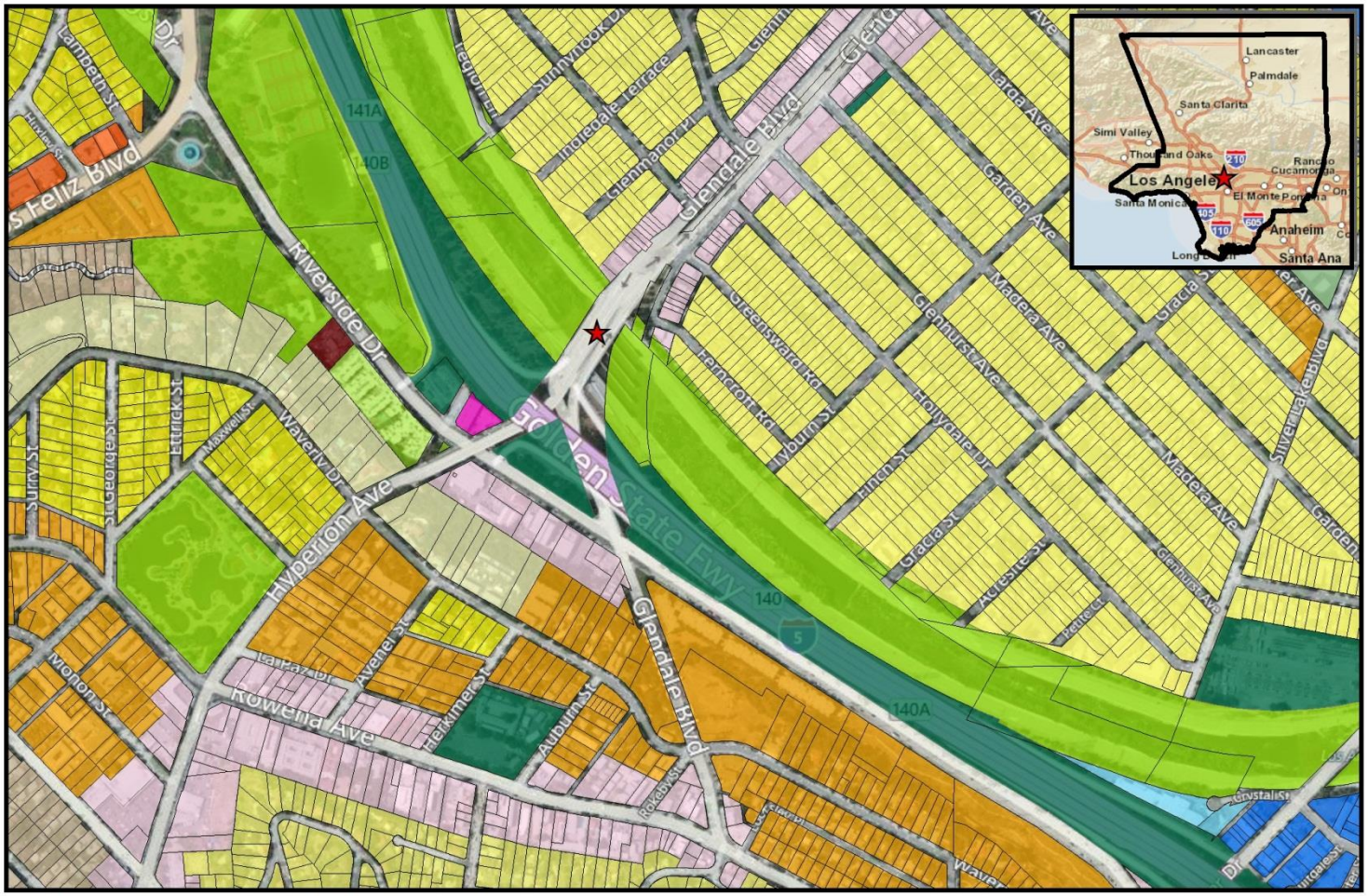


Figure 2-2: Land Use Map

2.1.2.2 Consistency with State, Regional Local Plans and Programs

Transportation Element of the City of Los Angeles General Plan

Under the City's General Plan, Hyperion Avenue is designated as a secondary highway, and Glendale Boulevard as a Class II highway. The Element also designates Glendale Boulevard from the Los Angeles River north to the City of Glendale as a Scenic Highway. The proposed project will not affect these designations and is consistent with the Transportation Element.

Silver Lake-Echo Park-Elysian Valley Community Plan

The project site is located within the Silver Lake subarea of this community plan. The plan calls for improvement to pedestrian-oriented areas, which include the Los Angeles River channel, and enhance gateways to the community. The proposed project will not conflict with land use designations specified in the community plan. It will bring sidewalk improvements and pedestrian facility improvements as well as new balustrades that replicate the original balustrades to beautify the streetscape.

Hollywood Community Plan

The project is located in the southern part of the Hollywood Community Plan, which is currently in the process of being updated by the City of Los Angeles. The proposed project will improve traffic circulation and provide seismic upgrade, which is consistent with the Hollywood Community Plan.

Northeast Los Angeles Community Plan

The northern portion of the viaduct complex is located in the Northeast Los Angeles Community Plan area. The proposed project is consistent with this plan, which aims to coordinate development among various areas with compatible infrastructure and service levels. It encourages streetscape improvements and emphasizes that "bridges should be surveyed to determine where sidewalks are deficient to provide needed access and public safety."

Los Angeles River Revitalization Master Plan (LARRMP)

This plan (see Section 2.5.1.3 for more details) is a conceptual framework to guide the revival of the Los Angeles River corridor. The plan area spans all 32 miles of the Los Angeles River and stretches one-mile-wide to include the project site. The proposed project will complement this plan and improve connection between walkways and increase accessibility in the area. The Los Angeles River Revitalization Master Plan was adopted by the Los Angeles City Council in 2007.

2010 City of Los Angeles Bicycle Plan

The 2010 City of Los Angeles Bicycle Plan is a long-range planning tool to guide future development of bicycle facilities in the City to the year 2045. The plan envisions programming future facilities in five-year increments for environmental evaluation and funding. There are no existing bicycle facilities on Glendale Boulevard and Hyperion Avenue. According to the plan, as a transportation element, Hyperion Avenue is listed as a future bicycle lane (dedicated bicycle-only lane), and Glendale Boulevard is listed as a future bicycle route (in-road bicycle and vehicle shared roadway).

Adhering to the 2010 City of Los Angeles Bicycle Plan, the new shoulder on Glendale Boulevard could facilitate future development of a bicycle route. Though the proposed project

will not include a bicycle lane on Hyperion Avenue, the project is consistent with the plan because cyclists can use the shoulder.

Regional Transportation Plan (RTP)
The RTP, which is prepared by the Southern California Association of Governments (SCAG), is a long-range plan that identifies multi-modal regional transportation needs and investments over the next 25 years. It provides a vision for transportation investments throughout the region. Since the proposed project does not increase traffic capacity, and because it would be classified as an intersection signalization project, it is exempt from regional air emissions analysis. No additional travel lanes, or total vehicle miles traveled (VMT) would occur as a result of this project. More details about project conformity are discussed in Section 2.10.3.1.

2.1.3 Environmental Consequences

2.1.3.1 Temporary Impacts

Construction of the proposed project would occur within the existing right-of-way of the viaduct complex and Glendale Boulevard to the immediate northeast, including a narrow sliver of the landscaped median, which would be utilized to transition the widened bridge to the existing roadway. However, the majority of the landscaped median would remain unaffected during construction. Much of the seismic strengthening work would occur beneath the bridge and could be accomplished in phases. Some construction work would be staged to maintain the flow of vehicular, bicycle, and pedestrian traffic. Roadway construction along Riverside Drive, Glendale Boulevard, and Hyperion Avenue would require the temporary closure of one or more travel lanes; however, at least one lane in each direction would always be maintained, as would access to adjacent properties and land uses along Glendale Boulevard and Riverside Drive. Pedestrian access across the Glendale Boulevard Bridges over the Los Angeles River during construction would be prohibited, but access to nearby structures would not be prohibited. Because access to local streets would be maintained during construction, residential and commercial land uses would not be adversely affected.

The seismic upgrades to the viaduct complex would require work on Abutment No.1 and Abutment No. 2. Abutment No. 1 is located approximately 150 feet southwest of Riverside Drive, and Abutment No. 2 is located adjacent to the northeast side of Riverside Drive. The area beneath the viaduct complex next to Abutment No. 1 is owned by City, but is currently being used as automobile storage by Classic Collision Center, which is located at 3020 Riverside Drive. This area is being used under the terms of a revocable permit issued by the City of Los Angeles to the business. Similarly, the area under the viaduct complex adjacent to Abutment No. 2 is being used by L & R Construction (3061 Riverside Drive) under the terms of a revocable permit. The purpose of the revocable permit ("R" Permit) under LAMC 62.118.2 is to grant conditional encroachment of the public right-of-way by private parties normally not authorized to occupy it.

During the seismic upgrades, the abutment work would occur from the area beneath the viaduct complex, which would require the temporary suspension of the revocable permit to these two businesses. The revocable permits may be revoked by the City with advance notice for any reason. The revocable permit is not a lease and would be terminated 30 days from date of notice to vacate. The City would have full control of both areas prior to construction. The permittees will be compensated with the relocation assistance if allowed by the Uniform Relocation Act.

2.1.3.2 Permanent Impacts

Land use impacts are effects that would conflict with General Plan (Community Plan) land use designations or zoning, conflict with environmental plans and policies, or physically divide a community or neighborhood.

The proposed project includes seismic and other improvements to the existing viaduct complex, including widening both the northbound and southbound Glendale Boulevard bridges (over the Los Angeles River) by approximately eight feet. The improvements along the Hyperion Avenue portion of the viaduct complex include seismic upgrades, new balustrades that replicate the original balustrades, sidewalk improvements, and pedestrian facility improvements. These improvements would not conflict with existing land use designations or the zoning designations of parcels in the project area. The widening of the Glendale Boulevard bridges over the Los Angeles River would occur within the public right-of-way and would not affect the land use designations for the surrounding area.

The realigned off-ramp from northbound I-5 to Glendale Boulevard would use existing public right-of-way and would not affect zoning or designated land uses. As part of this ramp reconfiguration, a small open-space area would be created adjacent to the new access ramp to the Los Angeles River bike path from northbound Glendale Boulevard (see Figure 1-3B). This open space area would be landscaped as part of the proposed project and could be used for other beneficial uses in the future.

The proposed project would not affect the Community Plan designation of the east bank of the Los Angeles River as a future equestrian trail because it would not change or block access along the top of the bank.

Because the proposed project would occur within existing right-of-way, it would not result in changes to adjacent land uses. The proposed project represents improvements to the existing viaduct complex and would not physically divide an established community or conflict with any land use plan, redevelopment plan, policy, or regulation. Because the proposed project would not provide additional capacity, it would not generate increases in traffic or promote more intensive uses of land in the project area.

2.1.3.3 Cumulative Impacts

The proposed project does not require significant additional right-of-way or change in existing adjacent land use. Therefore, the proposed project is not anticipated to result in adverse impacts to existing land uses, land use patterns, from land use plan conflicts in the project vicinity. As such, the proposed project is not expected to contribute to cumulative impacts to land use.

2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance or mitigation measures are required or proposed.

2.1.4 No Build Alternative Impacts

The No Build Alternative would not result in improvements to the viaduct complex, and therefore would not result in impacts to land use.

2.1.5 Parks and Recreational Facilities

2.1.5.1 Affected Environment

Griffith Park

Griffith Park is the only official park and recreational facility located within 0.5 mile of the project site. It encompasses 4,210 acres, and is situated just west of the Golden State Freeway (I-5), roughly between Los Feliz Boulevard on the south and the Ventura Freeway (SR 134) on the north. Griffith Park provides recreational opportunities and activities throughout the park. Griffith Park is a Section 4(f) resource not affected by the project, and is discussed in Appendix B2: Resources Evaluated Relative to the Requirements of Section 4(f).

Red Car River Park

Immediately north of the Glendale Boulevard northbound bridge is a triangular-shaped, landscaped median separating the northbound lanes from the two-directional frontage road within the Glendale Boulevard right-of-way. A community group, the "Friends of Atwater Village," has unofficially designated this median "Red Car River Park." It is not an actual park, and is maintained, as are all other landscaped medians in street rights-of-way, by the City's Bureau of Street Services. Since this area is within the Glendale Boulevard right-of-way, Section 4(f) does not apply. The area is discussed in Appendix B2: Resources Evaluated Relative to the Requirements of Section 4(f).

Sunnynook River Park

An undeveloped Caltrans parcel, located west of the viaduct complex and east of I-5, is the site of the proposed "Sunnynook River Park." Under Section 104.15 of the Streets and Highways Code, Caltrans is authorized to lease land to local agencies for park purposes. Pursuant to the lease agreement, the City of Los Angeles and Caltrans entered into 30-year agreement to maintain the land with certain conditions in place. One of these conditions stipulates that if Caltrans should need to aquire the land back for highway purposes the lease would terminate upon a three-month notice.

Los Angeles River Bike Path

The bike path along the Los Angeles River forms an important recreational and commuter use in the project area. The bike path generally runs along the top of the river's southwest bank, but slants from the bank top, to go around an abutment, as it passes beneath the viaduct complex. This bike path is accessible via an access gate and ramp along southbound Glendale Boulevard near the northbound I-5 on-ramp.

The Los Angeles River Revitalization Master Plan area comprises the 32 miles of the River within the City of Los Angeles that extends from Owensmouth Avenue, in the upper reaches of the northwest San Fernando Valley, to the border of the City of Vernon, at the southern end of downtown Los Angeles. The Plan proposes to consider a range of activities to restore riparian and aquatic habitat, and related habitat functions, in and adjacent to the Los Angeles River. Compatible activities to conserve cultural resources, and to provide recreational, open space, and interpretive amenities, will also be considered. In addition, redevelopment would be encouraged to bring economic and residential vitality along the river banks and utilization of the river as a natural scenic feature. Recreational features such as additional green space and a continuous trail along the river are features of the project. In 2007 The LA City Council adopted the Los

Angeles River Revitalization Master Plan. In 2012 the U.S. Department of the Interior prioritized the Los Angeles River Trail System in the President's America's Great Outdoors Initiative.

Equestrian Trail

The equestrian trail, located within the City of Los Angeles right-of-way, is located along the top of the left (north) bank of the Los Angeles River, and ends at the Glendale Boulevard Bridges. It is identified in the Citywide Major Equestrian and Hiking Trails Plan. The segment of the equestrian trail within the project area is undeveloped and not implemented. As specified in the Northeast Los Angeles Community Plan, the equestrian trail is proposed for future completion and connection to trails to serve recreational needs and improve accessibility to other open space resources.

2.1.5.2 Environmental Consequences

The project would not change or alter the use of, and does not have the potential to affect Griffith Park. Additionally, since Sunnynook Park is within Caltrans right-of-way, it does not qualify as a 4(f) resource, as discussed in Appendix B2: Resources Evaluated Relative to the Requirements of Section 4(f).

The proposed project would result in a temporary occupancy of the bike path, and would not alter the alignment or impair the continuity or use of the bike path. The bike path would temporarily be rerouted, utilizing existing roadways, for a short duration during construction. The bike path would be restored to its original condition following construction.

As described in Appendix B2, the equestrian trail is a Section 4(f) resource, but the project would not result in a use of the resource. The project would not alter the alignment of the equestrian trail, and would not interfere with the City's plan to develop the equestrian trail in the future.

Therefore, there would be no impacts to parks and recreational facilities with implementation of the proposed project, or the no-build alternative.

2.1.5.3 Avoidance, Minimization, and/or Mitigation Measures

Because impacts are not anticipated, avoidance or mitigation measures are neither required nor proposed.

2.2 Community Impacts and Environmental Justice

This section discusses community cohesion, relocations, and environmental justice impacts that could result from the proposed project or alternatives.

2.2.1 Community Character and Cohesion

2.2.1.1 Regulatory Setting

The National Environmental Policy Act of 1969, as amended (NEPA), established that the Federal Government 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)]. The Federal Highway Administration in its implementation of NEPA [23 U.S.C. 109(h)] 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 is not to be considered a *significant* effect on the environment. However, if a social or economic change is caused by 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.

2.2.1.2 Affected Environment

The proposed project would include modifications to an existing structure along its existing alignment and would not involve acquisition of new right-of-way. The northern portion of the viaduct complex is in the Northeast Los Angeles Community Plan area while the southern portion is in the Hollywood Community Plan area. The project area and its vicinity are developed with a mix of residential, commercial, and industrial uses. The two primary neighborhoods are Silver Lake and Atwater Village. The Silver Lake neighborhood south of the project site is located at higher elevations than the Atwater Village neighborhood, which is north of the existing viaduct complex. Interstate-5 and the Los Angeles River, which act as physical barriers, divide the adjacent two neighborhoods. However, the viaduct complex serves to tie the two neighborhoods together and allow vehicular and pedestrian travel between them. Section 2.1.2 above describes the land use setting of the proposed project area, including general development within the project vicinity, the City's land use planning framework, and important community infrastructure in the project area.

Although pedestrians use the viaduct complex to travel between the two neighborhoods, the pedestrian facilities along Hyperion Avenue on the Complex present issues. Section 2.4.1 below provides more details about key transportation infrastructure present in the project area.

The proposed project would extend along roadways (Glendale Boulevard and Hyperion Avenue), which are designated by the City's classification system as Class II Major Highways. Commercial uses are generally located along the major highways in the project area, with residential uses in surrounding areas. One church, the Silver Lake Presbyterian Church, is located along Hyperion Avenue just south of the project limits. Aside from this facility, there are no community or public service facilities in the immediate project vicinity.

2.2.1.3 Environmental Consequences

The proposed project would make permanent changes to the viaduct complex, consisting primarily of seismic strengthening, replacement railings, widened Glendale Boulevard bridges over the Los Angeles River, sidewalk consolidation and improvements along Hyperion Avenue. In addition, the proposed project includes the reconfiguration of the existing northbound I-5 off ramp to Glendale Boulevard, and a new bicycle access path to the existing Los Angeles River Bike Path.

2.2.1.3.1 Temporary Impacts

Construction of the proposed project would occur in three primary phases: in Phase I, the reconfiguration of the northbound I-5 off-ramp would be constructed (the latter dependent on available funding); in Phase II, Hyperion Avenue along the viaduct complex would be improved; and in Phase III, the Glendale Boulevard bridges would be constructed. There could be construction overlap of the phases.

Traffic

As discussed in detail in Section 2.4 (Traffic), construction of the proposed improvements would require temporary lane closures; however, a minimum of one lane of traffic would be maintained along all thoroughfares. The temporary lane closures are not expected to substantially affect community character or cohesion because land uses and land use patterns would not be affected.

Pedestrian Access

During construction, the Glendale Boulevard bridges over the Los Angeles River would be closed off to pedestrians due to space limitations. Pedestrians wishing to cross the river on Glendale Boulevard would be able to access the existing Hyperion Avenue sidewalk by traversing Glendale Boulevard southbound travel lanes on a temporary crosswalk at the north end of the viaduct or by using the staircase that connects Glendale Boulevard and Hyperion Avenue just south of the I-5 northbound on-ramp. This detour route requires pedestrians to use the staircase to the Hyperion Avenue bridges to travel between Silver Lake and Atwater Village neighborhoods. Some people, such as those in wheelchairs or pushing strollers, would not be able to use the pedestrian detour route because of the staircase to the Hyperion Avenue bridges. Consequently, construction activities for the widening of the Glendale Boulevard bridges could temporarily eliminate a major pedestrian route in the project area, thereby creating a *de facto* barrier between the two neighborhoods, which is considered an adverse effect. See Section 2.4 for more details on pedestrian flow and pedestrian travel routes.

This elimination of the pedestrian route on northbound Glendale Boulevard and the unfriendly pedestrian detour on southbound Glendale Boulevard eliminates a smooth, continuous pedestrian path connecting the Atwater Village and Silver Lake neighborhoods. The lack of adequate pedestrian facilities during construction not only disrupts existing pedestrian travel behavior but discourages residents from walking between the two neighborhoods via the viaduct complex. It presents a physical barrier for pedestrians and ground-level interaction between the two neighborhoods.

Bicycle

Construction of the proposed project would maintain bicycle access to the Los Angeles River bike path from southbound Glendale Boulevard. Construction of the proposed project would require the temporary rerouting of the Los Angeles River bike path, which would occur prior to construction so that bike path use can be maintained. Because of this, construction of the proposed project would not disrupt bike path access or use, and would therefore not substantially affect community cohesion or character related to the Los Angeles River bike path.

Schools

Construction activities would occur along Hyperion Avenue, Glendale Boulevard and Riverside Drive along or close to the viaduct complex. Access to local streets would be maintained. The following public schools are located in the project vicinity (see Inset 2-1 below for school locations):

- John Marshall High School (approximately 0.25 mile southwest of the project site),
- Ivanhoe Elementary School (approximately 0.25 mile southeast of the project site), and

- Glenfeliz Elementary School (approximately 0.5 mile northwest of the project site).

Construction of the proposed project is not expected to substantially affect access to these schools, as they are located outside of the anticipated construction work area. Even though the temporary lane closure may increase travel time for students and school staff who commute by car, a minimum of one lane of traffic would be maintained along all thoroughfares. Students and school staff who travel between Atwater Village and Silver Lake neighborhood by foot may experience greater impacts than those who travel by car. Potential impacts to student pedestrians are discussed above under Pedestrian Access and in the Traffic and Transportation section below.



Inset 2-1: Schools in Vicinity
Source: UltraSystems Environmental, Inc. 2012

2.2.1.3.2 Permanent Impacts

The proposed project would be considered to have an adverse community impact if it would result in the destruction or disruption of human-made resources, or substantially affect community cohesion and/or the availability of public facilities and services.

The proposed project would seismically strengthen and improve the viaduct complex. The proposed project would have no effect on population growth in the project area because it would

neither increase the capacity of the viaduct complex structure nor remove constrictions from the associated roadway. The proposed project would neither result in the need to relocate any existing housing or businesses nor substantially change or restrict access to adjacent and surrounding land uses.

Traffic and Pedestrian

The proposed project would implement seismic strengthening improvements along the viaduct complex to improve its ability to withstand a maximum credible earthquake. Over the long term, the seismic improvements would result in the continued cohesion of the Silver Lake and Atwater Village neighborhoods through the maintenance of vehicular and pedestrian access between the two neighborhoods, which is a long-term benefit.

The proposed project would reconfigure the existing off-ramp from northbound I-5, which would allow motorists exiting this off-ramp the option of turning left on Glendale Boulevard (southbound) rather than having to travel north, weave to the far left turn lane, and make a U-turn at (Glenfeliz Boulevard) to then travel south on Glendale Boulevard. The elimination of this latter traffic movement would be an improvement over the current situation that would slightly reduce total vehicle miles traveled and reduce weaving from merging northbound traffic from Hyperion Avenue and Glendale Boulevard.

The proposed project would consolidate the sidewalks along Hyperion Avenue (on the viaduct complex) to a new wider sidewalk along the west side of Hyperion Avenue and would provide other pedestrian-friendly features, such as a designated crosswalk at the north end of the viaduct complex from the wider sidewalk along the west side of Hyperion Avenue to the sidewalk along the west side of Glendale Boulevard. The sidewalk improvements beneath the Waverly Drive Bridge represent a substantial safety improvement over current conditions, in which pedestrians often walk along a 2-foot-wide curb adjacent to traffic.

The construction of a pedestrian overcrossing over the Los Angeles River (across Red Car piers), which has been previously requested by the local community councils, would further strengthen this connectivity and yield positive community effects. Construction of the pedestrian overcrossing over the Los Angeles River utilizing the existing Red Car piers would require that the piers be cut down to approximately the elevation of the River banks. This would directly affect the "Revisit the Red Car" Mural, located on a wall surface on one of existing Red Car piers. Permitted by the Flood Control District and painted in 2005, the "Revisit the Red Car" Mural serves two purposes for the community. It aims to educate future generations about the transportation history of Los Angeles, and to visually mark where the Red Cars once crossed over the Los Angeles River in Atwater Village. The bottom of the mural also provides a pictorial of the different bird species that live or migrate through the Los Angeles River. The mural would be replaced at a nearby location upon consultation with community members, and would continue to serve its purpose to educate the community within the vicinity of the bridge.

Bicycle

The proposed project would increase access to the Los Angeles River bike path through the provision of a new access path from northbound Glendale Boulevard, which would improve community cohesion or character through increased community access to commuter resources.

Visual and Aesthetics

The proposed project would provide replacement railings along the viaduct complex based on the original balustrade design, which would improve community character through the provision of more ornate and detailed historic bridge.

2.2.1.3.3 Cumulative Impacts

There are no overlapping construction projects that would occur during the construction of the proposed project. The proposed project would not result in physical changes in development or development patterns in the project area. Therefore, substantial cumulative impacts to community cohesion and character would not occur.

The proposed project, in conjunction with the Los Angeles River Revitalization Master Plan, would result in improvements in community character and cohesion through improvements in community access to the Los Angeles River.

2.2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

To mitigate for the temporary removal of pedestrian access on Glendale Boulevard Bridges over the Los Angeles River, and to ensure proper pedestrian detours while the Glendale Boulevard Bridges are closed to pedestrians during construction, mitigation measure **T-2** described below in **Section 2.4**, Traffic and Transportation, would be implemented.

Furthermore, City staff should take the initiative to notify schools, local communities, and other public institutions about temporary lane closures, elimination of the pedestrian route over the Glendale Boulevard Bridges, and viable detour routes. Proper notification to schools and local communities about the construction can reduce unnecessary confusion and avoid travel frustration.

2.2.1.4 No Build Alternative Impacts

The No Build Alternative would not change or improve the existing viaduct complex.

2.2.1.4.1 Temporary Impacts

Because no changes to the viaduct complex would occur under the No Build Alternative, no temporary effects to community character or cohesion would occur.

2.2.1.4.2 Permanent Impacts

The No Build Alternative would not result in long-term benefit to community cohesion and character, as described below.

Traffic and Pedestrian

Under the No Build Alternative, the existing seismic deficiencies of the viaduct complex would remain and the viaduct complex would remain susceptible to future earthquakes, which could affect future vehicular and/or pedestrian use of the viaduct complex.

Bicycle

The No Build Alternative would not affect access to the Los Angeles River bike path and would therefore not affect community cohesion or character related to the Los Angeles River bike path. However, the complex would remain susceptible to earthquakes, in the event of which the viaduct could suffer damage necessitating closure of the bike path.

Schools

The No Build Alternative would not require construction and would therefore not affect access to schools. However, the complex would remain susceptible to earthquakes, which could affect future vehicular and/or pedestrian use of the complex and thereby indirectly affect access to schools.

Relocations

Neither the proposed project, nor the No Build Alternative, would result in any relocation.

2.2.2 Environmental Justice

2.2.2.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 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 human health or environmental effects of federal projects and programs on minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined according to the Department of Health and Human Services poverty guidelines. For 2010, this level was $22,050 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. 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.

The term "minority" includes persons who identify themselves as Black/African American, Asian/Pacific Islander, Native American, or of Hispanic/Latino origin. The term "low income" includes persons whose household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines. A different threshold (e.g. U.S. Census Bureau poverty threshold) may be utilized as long as it is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines. For purposes of this environmental document, a minority population is defined as a population or group residing in a geographical area where more than 50% of the individuals are minority, and a low-income population is

defined as a population group residing in a geographically affected area where the percentage of individuals at or below the poverty line exceeds that of the City of Los Angeles, as a whole.

In support of EO 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 through the incorporation of those principles (as embodied in the EO) in all DOT programs, policies, and activities. The Order further states that this policy shall be realized by fully considering environmental justice principles throughout the planning and decision-making process using principles of *NEPA, Title VI of the Civil Rights Act of 1964*, the *Uniform Relocation Assistance Act 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 addresses infrastructure planning and decisions-making (CEQ, 1997).

2.2.2.2 Affected Environment

The proposed project is located entirely within four census tracts, 1871, 1873, 1882, and 1883 (CLA, 2007e), which are shown in Figure 2-3. According to 2010 U.S. Census data, the minority population of the City of Los Angeles was approximately 70.3% of the City's total population, and the low income population was approximately 19.1% of the City's population (see Table 2.2-1). Table 2.2-1 compares the distribution of the population by race/ethnicity and poverty level for the four census tracts against the same distribution for the City as a whole between the 2000 and 2010 census data.

The four census tracts extend considerable distances beyond the project site. In addition, the portion of Census Tract 1873 adjacent to the project site does not contain land uses that could be occupied by residents or employees. Therefore, census tract block groups adjacent to the project site were identified and represent a more localized composition of the population likely to be affected by the construction of the proposed project. These block groups include:

- 1871, Block Group 1
- 1882, Block Group 1
- 1882, Block Group 2
- 1883, Block Group 3

Minority population in the four block groups adjacent to the project site comprise approximately 52.6% of the total population, and 2.8% of families are below poverty level. The affected population is not considered a low-income population for Environmental Justice evaluation purposes because current poverty levels in the four block groups are low. The minority population percentage of Census Tract 1871 Block Group 1 and Census Tract 1883 Block Group 3 are approximately 71.1% and 53.6% respectively, and are considered minority populations for Environmental Justice evaluation purposes.

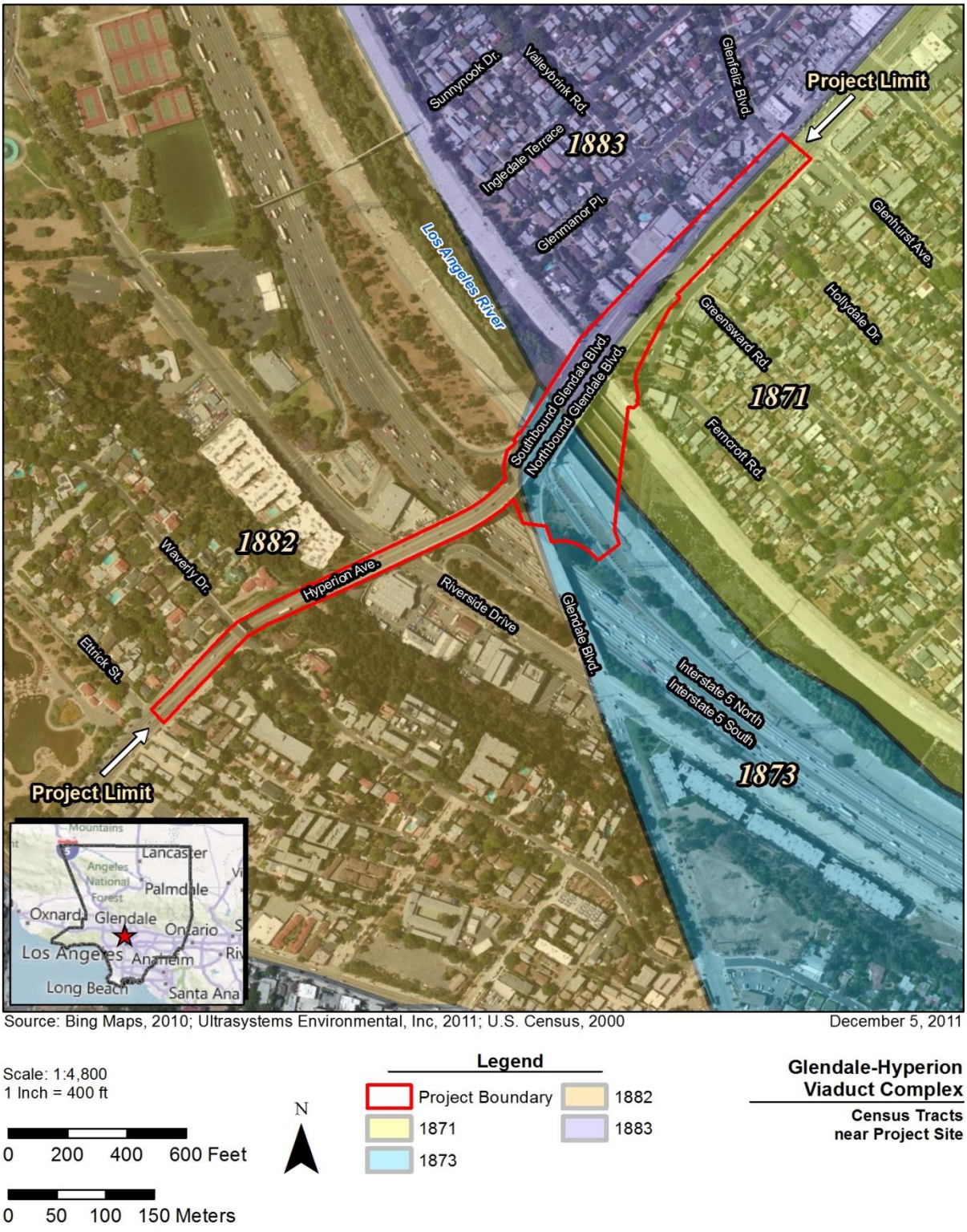


Figure 2-3: Census Tracts within Project Area

Table 2.2-1: 2000 and 2010 Population, Ethnicity, and Income Characteristics for Census Tracts

	Total Population	Total Minority Population	Total Individuals Below the Poverty Level**	Total Population	Total Minority Population	Total Individuals Below the Poverty Level**
	2000			2010*		
Los Angeles City	3,694,820	1,803,462	--	3,792,621	2,664,491	--
	--	48.8%	22.1	--	70.3%	19.1%
Census Tract **1871**	6,849	3,871	897 (6,815)	6,849	5,068	482 (6,038)
	--	56.5%	13.2%	--	74.0%	8.0%
Census Tract **1873**	3,390	1,511	452 (3,386)	3,216	1,032	327 (3,536)
	--	44.6%	13.3%	--	32.1	9.2%
Census Tract **1882**	5,767	1,659	654 (5,761)	5,617	1,934	351 (5,856)
	--	28.8%	11.4%	--	34.4%	6.0%
Census Tract **1883**	3,694	1,755	216 (3,676)	3,536	1,544	176 (3,398)
	--	47.5%	5.9%	--	43.7%	5.2%

Source: U.S. Census Bureau, 2000 and 2010, City of Los Angeles, 2005.

* Some census tracts may have grown enough in population size to qualify as more than one census tract. As a result, the 2000 Census Tract 1871 is split into Census Tracts 1871.01 and 1871.02 and Census Tract 1882 is split into 1882.01 and 1882.02 in the 2010 census data. For the purpose of consistency, the data of the split tracts are aggregated in this table.

** The total population by census tract for race/ethnicity data differs slightly from that of the poverty data due to estimation differences. The number before the parenthesis () is the total population in the census tract for the race/ethnicity data, and the number inside () is the total population in the Census Tract for the poverty data. The respective total population is used to calculate the percent of the minority and low-income populations (defined as at or below the poverty level).

Table 2.2-2: Population, Ethnicity, and Income Characteristics for Block Groups

Year 2000 Estimates			
Block Group	**Population**	**Minority Population**	**% of Families below Poverty Level**
1871, Block Group 1	1,869	1,013 (54.2%)	8.2%
1882, Block Group 1	911	297 (32.6%)	17.2%
1882, Block Group 2	1,550	562 (36.3%)	7.4%
1883, Block Group 3	1,000	439 (43.9%)	5.8%
	Number	**Percentage**	
Aggregate Block Group Population	5,330	--	
Total Minority Population in Block Groups	2,501	43.4%	
Total Families Below the Poverty Level in Block Groups	95	8.4%	
Year 2012 Estimates			
Block Group	**Population**	**Minority Population**	**% of Families below Poverty Level**
1871, Block Group 1	1,740	1,238 (71.1%)	2.1 %
1882, Block Group 1	849	300 (35.3 %)	4.4 %

1882, Block Group 2	1499	602 (40.2 %)	4.1 %
1883, Block Group 3	963	516 (53.6%)	1.7 %

	Number	Percentage
Aggregate Block Group Population	5,051	--
Total Minority Population in Block Groups	2,656	52.6%
Total Families Below the Poverty Level in Block Groups	30	2.8 %

Source: 2000 Estimates collected from U.S. Census Bureau, www.census.gov and 2012 Estimates collected from Nielsen SiteReports

Table 2.2-2 shows the race/ethnicity and income characteristics of the population comprising these block groups. The minority and low income compositions of the census tract block groups that encompass the project site can differ substantially from the compositions of the overall census tract areas. The poverty levels of the block groups are generally lower than those for the overall census tract areas.

2.2.2.3 Environmental Consequences

Aside from the widening of the Glendale Boulevard bridges over the Los Angeles River, minor improvements to the viaduct complex, and reconfiguration of the freeway on and off-ramps, there would be no permanent physical changes.

Project construction would result in temporary physical changes to the environment, primarily increased noise levels, traffic lane reductions, and the emission of air pollutants during construction.

2.2.2.3.1 Temporary Impacts

Construction of the proposed project would not result in adverse air, traffic or noise impacts, as discussed in Sections 2.4, 2.10, and 2.11. Construction along northbound and southbound Glendale Boulevard Bridges over the Los Angeles River would prohibit access across the bridges. As a mitigation measure for this impact, an alternate pedestrian crossing would be constructed over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex). The pedestrian crossing would provide a detour route around the Glendale Boulevard Bridges during construction. With implementation of this mitigation measure, the impact is not considered adverse. Since construction of the proposed project would not result in adverse impacts there would be no significant adverse impacts to disproportionately affect minority populations.

2.2.2.3.2 Permanent Impacts

The proposed project would result in an environmental justice impact if permanent high and adverse impacts from the proposed project would disproportionately affect a minority or low income population.

Visual resources in the project area include the existing viaduct complex, which is eligible for listing in the National Register of Historic Places (NRHP). The visual changes to the viaduct complex resulting from the proposed project are expected to improve the memorability of views of the viaduct complex. Consequently, the proposed project would not result in adverse aesthetic

impacts from changes to the overall visual character and quality of a landscape. The proposed project would result in moderate losses of historic fabric from both Glendale Boulevard bridges over the Los Angeles River. The impacts to these resources relate to the structures' eligibility for listing in the NHRP and do not result in direct impacts to humans. Although the loss of historic fabric from the Glendale Boulevard bridges are not likely to affect the structure's continued eligibility for listing by the NRHP, the loss of historic fabric itself is considered to be a permanent adverse impact. However, because the adverse impact is related to the loss of historic fabric and no adverse aesthetic impacts were identified, the adverse impact does not have the capacity to disproportionately and adversely affect either minority or low income populations.

As discussed above, an environmental justice impact would occur only if high and adverse impacts would disproportionately affect a minority and/or low income population. High and adverse impacts, in the context of an environmental justice evaluation, are generally defined as significant unavoidable adverse impacts to humans after mitigation. As the analysis in this report demonstrates, the proposed project would not have any significant effects that cannot be mitigated below the level of significance. Therefore, the proposed project would not result in adverse impacts that permanently and disproportionately affect either minority or low-income populations per EO 12898 regarding environmental justice.

2.2.2.3.3 Cumulative Construction Impacts

The construction of the proposed project would result in construction-related effects (primarily increased traffic congestion, noise, and construction emissions). The construction effects would be experienced by adjacent residents, commercial building occupants, and motorists who travel through the project area. The affected populations do not constitute a minority or low income population, and no disproportionately high and adverse impacts would occur to a minority or low income population.

The exposure of motorists to construction effects would be temporary. Traffic congestion from project construction along Glendale Boulevard and Hyperion Avenue, while being inconvenient to motorists, is not considered to be a high and adverse impact. In addition, motorists have the ability to utilize alternative routes to reach their destinations, and there are no indications that the motorists who would travel through the project area would be predominantly minority or low income.

As a consequence, no high and adverse cumulative impacts to environmental justice populations would occur.

2.2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the proposed action would not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice.

2.2.2.4 No Build Alternative Impacts

The No Build Alternative would not result in new or additional impacts to the community (social, economic) or environmental justice issues relative to existing conditions.

2.3 Utilities/Emergency Services

2.3.1 Regulatory Setting

The City of Los Angeles is an incorporated municipality that maintains all powers possible for a charter city to have under the constitution and laws of the State of California. The provision of services by the City of Los Angeles originates from the charter or code.

Regarding the provision of services, the Charter specifically states that

> *"… every City office and department, and every City official and employee, is expected to perform their functions with diligence and dedication on behalf of the people of the City of Los Angeles. In the delivery of City services and in the performance of its tasks, the government shall endeavor to perform at the highest levels of achievement, including efficiency, accessibility, accountability, quality, use of technologically advanced methods, and responsiveness to public concerns within budgetary limitations."*

Article 5 of the Charter creates various city departments, including the Fire and Police Departments, establishes a Board of Commissioners over each department so-created, and specifies the powers of the boards and heads of each city department.

Under its authority, the City issues permits to utility companies and other organizations that allow them to place electrical lines, telephone lines, cables, fiber optic lines, pipelines, and other utilities in the public right-of-way within its jurisdiction.

2.3.2 Affected Environment

The project site is located within the service area of Fire Station 56, which is located on Rowena Avenue near Glendale Boulevard. Fire Station 50, located along Fletcher Drive just east of San Fernando Road, provides fire protection services to the project vicinity north of Larga Avenue. Fire Station 56 is located approximately 0.5 mile southeast of the project site and Fire Station 50 is located about 1.5 miles to the east. The nearest police station to the project is the Northeast Division Police Station, located about one mile to the northeast of the project site (CLA, 2007e).

In addition, various sewer lines, storm drain pipelines and structures, water lines, electrical lines, natural gas lines, telephone lines, street lights, and fire hydrants and other utility lines are located in or along Glendale Boulevard, Riverside Drive, Waverly Drive, and Hyperion Avenue.

2.3.3 Environmental Consequences

2.3.3.1 Temporary Impacts

Underground Utilities

Construction of the proposed project would not result in substantial disruptions in utility services because underground utilities are identified and planned for during the project design process. During the design process, utilities that could conflict with project elements or that could be affected during construction are identified as a standard practice, and the utilities would be required to be relocated by the utility company before Project construction begins.

In addition, construction of the proposed project would follow the underground service alert (DigAlert) program, as required by standard contract specifications, for construction activities. This program requires the contractor to coordinate with DigAlert before construction. All utility companies, including those responsible for natural gas, water, wastewater, electrical, telephone,

or cable television lines would be contacted by DigAlert to identify and mark utility line locations in the field prior to construction, as a precaution.

In the event of an accidental utility disruption during construction, repairs would be made immediately to ensure that the utility service interruption is minimized. No other temporary impacts to utilities are expected. Because of established utility management procedures during both the design and construction phases, the proposed project is not expected to adversely affect underground utilities.

Aboveground Utilities

Various aboveground electrical lines are located along portions of Hyperion Avenue, Riverside Drive, and Glendale Boulevard. In addition, high powered electrical lines that extend along the Los Angeles River cross the viaduct complex. As part of the standard constriction specifications, the contractor would be required to avoid disruptions to overhead utilities and employ proper safety practices. Because of this, no impacts related to overhead utilities would occur.

Fire and Police Protection

During construction, traffic flow on Hyperion Avenue, Glendale Boulevard, and Riverside Drive in the project area could be restricted or reduced to one lane in each direction. However, construction is not expected to substantially affect the accessibility or response time of fire protection or police protection response units as an existing network of local streets provide alternative routes. In addition, fire stations are located on either side of the viaduct complex. As a standard practice, the Contractor would be required to prepare a Work Area Traffic Control Plan based on the construction phasing plans that would be provided by the City. The final plan would be subject to review and approval of the Los Angeles Department of Transportation (LADOT). The approved Plan would include protocols for informing emergency response providers of construction schedules and identification of alternative routes through and around the active construction zone.

Solid Waste

Construction of the proposed project would result in generation of some demolition debris and construction debris, consisting primarily of concrete, steel, and timber. Some of this material is appropriate for landfill disposal; however, a high fraction of construction debris is typically recycled or reused because of its economic advantage over new materials. The fraction of debris deemed not suitable for recycling or reuse and chiefly consisting of inert materials could be disposed of in an inert landfill, thereby saving valuable sanitary landfill capacity in municipal landfills. Once construction in complete, the proposed project would not generate solid waste. The disposal of all solid waste material generated by the proposed project would comply with all federal, state, and local statutes and regulations.

2.3.3.2 Permanent Impacts

A project would be considered to have an adverse impact on utilities if it would result in substantial demand for utilities, such that new supplies or management capacity would be required, or if the project would result in growth not accounted for in service provider adopted plans. A project would be considered to have an adverse impact on public services such as fire, or police, if it would result in demand for such services that exceed existing or planned capacities, or require the construction of new or additional facilities.

The proposed project would not result in additional demands for utilities or public services, or substantially affect the availability of or access to public facilities and services because it is a

bridge improvement project that would not increase the demand for new water or wastewater conveyance or treatment facilities, new electricity or gas supplies or infrastructure.

Fire Protection – The proposed project site would not increase the demand for fire protection services because it is an infrastructure improvement project that would not result in increased housing or commercial/industrial development. Because of this, the need to add additional or new fire-fighting facilities would not occur as a result of the proposed project.

Police Protection – The proposed project site would not increase the demand for police protection services because it is an infrastructure improvement project that would not result in increased housing or commercial/industrial development. As a consequence, the need to add additional or new police protection facilities would not occur as a result of the proposed project.

2.3.3.3 Cumulative Impacts

Construction of the proposed project would not generate a substantial amount of construction debris given that a large fraction of the anticipated debris would be recyclable, reusable, or suitable for disposal in inert landfills. As a consequence, construction waste would not make a cumulatively considerable contribution to a cumulatively significant impact to landfill capacity.

The proposed project would not result in permanent adverse impacts to the utilities or emergency services providers. As a consequence, no cumulative impacts to utilities are anticipated.

Operation of the proposed project would improve the ability of the viaduct complex to withstand an earthquake and remain operational following such an event. None of the other related projects would result in operational impacts on the provision of emergency services, and as such, the proposed project would not make a cumulatively considerable contribution to a cumulatively significant impact to emergency services.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Because impacts are not anticipated, avoidance or mitigation measures are neither required nor proposed.

2.3.4 No Build Alternative Impacts

The No Build Alternative would not result in new or additional impacts to utilities or emergency service providers relative to existing conditions because no construction would occur. However, the No Build Alternative would not provide needed seismic improvements to the viaduct complex. Under the No Build Alternative, the risk that the viaduct complex could become damaged or unusable as a result of a major earthquake would remain. Earthquake related damage could adversely affect the response of emergency services providers until repairs to the structure were accomplished.

2.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.4.1 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). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated 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 uses that share the facility (Caltrans, 2011).

Caltrans and FHWA are committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public would be provided to persons with disabilities.

The City of Los Angeles' Department of Transportation (LADOT) is responsible for traffic management, including pedestrian and bicycle facilities, in the City. For street improvement projects, and other projects that require construction in the public right-of-way, LADOT provides review, oversight, and approval of work area traffic control plans and detour plans; and establishes traffic lane and parking requirements and restrictions.The Mayor of the City of Los Angeles issued Executive Directive No. 2 (October 20, 2005), which formalizes a general prohibition of rush hour construction by City Departments and agencies. Rush hour work is defined as actual construction, including equipment and material staging, on major roads from 6:00 a.m. to 9:00 a.m., and 3:30 p.m. to 7:00 p.m. This generally implies that all normally available traffic lanes would be available during rush hours. The Executive Directive also contains exemptions to the rush hour prohibition for emergency work, and for major public works projects with traffic mitigation plans. Major public works projects are improvements to public infrastructure in the public right-of-way initiated as either a capital project by the City or as allowed under the permitting jurisdiction of City's Bureau of Engineering. The Bureau of Engineering has issued Special Order No. 001-0406, which governs the process of complying with Executive Directive No. 2 (BOE, 2006).

2.4.2 Affected Environment

The viaduct complex is comprised of six separate bridges. Hyperion Avenue extends along three of the Complex's bridges (over Riverside Drive, I-5, and the Los Angeles River). The remaining three bridges are the northbound and southbound Glendale Boulevard bridges (both over the Los Angeles River) and the Waverly Drive Bridge over Hyperion Avenue. The viaduct complex serves as a key connecting roadway between nearby communities and other outlying neighborhoods, especially the Silver Lake and Atwater Village communities.

The Major Highway – Class II classification standard includes 104 feet of right of way, 12 foot sidewalk/parkway, 13-foot curb lane, four full-time through lanes, two part-time parking lanes, and one median/left-turn lane.[1] The viaduct complex does not meet the City's current design standard for a major highway – Class II facility because of its width constraints, which do not

[1] City of Los Angeles General Plan, Chapter VI-Street Designations and Standards

provide adequate facilities for motorist, bicyclist and pedestrians. The viaduct complex was constructed between 1927 and 1929. The I-5 freeway was completed in 1956.

The viaduct complex spans approximately 1,190 feet over the Los Angeles River, Interstate 5 (I-5), and Riverside Drive. The complex is generally aligned along a southwest-northeast axis and is bounded by Ettrick Street on the southwest and Glenfeliz Boulevard on the northeast, respectively.

Descriptions of the Viaduct Complex's six structures and their Bridge Identification Numbers are included below.

Waverly Drive Bridge (Bridge Number 53C1179) – Spans over Hyperion Boulevard in an east-west direction. It has a two-lane roadway and has no sidewalks through the neighborhood of Silverlake. The 65-feet-long earth-filled reinforced concrete arch structure is two lanes wide, with a flush roadway and pedestrian walkways on both sides of the bridge. Enclosing the bridge are railings which have solid concrete finish with inset panels that covered the original balusters. Cast bronze lanterns with glass globes are set at each corner of the bridge.

Hyperion Avenue Viaduct over Riverside Drive (Bridge Number 53C1882) – This portion of the Glendale-Hyperion Viaduct Complex spans Hyperion Avenue over Riverside Drive in a north-south direction through the communities of Silverlake and Atwater Village. It includes three arch spans with a total length of 429 feet as a reinforced concrete arch bridge. The Hyperion Avenue structure accommodates four traffic lanes (two lanes in each direction) and is 63 feet wide. This portion is a secondary highway. The width of the existing roadway on Hyperion Avenue is 56 feet in both directions combined. It has two 12-foot lanes in each direction with an 8-foot double striped median.

Currently 5-foot-wide sidewalks are along both the east and west sides of the complex's Hyperion Avenue roadway from the retaining wall near Waverly Drive northward to Hyperion Avenue's merger with north- and southbound Glendale Boulevard. On the east side of Hyperion Avenue (southern end), the sidewalk terminates at the retaining wall, which supports the Waverly Drive Bridge (over Hyperion Avenue). However, a 2-foot-wide curb extends along the abutment/retaining wall adjacent to the northbound traffic. Pedestrians using the east sidewalk must walk along this narrow curb after the sidewalk ends. On the west side of the complex's Hyperion Avenue roadway, the sidewalk also terminates at a 2-foot-wide curb that extends along the retaining wall base. An ascending walkway aligned along the top of the west retaining wall provides an alternative for pedestrian use.

Hyperion Avenue Viaduct over I-5 (Bridge Number 531069) – The segment of the viaduct complex that carries Hyperion Avenue over I-5 (Golden State Freeway) is a single span, reinforced concrete, open spandrel arch that is 135 feet long. It carries four lanes of traffic (two lanes in each direction) and is 71 feet wide with cantilevered 5-foot walkways flanking the roadway.

Hyperion Avenue Viaduct over the Los Angeles River (Bridge Number 53C1881) – Comprising nine spans with a total length of 518 feet, the Hyperion Avenue Bridge over the Los Angeles River is composed of reinforced concrete filled spandrel arches. The bridge carries four lanes (two lanes in each direction) of traffic and is 68 feet wide. Five-foot cantilevered walkways flank the roadway. The Hyperion Avenue roadway merges with and transitions to Glendale Boulevard at the northern end of the viaduct complex. This bridge is flanked by the

structures that carry northbound and southbound Glendale Boulevard over the Los Angeles River and becomes a major highway.

The existing sidewalks on either side of Hyperion Avenue terminate at the merge point and force pedestrians to cross either northbound or southbound Glendale Boulevard. There are two staircases within the project area where pedestrians can access Hyperion Avenue and Glendale Boulevard. One, which connects Glendale Boulevard and Hyperion Avenue, is located on the west side of Hyperion Avenue. A second staircase provides pedestrian access between Riverside Drive and Hyperion Avenue, and is also on the west side Hyperion Avenue.

Southbound Glendale Boulevard Bridge over the Los Angeles River (Bridge Number 53C1883) – The southbound Glendale Boulevard Bridge over the Los Angeles River segment of the Glendale-Hyperion Viaduct Complex consists of six reinforced concrete arch spans with a total length of 316 feet. Each is a filled spandrel arch measuring 48 feet long. Reinforced concrete abutments and piers support the bridge. The bridge supports two 12-foot traffic lanes within a total width of 38 feet and is flanked by 4-ft walkways on one side that are situated next to solid reinforced concrete railings with inset panels and a smooth concrete finish. Glendale Boulevard south of the viaduct complex is designated as a secondary highway. Both Glendale northbound and southbound bridges over the Los Angeles River currently lack shoulders.

Northbound Glendale Boulevard Bridge over the Los Angeles River (Bridge Number 53C1884) – The northbound Glendale Boulevard Bridge over the Los Angeles River segment of the viaduct complex is identical to the southbound structure just discussed, except Glendale Boulevard between the Los Angeles River and the boundary with the City of Glendale is designated as a Scenic Highway (CLA, 1999), with the scenic resource being the wide landscaped median.[2]

The northbound I-5 off-ramp exit to Glendale Boulevard is controlled by a stop sign and only right turns onto northbound Glendale Boulevard are allowed at this approach. Motorists exiting this off-ramp who wish to travel on southbound Glendale Boulevard must travel an extra half mile by first traveling north on Glendale Boulevard to Glenfeliz Boulevard, where they make a U-turn and travel south on Glendale Boulevard. The signalized controlled intersection currently operates at a Level of Service (LOS) A in both the AM and PM Peak hours (MGE, 2012). Figure 2-4 shows the travel path (overlaid on an aerial photograph) that vehicles must travel to head south on Glendale Boulevard. As shown in Table 2.4-1, the stop-controlled intersection currently operates at a Level of Service (LOS) B and C in the AM and PM Peak hours.

2 City of Los Angeles Transportation Element of the General Plan, Appendix E – Inventory of Designated Scenic Highways



Figure 2-4: Traffic Movement – Ramp to SB Glendale

Source: ACT, 2004

Current operating conditions of the I-5, the I-5 northbound off-ramp, Glendale Boulevard, and Hyperion Avenue, are shown in Table 2.4-1.

Table 2.4-1: Existing (2011) Levels of Service

Location	A.M. Peak Hour	P.M. Peak Hour
I-5 Mainline, NB	D	D
I-5 Mainline, SB	C	D
I-5 NB Off-Ramp/NB Glendale Blvd Intersection, Unsignalized	B	C
Glendale Boulevard, NB	A	A
Glendale Boulevard, SB	A	A
Hyperion Avenue, NB	A	B
Hyperion Avenue, SB	B	B

Source: MGE Engineering, Inc., January, 2012 (MGE, 2012).

2.4.2.1 Bikeways

The bike path along the Los Angeles River forms an important recreational and commuter use in the project area. The bike path generally runs along the top of the river's southwest bank, but slants from the bank top, to go around an abutment, as it passes beneath the viaduct complex. This bike path is accessible via an access gate and ramp along southbound Glendale Boulevard near the northbound I-5 on-ramp.

The 2010 City of Los Angeles Bicycle Plan is a long-range planning tool to guide future development of bicycle facilities in the City to the year 2045. According to the plan, as a transportation element, Hyperion Avenue is listed as a future bicycle lane (dedicated bicycle-only lane), and Glendale Boulevard is listed as a future bicycle route (in-road bicycle and vehicle shared roadway). Currently, Hyperion Avenue does not have a bicycle lane and Glendale Boulevard does not have a bicycle route. Bicycle use on the roadway is primarily used for transportation as a commuter route of the local transportation system.

Riverside Drive in the project area is listed as a bicycle route (CLA, 2011), which is a shared roadway that is identified as a bike route on signs. In addition, there is a bike path along the right bank of the Los Angeles River, which is currently only accessible from southbound Glendale Boulevard near the on-ramp to northbound I-5 in the project area. The viaduct complex traverses both the bike route along Riverside Drive and the bike path along the Los Angeles River.

2.4.2.2 Street Lights

Various street lights are located along the viaduct complex. These original street lights have bronze posts and original globes, and are situated on bases that are incorporated into the railing system. The lumen output of these street lights does not meet current City's standards for city streets.

2.4.2.3 Pedestrian Flow

The viaduct complex includes sidewalk and staircase pedestrian facilities; however, the configuration of the sidewalks is not standard. South of viaduct complex, Hyperion Avenue includes 5-foot sidewalks along both sides of the roadway. However, the sidewalks along Hyperion Avenue near the Waverly Drive overcrossing transition into 2-foot-wide curbs adjacent to the retaining walls and Waverly Drive Bridge abutments. There is an elevated pedestrian walkway that allows pedestrians using the west sidewalk to avoid having to walk along the 2-foot-wide curb beneath the Waverly Bridge, but no such pedestrian bypass exists along the east side of Hyperion Avenue. Pedestrians using the west sidewalk often bypass the safer (and steeper) walkway and instead walk along the narrow curb, exposing themselves to traffic hazards. Pedestrians using the east sidewalk have no option and must use the narrow curb along the retaining wall.

At the northern viaduct complex terminus, the sidewalks end where Hyperion Avenue merges with Glendale Boulevard (between the northbound and southbound Glendale Boulevard traffic lanes), and pedestrians using the Hyperion Avenue sidewalks must then cross traffic lanes to the reach the sidewalks on Glendale Boulevard.

Pedestrians who live in or travel to and from North Atwater Village can access the existing Hyperion Avenue sidewalks at the north end of the viaduct complex by traversing Glendale Boulevard travel lanes or by using the staircase that connects Glendale Boulevard and Hyperion Avenue. A second staircase provides pedestrian access between Riverside Drive and Hyperion Avenue along the viaduct complex.

2.4.2.4 Transit and Parking

Three Los Angeles County Metropolitan Transportation Authority (Metro) bus lines operate in the immediate project area: Lines 92, 96, and 201 (CLA, 2007e). Line 92 and Line 201 both operate through the project area along Glendale Boulevard with the nearest bus stop to the viaduct complex located along Glendale Boulevard on the I-5 overcrossing. Line 96 operates in both directions through the project area along Riverside Drive, and the nearest stops to the viaduct complex are on Riverside Drive near Glendale Boulevard.

On-street parking is not allowed on the viaduct complex, but is allowed on Glendale Boulevard north of viaduct complex and south of the viaduct complex on Hyperion Avenue. On-street parking is also permitted on Riverside Drive.

2.4.3 Environmental Consequences

2.4.3.1 Temporary Impacts

Construction of the proposed project would be phased over 2.5 years, in order to keep the viaduct complex open to traffic while construction occurs. Occasional construction-related traffic effects are anticipated and are likely to include delays and extended travel times through active construction zones.

Voluntary Traffic Detours

Construction of the proposed project would not increase traffic, but would temporarily reduce the capacity of the affected streets because there would be some lane closures. During the construction of the Hyperion Avenue improvements, traffic flow would be limited to one lane in each direction for at least 11 months. The affected segment of Hyperion Avenue would be approximately 1,800 feet long. Table 2.4-2 shows the critical existing hourly volumes occurring

during the morning peak hour in the southbound direction (1,295 vehicles per hour) and evening peak hour in the northbound direction (1,325 vehicles per hour) (MGE, 2012). With these peak-hour traffic volumes and the standard traffic requirements, one lane in each direction would be able to adequately accommodate this traffic flow.

- There are no cross streets or driveways along the segment of Hyperion Avenue under construction, which means that interruption to through traffic would be minimal.
- Construction site traffic would be regulated at 25 miles per hour. At this speed, the capacity of one uninterrupted lane could be as high as 1,500 vehicles per hour with an average gap of 65 feet between vehicles. This would provide operating conditions of LOS D or better.
- Actively promoted Transportation Management Program elements would be able to reduce peak hour vehicular traffic by at least 5%; therefore reducing the demand to about 1,260 vehicles per hour in the peak direction.

A study of the existing roadway circulation pattern and traffic conditions near the project area concluded that voluntary diversion of Hyperion Avenue traffic to other routes during construction would not be substantial. There are two routes for potential voluntary diversions: 1) Fletcher Drive, located approximately 0.75 mile to the south; and 2) Los Feliz Boulevard, located approximately 0.6 mile to the northwest. Factors that would minimize voluntary diversion to these two parallel streets include:

- During the retrofit of the Hyperion Avenue structures when only one lane in each direction is provided, the peak hour operating condition could be maintained at LOS D or better.
- The proposed new alignment of the I-5 northbound off-ramp terminus at Glendale Boulevard would be constructed prior to retrofitting the Hyperion Avenue structures, which would improve traffic operations along portions of the Glendale Boulevard segment.
- The likelihood of voluntary diversion of I-5 northbound off ramp traffic to utilize the Los Feliz Boulevard off-ramp instead would be minimal or low because the intersections of Los Feliz Boulevard with I-5 ramps are already congested during peak hours, as is the intersection of Los Feliz Boulevard and Riverside Drive and Los Feliz Boulevard south of Riverside Drive.

The likelihood of voluntary diversion of Hyperion Avenue through traffic between San Fernando Road and Rowena Avenue utilizing Fletcher Drive would be minimal because the alternative route would involve approximately 1.5 miles of additional travel distance and four additional signalized intersections that are fairly congested during peak hours. Because of the factors discussed above, one lane in each direction would be able to adequately accommodate peak hour traffic flow. Therefore, there would be no impacts to local streets due to voluntary traffic detours. As a result, the impact of voluntary traffic detours is not adverse, and no planned vehicular detours are necessary.

Table 2.4-2: Existing (2011) Traffic Volumes

Location	A.M. Peak Hour	P.M. Peak Hour	ADT
I-5 Mainline (NB+SB)	14,060	15,060	240,740
I-5 NB Off-Ramp	535	730	7,390
I-5 NB On- Ramp	340	305	4,055
Glendale Boulevard, NB	295	485	5,890
Glendale Boulevard, SB	650	655	8,000
Hyperion Avenue, NB	805	1,325	14,130
Hyperion Avenue, SB	1,295	1,070	13,900

Source: MGE Engineering, Inc., January, 2012 (MGE, 2012)

Construction along Hyperion Avenue, northbound Glendale Boulevard, and southbound Glendale Boulevard would be staged to keep traffic flowing at all times. The reconfiguration of the northbound off-ramp from I-5 to Glendale Boulevard and construction of the new approach intersection is expected to occur in the first construction phase before other viaduct complex improvements are constructed. The reconfiguration of the off-ramp would reduce northbound traffic on Glendale Boulevard and U-turn traffic at Glendale Boulevard at Glenfeliz Boulevard because the reconfigured off-ramp would allow some motorists to make a left turn onto southbound Glendale Boulevard rather than making a right on Glendale Boulevard and a U-turn at Glenfeliz Boulevard, as currently occurs. Because the proposed off-ramp signalization and reconfiguration would reduce the amount of vehicles travelling northbound, no traffic impacts would occur at the Glendale Boulevard and Glenfeliz Boulevard intersection.

Following reconfiguration of the off-ramp, construction along Hyperion Avenue and Glendale Boulevard would commence. Construction of the proposed project would require temporary lane closures along Hyperion Avenue and Glendale Boulevard, which are considered major roads under Special Order 001-0406 (Guidelines regarding Executive Directive No. 2) (BOE, 2006). Construction of the proposed project would affect travel lanes during the rush hour and would require an exemption from the Directive. All public works projects that require construction in streets are required by standard specifications to obtain a work area traffic control plan, also known as a Traffic Management plan (TMP). Because of this, the project would meet the requirements for an exemption from the prohibition of construction during rush hours. The exemption to the Executive Directive would allow the temporary loss of travel lanes during peak hours (for the establishment of work zones to perform the improvements) and to allow construction during peak traffic hours within the established work zones. The exemption for the latter would allow longer daily construction hours, which would shorten the overall construction period. Construction activities would be confined to the established work zone, which would be separated from travel lanes with K-rails.

During construction, temporary on-street parking restrictions along southbound Glendale Boulevard between Valleybrink Road and the viaduct complex and along the frontage roads that connect Waverly Drive to Ettrick Street are also required. While temporary losses in on-street

parking are inconvenient, adequate on-street parking is available in the project vicinity to offset the temporary localized loss of parking during construction.

Although the exact nature of the construction phasing cannot be determined at this time, the construction phases that are described below are considered to be a typical representation of actual construction phasing that could occur in order to maintain at least one travel lane in each direction (ACT, 2007b). Deviations from the phasing may occur related to the selected contractor's methods of construction, but the general requirement to maintain through lanes of traffic during construction would remain.

Hyperion Avenue

The primary seismic retrofits and other improvements such as railing replication, new sidewalk, and roadway banking to Hyperion Avenue along the viaduct complex that would affect traffic during construction are as follows:

A. Construct East Segment Improvements.

During this phase, construction of improvements along the east side of Hyperion Avenue from about Ettrick Avenue to the northern terminus of the viaduct complex (just north of the Los Angeles River) would occur. One 12-foot-wide travel lane, an 11-foot-wide travel lane, and a 4-foot shoulder would remain operational, as would one 12-foot-wide northbound lane with a 4-foot shoulder. The work zone would be about approximately 12 feet wide and separated from traffic with K-rails. This phase would take approximately five months to complete.

B. Construct Center Segment Improvements

Following completion of the improvements to the east side segment, improvements along the roadway center segment would be constructed. One southbound lane and one northbound lane (both approximately 12 feet wide with a 4-foot shoulder) would remain open for traffic. K-rails would separate the work area from the traffic lanes. This phase would take approximately two months to complete.

C. Construct West Segment Improvements

The third phase to be constructed along Hyperion Avenue would be the west segment improvements from Ettrick Avenue to the northern terminus of the viaduct complex. During this phase, one 12-foot-wide lane (with a 4-foot shoulder) in each direction would remain open to through traffic along the eastern half of the viaduct complex. A 5-foot-wide temporary pedestrian walkway would be placed adjacent to the traffic southbound traffic lane but would be separated by K-rails. The approximately 21-foot-wide work area would be located along the west side of the temporary walkway and separated with K-rails. Temporary pedestrian access ways would be established through the work zone to the pedestrian walkway at the Glendale Boulevard and Riverside Drive staircases. This phase would take approximately six months to complete.

Glendale Boulevard Bridge (southbound)

The southbound Glendale Boulevard Bridge over the Los Angeles River would be widened by approximately eight feet. During construction, one travel lane (about 12 feet wide with a 4-foot shoulder) would remain open. This phase would take approximately six months to complete.

During the construction, pedestrians will not be able to access the bridge due to space limitations associated with the contractor's work zones and the need to keep at least one travel lane open. Pedestrians could be detoured to the Hyperion Avenue sidewalk between the northern end of the viaduct complex and the staircase that connects Glendale Boulevard with Hyperion Avenue. However, this detour would not be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. The path of travel would not be continuous and unobstructed, and would not meet ADA standards. Inaccessibility to the Glendale Boulevard Bridge would eliminate a major pedestrian route that connects the Atwater Village and Silver Lake communities. Therefore, a temporary elimination of pedestrian access across the Southbound Glendale Boulevard Bridge during construction is considered an adverse effect.

Glendale Boulevard Bridge (northbound)

The northbound Glendale Boulevard Bridge over the Los Angeles River would be widened by approximately eight feet. During construction, one travel lane (about 12 feet wide with 4-foot shoulder) would remain open. This phase would take approximately six months to complete.

Due to the need to maintain one lane of through traffic and to provide the contractor with an adequate work zone, pedestrian access along the bridge would be prohibited during construction. Inaccessibility to the Glendale Boulevard Bridge would eliminate a major pedestrian route that connects the Atwater Village and Silver Lake communities. Because no viable detour routes to the northbound bridge exist, a temporary elimination of pedestrian access across the Northbound Glendale Boulevard Bridge during construction is considered an adverse effect.

Seismic Retrofit of Abutments and Piers

Seismic improvements to various viaduct complex abutments could affect traffic during construction. They are as follows:

A. Abutment Northeast Side of Riverside Drive

Construction of the seismic improvements to this abutment would be performed from the right-of-way beneath the viaduct complex. During construction of seismic improvements to the abutment along the northeast side of Riverside Drive, all travel lanes and sidewalks would remain open. However, localized on-street parking on the northeast side of Riverside Drive beneath the viaduct could be eliminated for short durations to facilitate access to the underside of the viaduct complex from where work would be performed. This phase would take approximately one month to complete.

B. Abutment Southwest Side of Riverside Drive

Construction of the seismic improvements to this abutment would be performed from the right-of-way beneath the viaduct. During construction of seismic improvements to the viaduct complex abutment along the west side of Riverside Drive, all travel lanes, including the left turn lane to northbound I-5, and sidewalks would remain open. However, localized on-street parking on the southwest side of Riverside Drive beneath the viaduct could be eliminated for short durations to facilitate access to the underside of the viaduct complex from where work would be performed. This phase would take approximately one month to complete.

C. Abutment West of Southbound Glendale Boulevard

During construction of seismic improvements to the viaduct complex abutment along the west side of southbound Glendale Boulevard (under Hyperion Avenue), one southbound lane would remain open. A temporary pedestrian walkway protected by K-rails would be established adjacent to the work area. The existing U-turn beneath the viaduct complex would be temporarily closed during construction. This phase would take approximately one month to complete.

D. Abutment East of Southbound Glendale Boulevard

During construction of seismic improvements to the viaduct complex abutment along the east side of southbound Glendale Boulevard (under Hyperion Avenue), one southbound lane would remain open, but the existing U-turn beneath the viaduct complex would be temporarily closed. This phase would take approximately one month to complete.

E. Abutment at Southbound to Northbound U-turn

During construction of seismic improvements to the viaduct complex abutments along both sides of the U-turn (connecting southbound to northbound Glendale Boulevard), the U-turn would be temporarily closed. This phase would take approximately one month to complete.

F. Abutment at Los Angeles River

During construction of seismic improvements to the viaduct complex abutment along the south side of the Los Angeles River, the bike path would be temporarily relocated (using temporary timber support structures) away from the abutment to the area next to the first support pier in the Los Angeles River channel. This phase would take approximately one to two months to complete.

G. Waverly Drive Bridge Rails

During construction of the replacement balustrades along the Waverly Bridge, one lane along Waverly Drive would remain open and would be controlled by flagmen. This phase would take approximately two months to complete.

Construction Phasing

The phases described above are distinct phases along a given viaduct structure or roadway that would occur at different times in the overall construction schedule to ensure that vehicular traffic and pedestrian access are maintained. Construction phasing is expected to take up to 2.5 years (30 months).

Construction of the proposed project and the phasing would be the subject of a traffic management plan (TMP). The TMP would provide details regarding lane configurations, work zones, phase durations, other phasing limits or requirements, and lane and turning requirements or restrictions, and could contain other requirements such as work hour limitations, and traffic control measures. Prior to construction, an approval from LADOT must be obtained in order to construct during rush hour, as described in Section 2.4.1 (Regulatory Setting) above. LADOT would review the TMP and must approve it prior to construction and issuance of the exemption to Executive Directive No. 2.

Staged construction in accordance with the approved TMP would be implemented with LADOT oversight and coordination. Vehicular traffic would remain open during the widening of the

Glendale Boulevard bridges over the Los Angeles River. The number of lanes along the viaduct complex could be reduced to two (one in each direction) during construction. Local access to adjacent neighborhoods and streets would be maintained, and the selected contractor would, as a standard practice, be required to notify and coordinate with emergency access providers to minimize impacts to the provision of emergency services. Contractors are required through standard contract provisions to coordinate with LADOT and prepare work area traffic control plans that meet LADOT requirements, including compliance with minimum traffic lane requirements, signage, striping, and other traffic control measures. Due to the complexity of the viaduct complex, a preliminary traffic-phasing plan has been prepared and reviewed by LADOT. This plan would be circulated with the bid documents and become part of the construction contract.

Some on-street parking along the frontage roads or main streets within the project work zone may be temporarily eliminated during construction, but on-street parking in the surrounding area would remain available. In particular, some on-street parking restrictions and access restrictions to through traffic may be required along the frontage roads (connecting Hyperion Avenue to Waverly Drive) during construction of the replica balustrades on the retaining walls.

The bus stops along Riverside Drive at Glendale Boulevard (Route 96) and along Glendale Boulevard along the I-5 overcrossing (Routes 92 and 201) would not require temporary relocation and would remain operational during construction.

Construction of Protective Barriers

As discussed in Chapter 1, prior to construction and demolition work along the Hyperion Avenue and Glendale Boulevard structures, protective barriers would be constructed along the exteriors of the structures to contain any debris, tools, or materials that could fall on sidewalks, roadways, property, or the Los Angeles River below. The placement of the protective barriers could require temporary detours or traffic lane restrictions during the evenings for one to two days at each location. The placement of the barriers during evening hours would minimize disruptions along key thoroughfares such as Riverside Drive and I-5. Any detours or traffic lane restrictions would require either LADOT or Caltrans approval and would be part of the TMP. Due to the short-term nature of related traffic restrictions, compliance with the TMP, compliance with Caltrans permits and the non-peak hour nature of the restrictions, construction of the protective barriers would not result in adverse impacts.

Due to their temporary nature, LADOT does not consider construction-related traffic impacts to be significant, as all work in streets requires LADOT approval and of necessity, would comply with traffic lane requirements, detour requirements, work area control plans, and other traffic requirements established by Caltrans.

2.4.3.2 Permanent Impacts

Traffic Congestion

The proposed project would have an adverse impact on traffic if it would result in substantial permanent reduction in the level of service of an intersection. For the purposes of this evaluation, LADOT's criteria (as applied to project operations) for acceptable reductions in operating conditions of intersections (increased congestion) within the City of Los Angeles are as follows:

- Volume/Capacity (V/C) ratio increase greater than or equal to 0.040 if final LOS is C,

- V/C ratio increase greater than or equal to 0.020 if final LOS is D,
- V/C ratio increase greater than or equal to 0.010 if final LOS is E or F.

The proposed project would involve seismic retrofitting and improvements of the viaduct complex. Although the proposed project would widen the Glendale Boulevard bridges (over the Los Angeles River) by approximately eight feet on each side, additional traffic lanes would not be added. The capacity of the existing roadway through the project area would not be changed and vehicle operations through nearby intersections would likewise not be affected. The proposed project would widen the existing Glendale Boulevard bridges to provide shoulders and slightly increased curb lane widths.

Project related activities involving the Hyperion Avenue portion of the viaduct complex would be limited to substructure seismic rehabilitation and the provision of replica balustrades, wider curb lanes, and median improvements, which would not result in increased capacity. The proposed project would install a K-rail type median along Hyperion Avenue on the viaduct complex to physically separate northbound and southbound traffic. This is a safety improvement that would prevent vehicles from crossing over into opposing traffic lanes.

In addition, the proposed project would reconfigure the northbound I-5 off-ramp to Glendale Boulevard and install a new signalized intersection at the terminus of the reconfigured off-ramp. This improvement would allow northbound I-5 motorists exiting at Glendale Boulevard to make left hand turns onto southbound Glendale Boulevard. This new turn movement would be an improvement over current conditions, which requires all exiting traffic to make a right turn onto northbound Glendale Boulevard. The reconfigured off-ramp is not expected to result in increased traffic on southbound Glendale Boulevard beyond what would normally occur because the off-ramp is not expected to result in increased off-ramp traffic. Table 2.4-3 shows the anticipated LOS at the reconfigured northbound I-5 off-ramp to Glendale Boulevard and nearby roadways that would occur by 2036. It should be noted that the proposed improvements to the viaduct complex and the I-5 ramps would not affect the amount of future traffic because the viaduct complex is not a traffic generator. (See Table 2.4-4, which shows future (2036) traffic volumes). Instead, the reconfigured off-ramp is expected to incrementally reduce traffic volumes on Glendale Boulevard due to the provision of a left turn signal at the intersection with Glendale Boulevard.

Table 2.4-3: Future (2036) Levels of Service

Location	A.M. Peak Hour	P.M. Peak Hour
I-5 Mainline, NB	F (3)	F (3)
I-5 Mainline, SB	F (3)	F (3)
I-5 NB Off-Ramp / Glendale Blvd Intersection		
No-Build, Unsignalized	B	D
W/ Project, Signalized (1 Left Turn + 1 Right Turn)	B	C
W/ Project, Signalized (1 Shared Left/Right + 1 Right Turn)	A	B
Glendale Boulevard, NB	A	A
Glendale Boulevard, SB	A	B
Hyperion Avenue, NB	B	C
Hyperion Avenue, SB	C	B

Source: MGE Engineering, Inc., January, 2012 (MGE, 2012)

Table 2.4-4: Future (2036) Traffic Volumes

Location	A.M. Peak Hour	P.M. Peak Hour	ADT
I-5 Mainline (NB+SB)	23,205	23,205	328,830
I-5 NB Off-Ramp	690	930	9,470
I-5 NB On- Ramp	430	395	5,205
Glendale Boulevard, NB	380	625	7,555
Glendale Boulevard, SB	970	995	10,260
Hyperion Avenue, NB	1,030	1,695	18,125
Hyperion Avenue, SB	1,660	1,375	17,825

Source: MGE Engineering, Inc., January, 2012 (MGE, 2012)

The forecasted future traffic in Table 2.4-4 includes a traffic growth rate of 1% per year, which is typical for traffic growth in a city and is acceptable to LADOT. As can be seen by looking at Tables 2.4-1 and 2.4-3, the reconfigured northbound I-5 off-ramp to Glendale Boulevard would operate at an improved level of service in the future. Both Glendale Boulevard and Hyperion Avenue would operate at a lower level of service (LOS B and C, respectively) than they currently operate at (both LOS B), but this is due to background traffic growth, not the proposed project. The proposed project would have the beneficial effect of reducing future traffic through this intersection by allowing direct left turns onto southbound Glendale Boulevard from the northbound I-5 off-ramp onto southbound Glendale Boulevard. Therefore, the impacts on traffic are not adverse.

Proposed I-5 Northbound Off-Ramp Realignment and Signalization

The proposed traffic signal for the I-5 northbound off-ramp terminus would be located approximately 160 feet south of the center of the Hyperion Bridge. This new intersection at the reconfigured off-ramp would also control southbound traffic on Glendale Boulevard. Existing sight distance on southbound Glendale Boulevard in the vicinity of the Hyperion Avenue overcrossing bridge is limited due to the presence of bridge abutments.

For southbound traffic on Glendale Boulevard approaching the new intersection at the reconfigured northbound I-5 off-ramp approach to Glendale Boulevard, the visual constraint of existing viaduct abutments adjacent to the left edge of southbound Glendale Boulevard would limit the sight distance to 230 feet (between the center of left lane and the right side signal pole). Based on the criterion of stopping sight distance, the resulting safe travel speed is 33 mph. This speed exceeds the safe speed (20 mph) recommended for the existing curve radius.

In addition to the potentially limited stopping distance for southbound traffic on Glendale Boulevard, motorists could have to come to a stop over a shorter distance after the blind left-turning curve beneath the Hyperion Avenue structure if there are traffic queues extending back from the intersection. These potential traffic hazards are considered adverse.

Because the proposed project would not permanently affect traffic volume/capacity relationships along the viaduct or surrounding area, would not increase operational congestion at intersections, would not be a traffic generator, and would not affect local or regional traffic service standards or congestion management requirements, impacts would be less than significant.

Bicycle Access

Adhering to the 2010 City of Los Angeles Bicycle Plan (refer to **Section 2.4.2.1**), the new shoulder on Glendale Boulevard can be used as a bicycle route. Though the proposed project will not include a bicycle lane on Hyperion Avenue, the project is consistent with the plan. Currently, Hyperion Avenue does not have a bicycle lane and Glendale Boulevard does not have a bicycle route. Bicycle use on the roadway is primarily used for transportation as a commuter route of the local transportation system.

The proposed project would also include a new bicycle access ramp from northbound Glendale Boulevard, just south of the bridge, to the bike path along the Los Angeles River. Currently, bicyclists south of the viaduct complex who wish to access the bike path must travel north on Hyperion Avenue or Glendale Boulevard, make a U-turn at Glenfeliz Boulevard, then head south on Glendale Boulevard to the bike path entrance just north of the I-5 on-ramp. With the new bicycle access ramp, bicyclists on northbound Glendale Boulevard would be able to access the bike path from northbound Glendale Boulevard. Additionally, bicyclists can access the bike path from southbound Glendale Boulevard using the existing bike ramp. Overall, the new bike path access from northbound Glendale Boulevard would allow bicyclists in the surrounding area an optional way to access the bike path. Therefore adverse impacts to bicycle access would not occur.

Pedestrians

Improvements to the viaduct complex would be in compliance with ADA requirements. The proposed project would consolidate the sidewalks along both sides of the Hyperion Avenue roadway on the viaduct complex into a single, wider sidewalk along the northwest side of Hyperion Avenue. The new sidewalk would be approximately one foot above the roadway as it extends along the retaining wall beneath the Waverly Drive Bridge. Hyperion Avenue is curved at this location, and the roadway would be banked to improve vehicle turning and to minimize drifting through the turn.

The existing staircases from Glendale Boulevard and Riverside Drive to Hyperion Avenue would remain operational and would continue to provide access to the new sidewalk from those streets. North of the point where the Riverside Drive staircase connects with Hyperion Avenue, the new sidewalk would be separated from southbound Hyperion Avenue traffic by a protective crash

barrier to minimize safety hazards to pedestrians and I-5 below (see the cross section in Figure 1-4 in Chapter 1).

At the north end of the consolidated sidewalk along the west side of Hyperion Avenue, a new pedestrian crosswalk would be added across southbound Glendale Boulevard. This crosswalk could be synchronized with the signal at Glenfeliz Boulevard to allow pedestrians to cross when traffic on Glendale Boulevard is minimized.

A weekday pedestrian count was conducted at the Hyperion Bridge in the vicinity of the Los Angeles River in May 2007 between 6:30 AM and 4:00 PM (ACT, 2007a). The purpose of the count was to determine the amount of pedestrian traffic along Hyperion Avenue. The count was performed at the westerly sidewalk in the vicinity of its end point where Hyperion Avenue southbound lanes split into the Glendale southbound viaduct and the Hyperion Avenue bridge crossing over the I-5 Freeway. Table 2.4-5 provides a summary of pedestrian activity on Hyperion Avenue. Pedestrian flow was concentrated in the afternoon, with 73% of the pedestrian traffic occurring between 2:30 PM and 4:00 PM. One possible explanation for the higher northbound pedestrian flow in the afternoon is that students who live in the Atwater Village area and attend Marshall High School are dropped off in the morning but must walk home in the afternoon. The proposed project would replace the existing 2-foot curbs along the retaining wall beneath the Waverly Drive Bridge with a wider consolidated sidewalk (on the west side), provide roadway banking along Hyperion Avenue beneath Waverly Drive (thereby decreasing the potential for vehicular drifting), and provide designated pedestrian crossings along Glendale Boulevard.

Table 2.4-5: Pedestrian Activity on Hyperion Avenue

		Direction	
		Northbound	**Southbound**
6:30AM - 4:00 PM	Total Count:	42	18
	Maximum Hourly Volume Both Directions (2:45 PM – 3:45 PM):	36	

The proposed project would provide replica railings along the staircase that extends from Hyperion Avenue to Glendale Boulevard. The open balustrade design would visually open the staircase from Glendale Boulevard and Hyperion Avenue. In addition, new lighting would be added to the vicinity of the staircase to increase pedestrian safety.

The proposed project's sidewalk consolidation and new pedestrian crosswalk would eliminate the need for pedestrians to jaywalk across Glendale Boulevard to and from Hyperion Avenue (at the north end of the viaduct), and would provide a protective barrier between pedestrians along Hyperion Avenue and adjacent traffic.

The Project would improve roadway banking beneath the Waverly Drive Bridge, which would lessen the potential for vehicular drifting as the Hyperion Avenue curves (beneath the Waverly Bridge). The railing restoration portion of the project (balustrade replication) would improve visual lines of sight to and from the staircase between Hyperion Avenue and Glendale Boulevard (the existing solid railing limits visual access to the staircase). The proposed project would represent an improvement in overall pedestrian safety over existing conditions. In addition, the

walkway along the LA River bank beneath the viaduct complex would provide additional pedestrian access, which is considered an improvement to the current pedestrian conditions.

The improvements, as described above, would be beneficial to pedestrians, and no adverse impacts to pedestrian traffic would occur.

Transit and Parking

The proposed project would not result in permanent elimination or relocation of bus stops, including the stops for Lines 92 and 201 along Glendale Boulevard at the I-5 overcrossing.

In addition, the proposed project would not require or result in the permanent elimination of on-street parking along Riverside Drive, Glendale Boulevard, or Hyperion Avenue.

2.4.3.3 Cumulative Impacts

Construction of the proposed project is would begin in summer 2014 and extend for up to 2.5 years (30 months) through the end of 2016. Potential development projects in the periphery would be constructed on private off-street parcels and would therefore not directly or physically affect the street systems in the project vicinity.

2.4.3.4 Avoidance, Minimization, and/or Mitigation Measures

The City's standard practices and contract specifications require the preparation of work area traffic control plans subject to approval by LADOT for in-street construction. This standard practice would also ensure pedestrian safety during construction.

The proposed project would result in adverse traffic impacts related to the limited sight and stopping distance along southbound Glendale Boulevard and the stop-controlled intersection at the reconfigured northbound I-5 off-ramp to Glendale Boulevard. Avoidance Measure **T-1** will avoid this impact.

> **T-1:** The signalization for the realigned offramp intersection will include traffic control for southbound Glendale Boulevard traffic, north of the Hyperion Bridge overcrossing. Traffic control will include, but not limited to, signalization to allow traffic to stop north of Hyperion Bridge overcrossing rather than at the new realigned off-ramp intersection. The design, placement, and operation of the device would meet LADOT and Caltrans requirements.

Additionally, the proposed project would result in adverse pedestrian impacts during the concurrent construction of the southbound and northbound Glendale Boulevard bridges. Pedestrians would be prohibited access to the Glendale Boulevard bridges during construction. Pedestrians travelling along southbound Glendale Boulevard must take a detour that requires climbing a staircase connecting Glendale Boulevard with Hyperion Avenue, while pedestrians travelling along northbound Glendale Boulevard have no viable detour routes. The detour on southbound Glendale Boulevard would not be readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. The path of travel would not be continuous and unobstructed, and does not meet ADA standards. Inaccessibility to the Glendale Boulevard bridges would eliminate a major pedestrian route that connects the Atwater Village and Silver Lake communities. However, Mitigation Measure **T-2** would mitigate this impact to pedestrian access:

> **T-2:** Construct an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex) to connect the bike

path along the southwest side of the Los Angeles River with Glendale Boulevard on the northeast side of the river. The pedestrian crossing, in conjunction with the new access to the LA River bikeway from northbound Glendale Boulevard, would provide a detour route around the Glendale Boulevard bridges during construction. In order for this measure to serve as an effective detour for pedestrians, the pedestrian crossing and the new access to the bike path would have to be fully constructed and operational before commencing the widening of Glendale Boulevard Bridges.

2.4.4 No Build Alternative Impacts

Under the No Build Alternative, neither changes to the viaduct complex, nor other improvement such as the reconfiguration of the I-5 off-ramp to Glendale Boulevard would occur. As the No Build Alternative will not increase the traffic capacity, current and predicted LOS and volumes will be unaffected. Additionally, the No Build Alternative would not result in permanent impacts to traffic transportation/pedestrian and bicycle facilities; however, the No Build Alternative would not minimize the potential for damage to the viaduct complex from seismic events, and its indirect impacts to transportation through the closure of the viaduct complex.

2.5 Visual/Aesthetics

This section evaluates potential effects of the proposed project on the visual and aesthetic characteristics of visual resources in the project vicinity. The analysis is consistent with FHWA's *Guidance on Visual Impact Assessment for Highway Projects* (FHWA, 1981). Under these guidelines, the existing visual setting is characterized using the criteria of physical, historical, and cultural contexts, community attitudes, and perceptions of viewers and then analyzed for potential changes attributable the proposed project. The characterization and analysis is accomplished using key viewpoints both from and encompassing the proposed project immediate impact zone.

2.5.1 Regulatory Setting

Applicable policies that provide aesthetic guidelines within the project area are described herein.

2.5.1.1 Federal

National Environmental Policy Act (NEPA)

NEPA as amended establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* [emphasis added] and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, the Federal Highway administration in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Other Federal Regulations

Other federal regulations that could apply to the proposed project include:

- Title 23 U.S.C. Section 109 requires that possible adverse economic, social, and environmental effects relating to any proposed project in any federal-aid system be fully considered. Included among the factors to be considered are destruction or disruption of man-made and natural resources, aesthetic value, community cohesion, and the availability of public facilities and services.

The applicable federal and state statutes governing public artwork include:

- California Art Preservation Act (Civil Code Sections 987 *et. seq*.)
- Federal Visual Artists Rights Act (17 U.S.C. Section 101 *et. seq.*)

These laws require that an artist be given a 90-day written notice prior to the alteration, destruction, or removal of this artwork.

2.5.1.2 State

California Environmental Quality Act (CEQA)

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." (CA Public Resources Code Section 21001[b]) CEQA includes requirements for the consideration of project impacts to scenic resources, and requires that appropriate mitigation measures be included in a project with potential to adversely affect scenic resources, including within a scenic highway.

2.5.1.3 Local

City of Los Angeles General Plan Framework

The General Plan Framework is a comprehensive, long-range document containing purposes, policies, and programs for the development of Los Angeles. The plan is a strategy for long-term growth that sets a citywide context to guide the subsequent amendments of the City of Los Angeles' (City) community plans, zoning ordinances, and other pertinent programs. It responds to state and federal mandates to plan for the City's future. The Framework Element supersedes the citywide elements of the City's General Plan. The document contains seven mandated elements and several optional elements, including air quality, conservation, cultural resources, housing, infrastructure, noise, open space, public facilities and services, safety, and transportation. The framework also includes a land use element or plan for each of the 35 community plan areas within the City.

City of Los Angeles Community Plans

Community plans have been adopted as the City's Land Use Element to guide growth and development in each of its 35 community planning areas. The project area is located within the Northeast Los Angeles, Silver Lake-Echo Park-Elysian Valley, and Hollywood Community Plan areas. These Community Plans are intended to guide land use, circulation, and services within their respective communities. The community plans include recommendations for circulation, recreational/open space, and other public facility improvements to meet City policies and community goals.

Los Angeles River Revitalization Master Plan

Devastating floods during the first part of the 20th century prompted the U.S. Army Corps of Engineers and the Los Angeles County Flood Control District to construct the concrete-lined channel that now conveys the Los Angeles River for 47.9 miles of its 51-mile length. Over recent years, the City has coordinated with a number of agencies and interest groups in efforts to revitalize the river and its watershed.

In 2007, the City adopted the Los Angeles River Revitalization Master Plan (LARRMP), which provides a framework for restoring the river's ecological function and for transforming it into an amenity for residents and visitors. The LARRMP includes recommendations for improvements to the river corridor, recommendations at a policy level for managing public access and ensuring public health and safety, recommendations for a river governance and management structure, and recommendations for a short- and long-term priority projects and potential funding strategies.

City of Los Angeles Street Lighting Policy, Specifications, and Procedures

The City's Bureau of Street Lighting has developed policy, specifications, and procedures for installation and maintenance of street lighting in Los Angeles. The Bureau's standards are based on those of the Illuminating Engineering Society of North America RP-8-00. For historic bridges, the Bureau recognizes the importance of maintaining their historic character, including the light poles, bases and luminaires. Because of this, the Bureau reviews project plans to maximize compliance with roadway lighting standards, explore equipment options for meeting lighting requirements, and explore options for adding poles and luminaires where feasible (D. Nguyen, personal communication, October 5, 2007). These policies include aesthetic requirements for color, spacing, and installation of communications equipment on lighting poles.

2.5.2 Affected Environment

The project area is generally urban residential in character with commercial uses scattered along the primary streets. The project site is located within the Los Angeles Narrows, which is a steep sided valley that connects the San Fernando Valley with the Los Angeles Basin. The viaduct complex spans a portion of this valley, which includes the Los Angeles River, I-5, and Riverside Drive. The viaduct complex is an important feature within the visual viewshed of the project area, and can be observed from the residences along the bluff to the east and west of the Complex, by motorists traveling along Riverside Drive, I-5, and Glendale Boulevard, and from numerous vantage points along the Los Angeles River.

At the north end of the viaduct complex, the landscaped median provides access to the left bank of the Complex and is a transitory open space providing access to the left bank of the Los Angeles River. As indicated on the Transportation Element of the City of Los Angeles General Plan, Glendale Boulevard from the Los Angeles River north to the City of Glendale is designated as a Scenic Highway. Riverside Drive is also designated as a scenic highway from Los Feliz Drive south to Stadium Way.

In addition to the visual experience of the viaduct complex itself, the structure also provides a corridor to view the visual features of the surrounding geography. As an example, motorists and pedestrians traveling north near the south end of the Complex can view the San Gabriel Mountains in the background, Forest Lawn (Glendale) and Atwater Village in the middle ground, rows of the abutment Pylons along Hyperion Avenue in the foreground.

2.5.2.1 Viewshed and Viewer Sensitivity

The viewshed includes all areas where physical changes associated with the proposed project can be seen from a sensitive viewpoint, or where other sensitive views could be affected. For purposes of this visual analysis, the viaduct complex can be viewed from points along the Los Angeles River (east and west of the structure) and from locations along the bluff near the south end of the Complex. In addition, portions of the viaduct complex can be viewed by both pedestrians and motorists on Hyperion Avenue and both northbound and southbound Glendale Boulevard.

The sensitivities of different types of viewers vary depending upon their activity, duration of viewing opportunity, and their awareness of and familiarity with the surrounding environment. The following describes the comparative sensitivity of various types of viewers in decreasing order of sensitivity.

Residents

Residents, particular those with views of the viaduct complex from their homes, would be most sensitive to changes due to the relative permanency of their viewing experience and their prolonged duration of viewing opportunity.

Workers

Employees in the project area would be considered sensitive viewers because they may have frequent opportunities to experience views of the viaduct complex from their workplaces, and may routinely enjoy the view corridors in the project area.

Pedestrians

Pedestrians would be considered sensitive viewers, as they would be directly within the viewshed and would have lengthy exposure to views.

Bicyclists
Bicyclists may be those who either live in the project vicinity or recreate or commute through the view corridors in the project area on a regular basis. The sensitivities of bicyclists to views would be less than those of pedestrians because passage through the project area would be quicker and the attention of bicyclists would be primarily focused on road conditions, especially while on the viaduct complex.

Regular Motorists
Regular motorists may be those who either live in the project vicinity or commute through the view corridors in the project area on a regular basis. The sensitivities of regular motorists to views would be less than those of pedestrians because passage through the project area would be quicker and the attention of motorists would be primarily focused on road conditions.

Occasional Motorists
Occasional motorists are typically non-local or non-commuter tourists or visitors, and are considered less sensitive than regular motorists due to the infrequent nature of their visits.

2.5.2.2 Visual Resources and Quality at Key Viewpoints

The viewshed is comprised of visual resources upon which the visual experience is based. For purposes of this study, visual resources were identified based on visual prominence within the viewshed, and upon whether they could affect or be affected by the proposed project.

Visual resources in the project area include the existing viaduct complex, which is eligible for listing in the National Register of Historic Places, and is a City Cultural Monument.

As mentioned earlier, the existing viaduct complex is visible from various points in the viewshed, including the residences along the bluff on either side of the south end of the viaduct complex, from the Los Angeles River, and from various streets in the project area. Viewpoints of the identified visual resources were established within the viewshed and were selected to be representative of the visual resources likely to be viewed by the viewer types described above. To best assess the change in visual quality of the identified visual resources, the existing visual quality of the viewpoints was rated using a scale (low, low to moderate, moderate, moderate to high, and high) to assess three criteria: *vividness, intactness, and unity* (FHWA, 1981). These criteria are described below.

- **Vividness** is the visual power or memorability of landscape components as they combine in striking or distinctive patterns. For example, the landscape as it appears to contrast with the surrounding development can contribute to the vividness of the view. However, vividness also depends on whether either element can be considered striking or distinctive.
- **Intactness** is the integrity of the visual environment and its freedom from encroaching elements. It is measured by the concentration of development within an area. For example, scattered development marked by parcels of vacant unmaintained land would have a low intactness rating and compromise visual integrity.
- **Unity** is visual coherence and compositional harmony of the landscape when considered as a whole. The mixture of natural elements and human-made alterations is considered together in assessing unity.

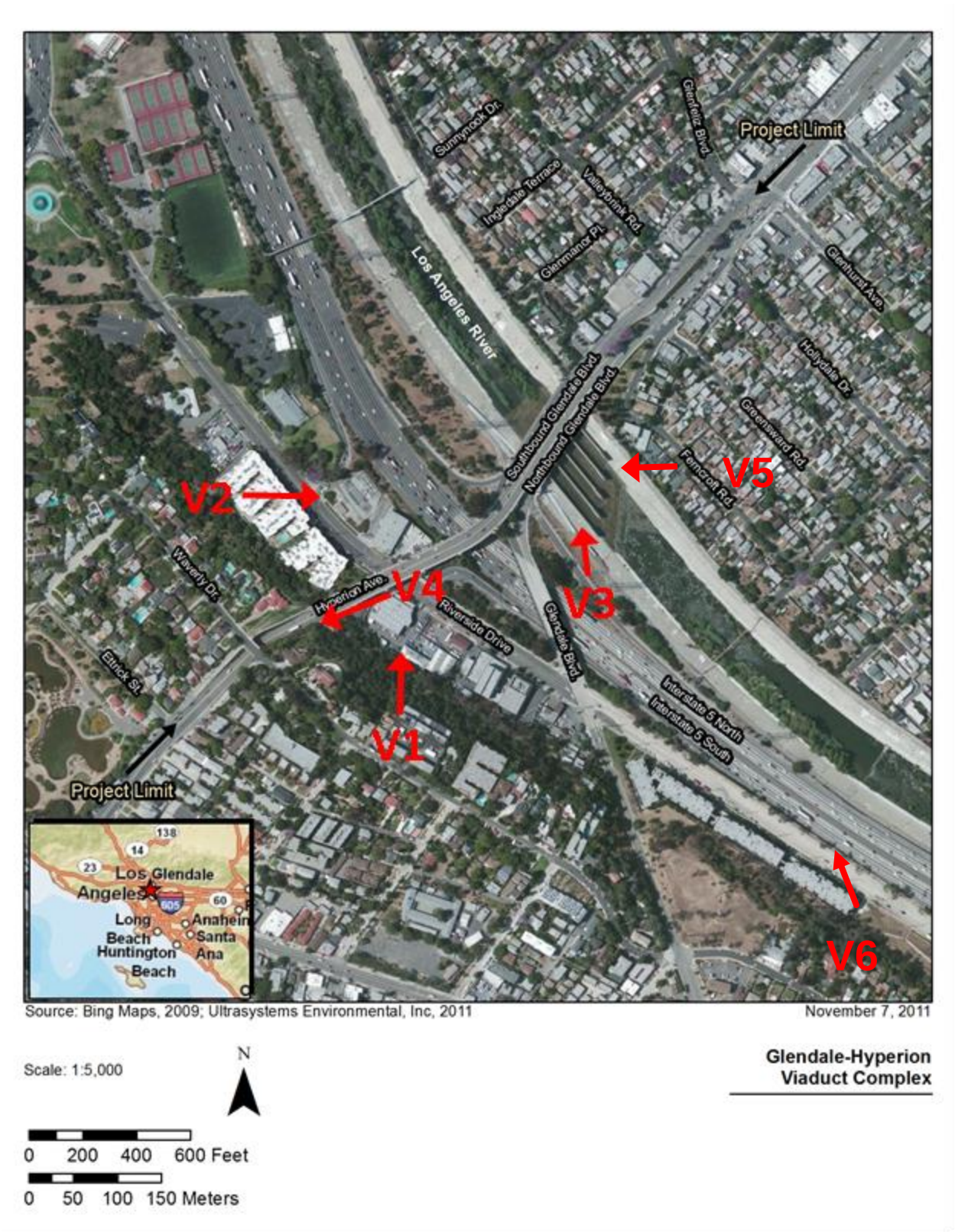


Figure 2-5: Key View Map

Viewpoint 1

The same rating scale and criteria are used to assess potential changes to views or resources resulting from the proposed project. Changes are assessed is terms of the sensitivity of the viewer groups. Figure 2-5 shows the locations and directions of the key viewpoints analyzed.

Viewpoint 1 is a view looking north at the existing viaduct complex from a bluff to the southeast of the viaduct complex. This view, shown in Figure 2-6, is typical of what is afforded from residences situated along the bluff in this area. However, this viewpoint also represents a view accessible by all viewer groups. This view is composed of residential backdrop elements, with the viaduct complex extending from the foreground and merging with the background. Other foreground elements include vegetation. The Los Angeles River is also a prominent element of this view. The vividness of this view is considered high, as the viaduct complex's architectural features such as the abutment pylons and curvature stand out visually as the Complex spans I-5 and the Los Angeles River. The intactness of this view is considered high, as it is comprised of distinct visual elements (residences, the Los Angeles River, I-5, and the viaduct complex itself) that are relatively free of encroaching features.

Lastly, the unity of this view is considered high as the viaduct complex ties the linear elements (Los Angeles River and I-5) together into a single coherent composition that balances urban structures and natural features such as vegetation.

Viewpoint 2

Viewpoint 2 is a northeastern view of the viaduct complex from the bluff just west of the Complex. This view, shown in Figure 2-7, is representative of views available from the back of residences along the bluff west of the Complex. The primary visual elements in this view are a short section of the viaduct, several abutment pylons, and portions of the Los Angeles River. The vividness of this view is considered moderate to high, because although the view of the viaduct complex is rather limited, the abutment pylons are striking. The intactness of this view is considered moderate rather than high due to the presence of standard and high voltage power lines that encroach into the views of the viaduct. Lastly, the unity of this view is considered low to moderate because it lacks harmonious compositional unity.

Viewpoint 3

Viewpoint 3, depicted in the top photograph in Figure 2-8, is along a corridor looking northwest toward the existing viaduct complex from the west bank of the Los Angeles River (east of Glendale Boulevard). This view is typical of what is afforded by pedestrians and bicyclists travelling on either banks of the Los Angeles River. In addition, this view also represents the view that motorists see when travelling on the northbound I-5 off-ramp. The dominating element in this view is the northbound Glendale Boulevard portion of the viaduct complex and the hydraulic structures that channel the high water flows in the Los Angeles River. The vividness of this view is considered high, as the design features of the viaduct are distinct and memorable, with minimal distracting elements. The intactness of this view is considered high because the view of the viaduct is free of encroaching elements. Lastly, the unity of this view is considered high, as the design elements of the viaduct (arches and piers, abutments, and lampposts) are visually coherent and compositionally harmonious.

Viewpoint 4

Viewpoint 4, shown in the top photograph in Figure 2-9, looks south along the Hyperion Avenue roadway existing viaduct complex towards the Waverly Drive Bridge from approximately the

Riverside Drive overcrossing. The primary elements in this view are the hillsides that taper down to the Waverly Bridge, the abutment pylons, and the lampposts. The vividness of this view is considered moderate, because although the hillside and viaduct complex features are pleasant, they are not striking or overly memorable. The intactness of this view is considered moderate because the view of the viaduct complex as it approaches the low point in the hillside is slightly disrupted by the encroaching elements of overhead power lines and power poles to the right of the viaduct. The unity of this view is considered moderate, as these encroaching elements break up the compositional harmony of the viaduct complex – hillside relationship.

Viewpoint 5

Viewpoint 5, shown in Figure 2-10, is a view looking north at the southeast corner of the existing viaduct complex. This view is typical of what is afforded from residences situated along the bluff in this area. This view is composed of residential backdrop elements, with the viaduct complex extending from the foreground and merging with the background. Other foreground elements include vegetation. The Los Angeles River is also a prominent element of this view. The vividness of this view is considered high, as the viaduct complex's architectural features such as the abutment pylons and curvature stand out visually as the complex spans I-5 and the Los Angeles River. The intactness of this view is considered low-to-moderate, as it is comprised of distinct visual elements (residences, the Los Angeles River, I-5, and the viaduct complex itself), but the power lines encroach onto the otherwise scenic area. Lastly, the unity of this view is considered moderate as the viaduct complex ties the linear elements (Los Angeles River and I-5) together into a single coherent composition that balances urban structures and natural features such as vegetation.

Viewpoint 6

Viewpoint 6, as shown in Figure 2-11, is a view looking west at the southeast corner of the viaduct complex from the Los Angeles River Greenway Trail. This view is typical of what is afforded by pedestrians, bicyclists and other users of either bank of the Los Angeles River. In addition, some residences located east of Hyperion Avenue and north of the Los Angeles River may also have some views of this prospect. The viaduct complex and Los Angeles River, including the bike path and trail along the banks of the river, as well as the various plants and piers, are the dominant components, and make up the foreground and extends to the middle ground of this view. The sporadic residences nested into the hills of Griffith Park frames the backdrop of this view. The vividness of this view is considered high, as the viaduct complex's architectural features such as the abutment pylons and curvature stand out visually as the complex spans the Los Angeles River. The intactness of this view is considered low-to-moderate, as it is comprised of distinct visual elements (residences, Griffith Park, the Los Angeles River, and the viaduct complex itself), but the power lines encroach onto the otherwise scenic area. Lastly, the unity of this view is considered moderate as the viaduct complex ties the river and hillside together harmoniously.

2.5.3 Environmental Consequences

2.5.3.1 Temporary Impacts

Temporary minor degradation of viaduct complex views would accompany project construction resulting from the presence of construction equipment within the work zones. These effects

would vary in intensity throughout the construction duration (up to 2.5 years). These effects would be temporary in nature as the construction would occur in a staged manner. Since construction in urbanized areas is a common and necessary occurrence, these effects are not considered significant.

In addition, although construction would occur along the viaduct complex along Glendale Boulevard and at the abutments adjacent to Riverside Drive, construction would not affect the resources that form the basis for their designation as scenic highways. No other temporary visual impacts other than those associated with construction are anticipated.

2.5.3.2 Permanent Impacts

In evaluating the existing aesthetic conditions in each of the areas from which views of the proposed project might be important, the evaluative framework developed by the Federal Highway Administration and published as *Guidelines on Visual Impact Assessment for Highway Projects (VIA)* (FHWA, 1988) was used. Under these guidelines, aspects of the visual experience of proposed physical changes to the environment are considered. Such aspects include physical, historic, and cultural contexts; attitudes and perceptions of viewers; and key points of view where visual impacts are most applicable.

As described above, some of the specialized terms that the VIA approach uses to characterize existing visual conditions include vividness, intactness, and unity. For the purposes of this analysis, aesthetic impacts are evaluated based on changes to the overall visual character and quality of a landscape and the likely effect of the project on viewer response. Considerations include impact to views, shade and shadow effects, and nighttime illumination.

The proposed project would provide or modify the following visual elements of the viaduct complex and its surroundings:

- Consolidate the sidewalks along both sides of the Hyperion Avenue roadway into a single, wider sidewalk on the west side of Hyperion Avenue,
- Add a dividing barrier along the roadway center between opposing traffic on Hyperion Avenue,
- Provide crash barriers along the east and west sides of Hyperion Avenue,
- Replace the existing covered rails along Hyperion Avenue with new rails that replicate the original balustrade design
- Widen the Glendale Boulevard bridges over the Los Angeles River (including new replica balustrades),
- Replace the existing railing system along the Waverly Drive Bridge with new balustrades that replicate the original balustrades, and
- Reconfigure the northbound I-5 off-ramp to Glendale Boulevard and add a new signalized intersection.
- As a mitigation measure, construct an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers to connect the bike path along the southwest side of the Los Angeles River with Glendale Boulevard on the northeast side of the River.

Views

The proposed project would provide new rails that replicate the original balustrade design. This is seen as an improvement over the existing covered railing system. The existing covered rails are damaged and in a state of disrepair. Although the proposed project would also include crash-resistant protective barriers between the travel lanes and restored balustrades along Hyperion Avenue, as well as a center divider which would partially conceal the restored railing system, the overall effect would be an improvement in the overall visual character of the viaduct complex because portions of the new balustrades would be visible from Hyperion Avenue, and fully visible from external viewpoints. Figures 2-6 through 2-9 show the existing viaduct complex from six different viewpoints and photo simulations of the same views following implementation of the proposed project. As can be seen in Figures 2-6 and 2-7, which represent views of the viaduct complex from residences overlooking the complex, the new balustrades restore an historic detail that adds vividness and complexity to the current view characteristics of the viaduct complex. Figure 2-8 shows a view of the exterior of the northbound Glendale Boulevard Bridge (over the Los Angeles River) from the bike path along the west bank of the river. Again, the new replica balustrades clearly provide an improvement to this view of the bridge. In addition, although the abutment pylons have been relocated approximately eight feet to the east, that relocation does not appreciably alter the view of bridge or the view composition.

Figure 2-9 illustrates a future view of a pedestrian walking south on Hyperion Avenue. A median barrier will be constructed along Hyperion Avenue to facilitate the safety improvements associated with modification to the roadway superelevation. The barrier design will utilize a standard barrier such as type 60S or Type 60SC. A Type 60S is approximately 24 inches at the base, and 32 inches high, and a Type 60SC barrier varies in size. A Type 732 concrete barrier, with a modified tubular hand railing mounted to the top would be constructed between the widened sidewalk and the southbound traffic lanes on Hyperion Avenue. The barrier will be 2 feet-8 inches (32 inches) above the pavement edge of traffic, and the tubular hand railing will be 42 inches above the sidewalk. Although the crash barrier would extend along the east side of Hyperion Avenue and would partially block observation of the new replica balustrades when viewed from Hyperion Avenue, portions of the balustrades would still be visible. In addition, the new balustrades would improve the views experienced by pedestrians walking along Hyperion Avenue by adding historic detail where none currently exists (the existing rails are covered). One of the key aesthetic benefits of the new replica balustrades would be that the open spaces between the balustrades makes the railing less suitable as a canvas for graffiti, and the patchwork of painted-over graffiti on the existing rails would likely be reduced by the proposed project.

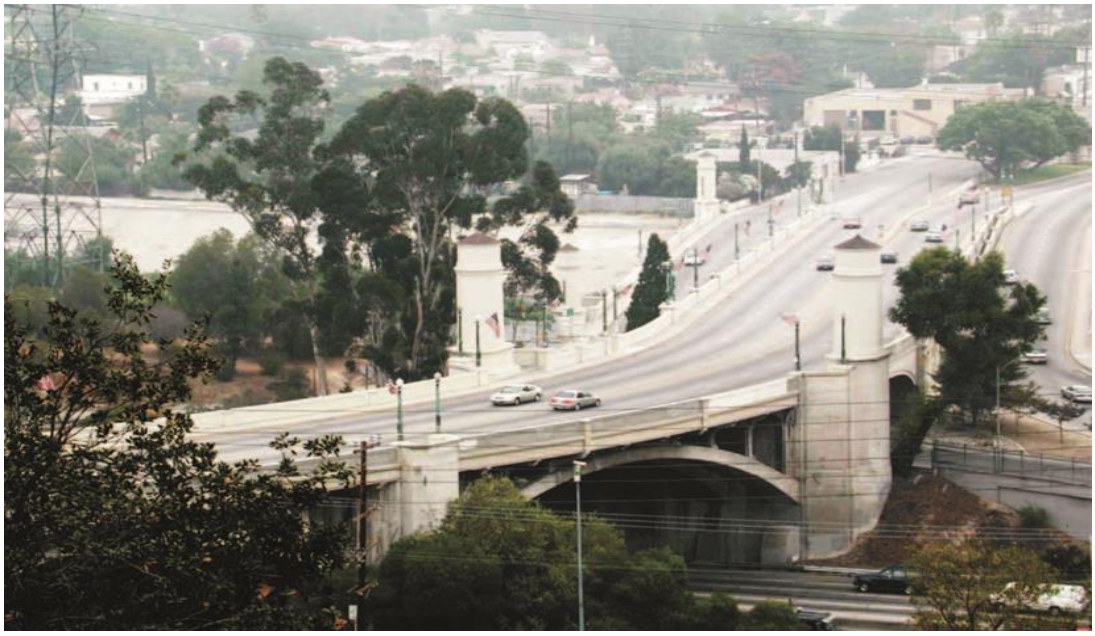
Figures 2-10 and 2-11 illustrates pedestrian crossing that would connect from the existing bike path along the right bank of the Los Angeles River, cross the river utilizing the existing Red Car piers, and connect to northbound Glendale Boulevard. This pedestrian crossing is desired by the community, and acts as a mitigation measure to maintain pedestrian access across either bank of the Los Angeles River during construction. The crossing will be constructed of high-strength galvanized steel. Steel checker plate deck can be paved with asphalt or covered with an anti-skid surface. The visual appearance of the steel pedestrian bridge does not demonstrate optimal compatibility with the concrete viaduct complex, and slightly lessens the compositional harmony between the landscape elements. However, non-reflective neutral colors of paint will be used on the crossing to blend with its setting. The pedestrian crossing is functionally consistent with the

landscape unit, and does not intrude onto the aesthetic features of the viaduct complex. The architectural elements of the pedestrian crossing blend harmoniously with the viaduct complex. Likewise, the intactness of the landscape unit is unaffected by the pedestrian crossing. Therefore, the pedestrian crossing would not result in significant visual impacts of the project area. Construction of the pedestrian overcrossing over the Los Angeles River utilizing the existing Red Car piers would require that the piers to cut down to approximately the elevation of the River banks. Permitted by the Flood Control District and painted in 2005, the "Revisit the Red Car" Mural is currently situated on the wall surface of a pier on the left bank of the LA River. It would be removed to accommodate the pedestrian overcrossing and replaced in a nearby location, as approved by the community. Therefore, the community would still have visual access to this mural and the purpose of the mural could still be maintained.

The proposed project would strengthen the spandrel columns by reinforcing them with fiber wrap and covering them with shotcrete. These improvements would add approximately four inches of thickness to the spandrel columns (between 11-19 percent thicker) but are not expected to appreciably change the appearance of the columns or side views of the complex's arch support structures because all spandrel columns would be reinforced and because the general form and appearance would not be altered. Although the Secretary of the Interior Standards for the Treatment of Historic Properties require that the added material be distinguished from the original fabric to facilitate identification of new material, the color of the reinforcing wrapping would be matched to the existing concrete to maintain the original appearance, and another non-visible marking would be utilized to identify the new material.

The visual changes to the viaduct complex resulting from the proposed project are expected to improve the memorability of views of the viaduct complex (restoration of the original balustrade railing characteristics). As a mitigation measure to accommodate the community's desire to maintain pedestrian access across the Los Angeles River during construction, the proposed project would install a steel-construction pedestrian bridge. The pedestrian bridge would not significantly impact the integrity of the visual environment, and would not significantly disrupt the visual coherence of the landscapes. Consequently, the proposed project would not result in adverse aesthetic impacts from changes to the overall visual character and quality of a landscape.

Existing View – Hyperion Viaduct looking north



Proposed View

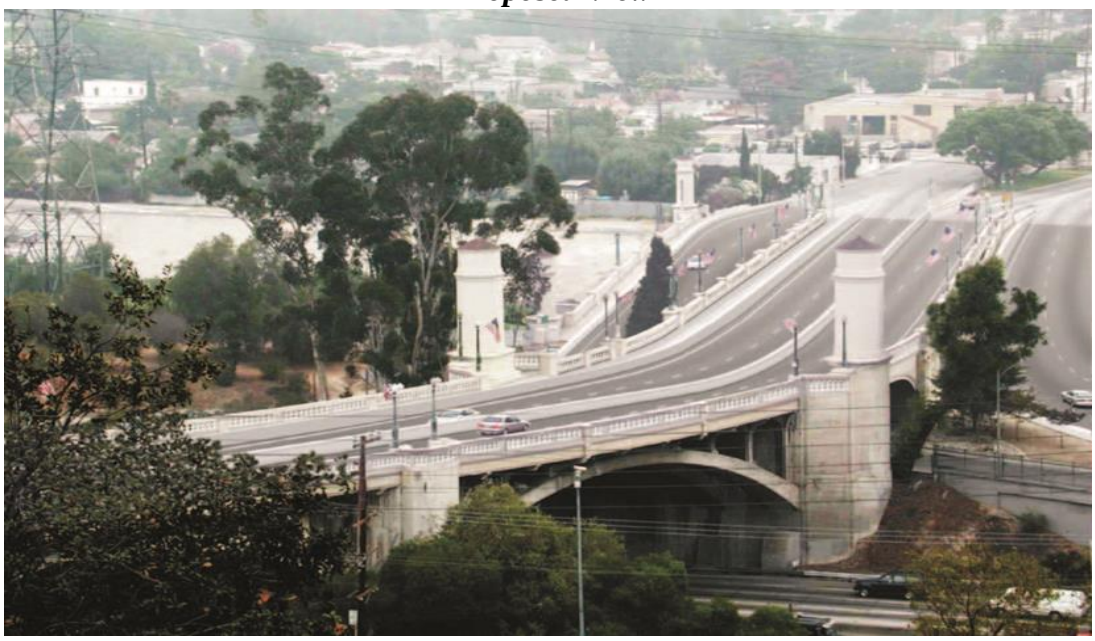


Figure 2-6: Viewpoint 1

Source: CH2M Hill, 2006

Existing View – Hyperion Viaduct over Riverside Drive



Proposed View



Figure 2-7: Viewpoint 2

Source: CH2M Hill, 2006

Existing View – Glendale Viaduct looking north



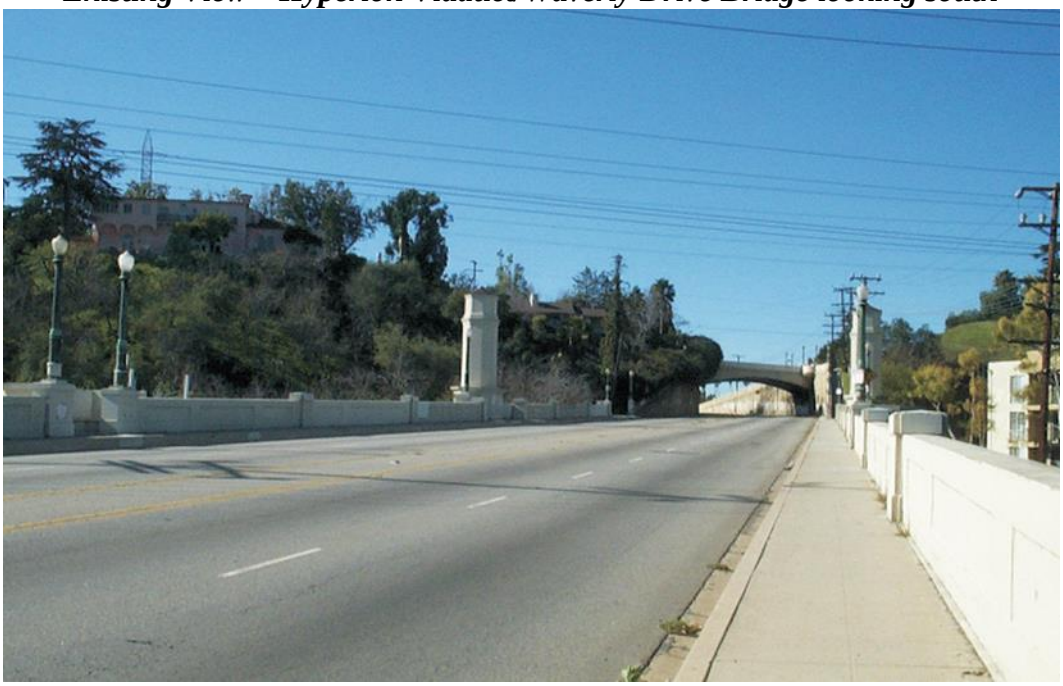
Proposed View



Figure 2-8: Viewpoint 3

Source: CH2M Hill, 2006

Existing View – Hyperion Viaduct/Waverly Drive Bridge looking south



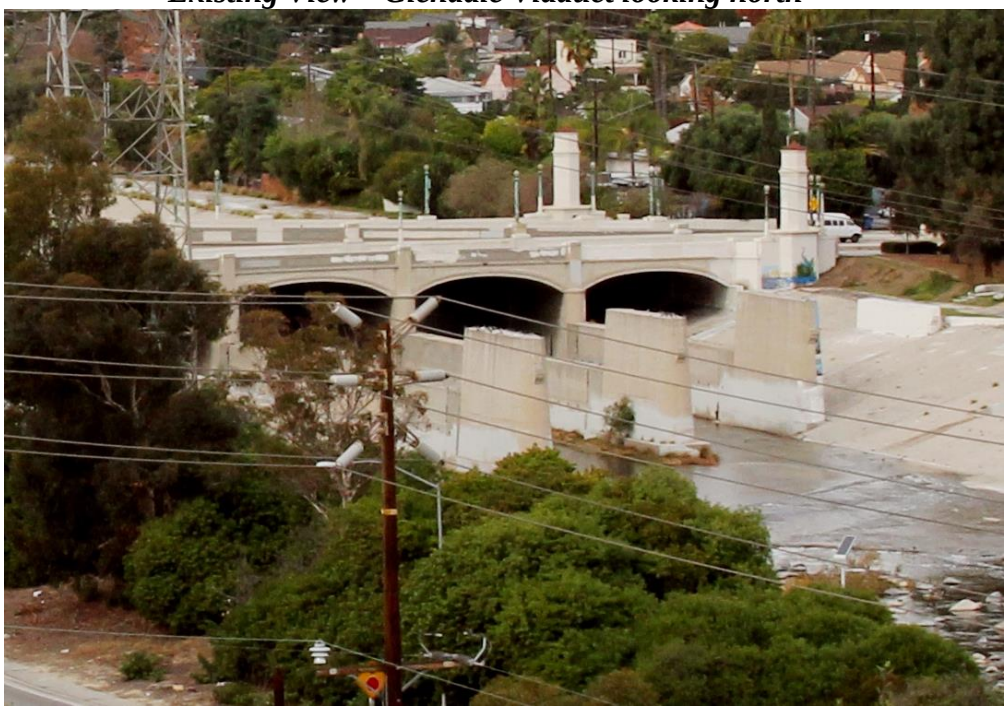
Proposed View



Figure 2-9: Viewpoint 4

Source: CH2M Hill, 2006

Existing View – Glendale Viaduct looking north



Proposed View (Pedestrian Crossing Only)



Figure 2-10: Viewpoint 5

Source: UltraSystems Environmental, 2011

Existing View – Glendale Viaduct looking south



Proposed View (Pedestrian Crossing Only)



Figure 2-11: Viewpoint 6

Source: UltraSystems Environmental, 2011

Shade and Shadows

The proposed project would not change existing shade or shadow characteristics of the viaduct complex, as the size and scale of the complex's structural elements and architectural features would not be substantially changed.

Lighting

The proposed project would refurbish and reuse the light poles currently present on the viaduct complex. Additional electroliers (light poles) may be added to meet the City's currently adopted lighting standards at the roadway, as required by the City's Bureau of Street Lighting. In addition, existing high pressure sodium fixtures shall be upgraded to LED fixtures to reduce energy usage and carbon emissions. Existing high voltage series circuits shall be converted to low voltage multiple circuits. New conduits and wires shall also be installed.

Scenic Highways

The proposed improvements to the viaduct complex would not affect the landscaped median along Glendale Boulevard and would therefore not affect its scenic highway status. Similarly, the proposed improvements would not affect Riverside Drive or its scenic highway designation, as no physical changes to Riverside Drive would occur and Riverside Drive would continue to serve as a linkage between Griffith Park and Elysian Park.

2.5.3.3 Cumulative Impacts

There are no related projects that could result in significant cumulative impacts in the project area, and therefore, no cumulative impacts related to visual aesthetics are anticipated to occur as a result of the proposed project.

2.5.3.4 Avoidance, Minimization, and/or Mitigation Measures

Neither avoidance nor mitigation measures are required or proposed.

2.5.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts to visual/aesthetic quality relative to existing conditions.

2.6 Cultural Resources

This section evaluates potential effects of the proposed project on cultural resources.

2.6.1 Regulatory Setting

"Cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, 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. Section 106 of 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 the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (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 Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 327) (July 1, 2007).

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. See Appendices B1 and B2 for specific information regarding Section 4(f).

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 National Register of Historic Places (NRHP) listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (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.

2.6.2 Affected Environment

The viaduct complex, comprised of six structures, was designed and constructed by the City of Los Angeles under the direction of bridge engineer Merrill Butler and bridge designer A.L. Enger. The complex was preceded by a single Glendale Boulevard bridge, which was the main access across the Los Angeles River until, by 1924, its limitations created a bottleneck of traffic. To fix this problem, the designers created a three part viaduct that carried traffic of both

Glendale Boulevard and Hyperion Avenue over the river, provided a junction of the two streets to minimize cross traffic, and eliminated the street railway crossing. All this was accomplished with a structure that is notable for its restrained use of neo-classical forms. The multi-structure complex consists of:

1. Waverly Drive Bridge (Bridge Number 53C-1179)
2. Hyperion Avenue Bridge over Riverside Drive (53C-1882)
3. Hyperion Avenue Bridge over I-5 (53-1069)
4. Hyperion Avenue viaduct over the Los Angeles River (53C-1881)
5. Southbound Glendale Boulevard Bridge over the Los Angeles River (53C-1883)
6. Northbound Glendale Boulevard Bridge over the Los Angeles River (53C-1884)

The viaduct complex was determined eligible for listing by the NRHP as part of the Caltrans Historic Bridge Inventory of 1986,[3] which was confirmed in the Caltrans Historic Bridge Inventory Update in 2002-2004. The viaduct complex is noted for its innovative design techniques and as a bold engineering achievement. It is also noteworthy for its aesthetic quality and use of neo-classical forms. The structure's formal determination of NRHP eligibility makes it automatically listed in the CRHR. Based on its eligibility of the NRHP, the viaduct complex is also a historic site protected under Section 4(f) of the Department of Transportation Act of 1966.

All of the bridges were originally constructed between 1927 and 1929 utilizing a decorative railing system that included balustrades. However, the balustrades developed significant cracking and concrete spall and, as part of a railing repair project in 1962, significant segments of the balustrade railing were covered with gypsum board and gunite reinforced with wire mesh. As part of the repair process, the sides of the top rails were chipped or broken, where the covering activity was accomplished, to improve adhesion of the gunite material (see Section 1.3.1.1.1 for further details).

2.6.2.1 Waverly Drive Bridge

The bridge carrying Waverly Drive over Hyperion Avenue is an earth-filled reinforced concrete structure that is 65 feet long. It is two lanes wide, with a roadway and sidewalks on both sides of the bridge. Enclosing the bridge are two concrete-covered railings which repaired the original baluster railing. Cast bronze lanterns with glass globes are set at each corner of the bridge.

2.6.2.2 Hyperion Avenue Bridge over Riverside Drive

The Hyperion Avenue viaduct over Riverside Drive is a reinforced concrete arch bridge that includes three arch spans with a total length of 429 feet. This viaduct accommodates four traffic lanes and is 63 feet wide. Support for the structure is provided by two reinforced concrete abutments and two reinforced concrete piers. The main span is an open spandrel arch measuring 135 feet. Two additional filled spandrel arches, each measuring 118 feet, make up the length of the bridge. The structure has concrete-covered railings with decorative inset panels and a smooth concrete finish, and this covering was performed to repair the original baluster railing system. Two reinforced concrete octagonal-shaped pylons, capped with tile copings, are located at the east end of the main span.

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3 Since updated and available online at http://www.dot.ca.gov/hq/structur/strmaint/historic.htm; Portia Lee, *Historic American Engineering Record, Glendale-Hyperion Viaduct, HAER No. CA-272*

2.6.2.3 Hyperion Avenue Bridge over I-5

The Hyperion Avenue viaduct over I-5 is a single span, reinforced concrete, open spandrel arch that is 135 feet long. It carries four lanes of traffic and is 71 feet wide with cantilevered walkways flanking the roadway. As with the Waverly Drive Bridge and Hyperion Avenue Bridge over Riverside Drive, the original baluster railings have been covered with concrete. The current railings have inset panels and a smooth concrete finish. Octagonal shaped pylons with tile copings along the tops are located at each end of the span. Decorative bronze-cast lanterns and glass globes, similar to those on the other spans, are set on the railings.

2.6.2.4 Hyperion Avenue Viaduct over the Los Angeles River

Composed of nine spans with a total length of 518 feet, the Hyperion Avenue viaduct over Los Angeles River Bridge segment of the bridge complex is composed of reinforced concrete spandrel arches. The bridge carries four lanes of traffic and is 68 feet wide. It is supported by three reinforced concrete abutments, each crowned with octagonal pylons, and seven reinforced concrete piers. The main span of the bridge is 68 feet wide and each of the eight additional arch spans is 48 feet wide. Cantilevered walkways flank the roadway. Solid reinforced concrete railings having decorative inset panels and a smooth concrete finish are present. These railings are identical to those found on both Waverly Drive and other portions of the viaduct complex along Hyperion Avenue.

2.6.2.5 Southbound Glendale Boulevard Bridge over the Los Angeles River

The southbound Glendale Boulevard Bridge over the Los Angeles River supports two traffic lanes, and consists of six reinforced concrete arch spans with a total length of 316 feet. Each is a filled spandrel arch 48 feet long. Reinforced concrete abutments and piers support the bridge. The railings are concrete-covered with inset panels and a smooth concrete finish (similar to all components of the complex). A concrete pylon is located at each terminus of the bridge. The pylons are hexagonal in shape, each topped with tile coping. Decorative lanterns with glass globes are set on the railings.

2.6.2.6 Northbound Glendale Boulevard Bridge over the Los Angeles River

The northbound Glendale Boulevard Bridge over the Los Angeles River segment of the bridge complex is identical to the southbound structure just discussed.

2.6.2.7 National Register Eligibility

As a group, the six viaduct structures that make up the viaduct complex are eligible for listing in the NRHP under Criteria A and C, and it retains sufficient historic integrity to convey its significance. The viaduct complex is an important element in the development of transportation systems in Los Angeles during the early twentieth century, especially those that cross the Los Angeles River (JRP, 2008). The viaduct complex was one of a group of bridges designed not only to increase vehicular traffic capacity across the river, but also to allow residents to travel between Los Angeles and surrounding cities. The Glendale-Hyperion viaduct is also a significant example of a Neo-classical designed structure, and as a significant work of the Los Angeles Bureau of Engineering (LABOE) (JRP, 2008). The bridges that comprise the viaduct integrate many elements of a classically influenced design, including its proportions and its restrained architectural treatment with use of arches, towers, original baluster railing, and light standards. Figure 2-12 shows historic photographs of the viaduct complex. The boundary of the historic property is the six structures that comprise the Glendale-Hyperion viaduct complex.

The viaduct complex's character-defining features include its careful choice and placement of concrete arch forms; simple, elegant architectural treatment; and overall reliance on harmonious proportions. Within the overall design of the bridge, the use of both open spandrel and filled spandrel concrete arches is character defining, as it represents the careful attention LABOE staff placed on designing an aesthetically appealing structure, in addition to providing a careful engineering solution. LABOE paid close attention to the overall balance and weight of the composition, striving to create harmonious proportions, by a combination of the arch types and abutment placement.

Complementing the concrete arches are decorative features such as the walkways, belvederes, lanterns and globes, pylons, and the bridges' classical decorative features such as molding, brackets, and inset molded panels. Pylons/towers were also chosen as an architectural design element to unite the bridge's curves, ancillary roadways, river, and highway crossings into one composition.

In combination with a simple, open baluster railing, the sparse architectural details led to a cohesive design for the structure. As noted, the railing was later enclosed in concrete along the bridge and thus the original balustrade design detail was lost.

In addition to the structure's NRHP-eligibility, the Glendale-Hyperion Viaduct is City of Los Angeles Historic Cultural Monument #164, designated in 1976. The viaduct complex was also included in a Caltrans study of Los Angeles Monumental Bridges prepared in 2004. Of the 45 bridges evaluated as part of this study, 29 – including the Glendale-Hyperion Viaduct – appeared to be significant as City of Los Angeles monumental bridges. The study concluded that these bridges are significant for their association with the LABOE's bridge program in the early to mid-twentieth century, but that they 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 concluded that bridges are dispersed throughout the city and thus cannot be categorized as a historic district. Caltrans submitted this study to SHPO and received concurrence on its findings in 2005.[4]

4 JRP Historic Consulting for Caltrans, City of Los Angeles Monumental Bridges, 1900-1950, May 2004.

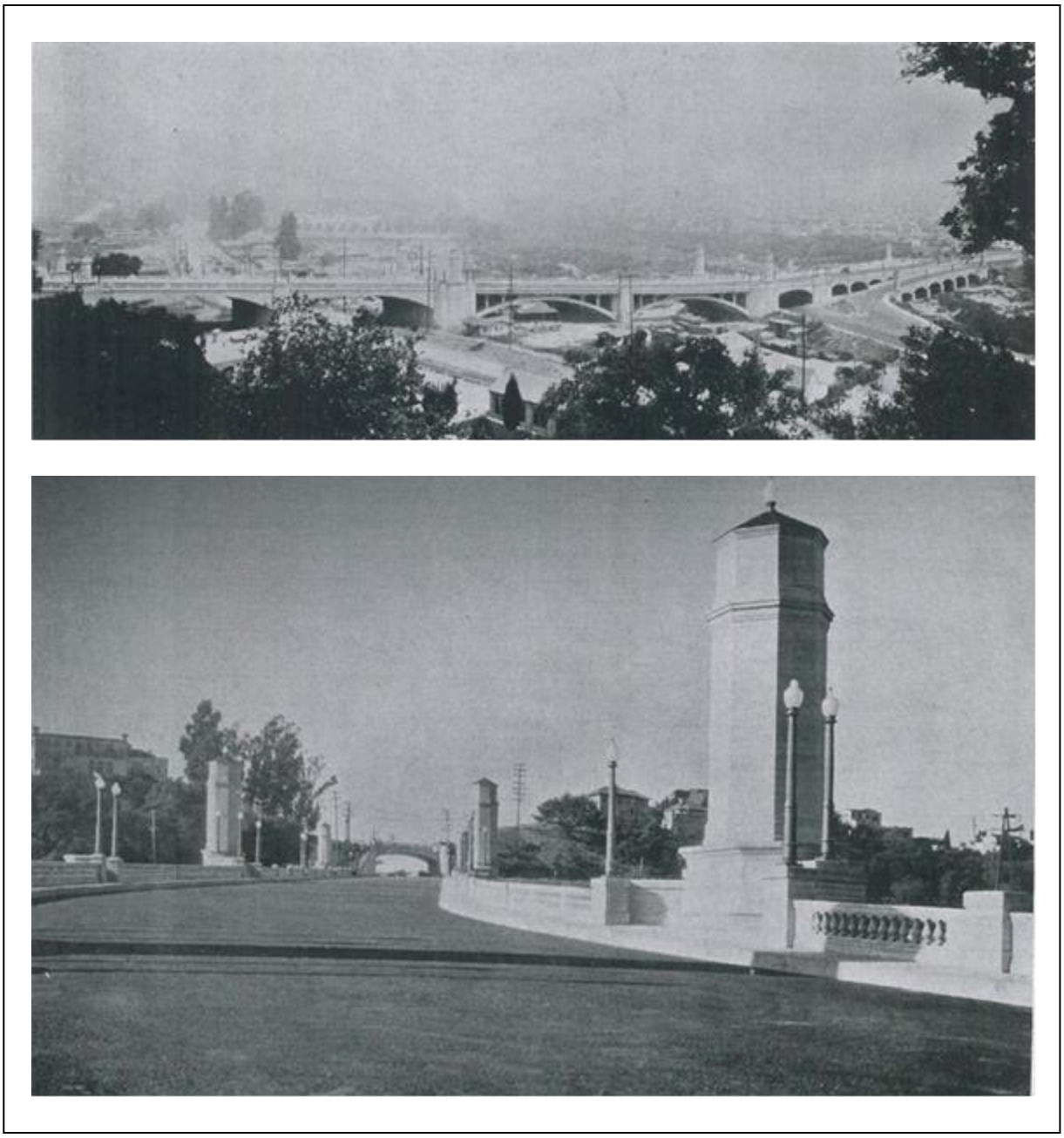


Figure 2-12: Historic Viaduct Photographs

Top Photo: General View of Glendale-Hyperion, looking north.

Bottom Photo: Ddeck view, looking southwest.

Both images are taken from Municipal Arts Commission, Los Angeles, Annual Reports, 1921-1929, 60-61.

2.6.3 Environmental Consequences

Criteria of Adverse Effect

The definition of effect is 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 National Register 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."[5]

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 contribute 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 which 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

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.[6]

Of the seven effects listed above, under 36 CFR 800.5(a)(2), effects (iii), (vi), and (vii) are not applicable to this project. Under 36 CFR 800.5(a)(2)(iii), proposed work would not result in this property being removed from its historic location. Also under 36 CFR 800.5(a)(2)(vi), this property does not suffer from neglect and as a result this effect is not applicable. Finally, under criterion (viii), the viaduct complex is not federally owned nor would it change ownership as a result of this project.

As contained in Section 15064.5 of the CEQA guidelines, substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

5 36 CFR 800.5(a)(1).

6 36 CFR 800.5(a)(2)(i through vii).

2.6.3.1 Temporary Impacts

Construction activities associated with implementing seismic reinforcement and other bridge improvements would result in construction noise, dust, and traffic lane restrictions, but such effects would not diminish the historic integrity of the viaduct complex. No other temporary impacts to historic properties/historical resources, including the bridge structures, are anticipated from the proposed project.

2.6.3.2 Permanent Impacts

The NHPA Section 106 regulations, in 36 CFR 800.4(d)(2), state that if there are historic properties within the Area of Potential Effect (APE) of a federal undertaking, the agency official shall assess adverse effects, if any, in accordance with the Criteria of Adverse Effect defined in 36 CFR 800.5. The viaduct complex is a protected resource under Section 4(f) of the Department of Transportation Act, and is analyzed in Appendix B1 of this IS/EA.

As discussed below, the City's proposed project would be designed to avoid and minimize adverse effects to the bridge, a historic property, but several crucial elements of the project would result in an adverse effect.

The architectural APE for the proposed project includes the public right-of-way that encompasses the boundaries of the viaduct complex with the widened Glendale Boulevard bridges over the Los Angeles River and the piers for the former Red Car line. Within the APE, the viaduct complex is the only historic property under Section 106 and historical resource for the purposes of CEQA compliance.

The viaduct complex is a protected resource under Section 4(f) of the Department of Transportation Act. The Section 4(f) Programmatic Evaluation of the viaduct complex is included as Appendix B1 of this IS/EA. The pedestrian crossing that would be constructed as a mitigation measure would not utilize the viaduct complex. Moreover, the construction of the pedestrian crossing over the Red Car piers would not result in any impact to the historical significance of the viaduct complex because the piers are remnants of a separately constructed and demolished Red Car Line bridge and exempt from Section 106 evaluation.

Analysis of Adverse Effects

Project elements that affect all or portions of the viaduct complex or are going to be carried throughout the structure are discussed below. The following subsections address potential effects to each bridge that comprises the historic property. Because the work proposed is similar along several portions of each bridge, the bridges are grouped by street, so that all three viaducts along Hyperion Avenue are treated in one section and the two Glendale Boulevard bridges are dealt with in a single section.

Of the work proposed, restriping the roadway is planned to occur across all portions of the bridge. The roadway would provide one 12-foot-wide inside lane and one 14-foot-wide outside lane for both northbound and southbound Hyperion Avenue and two 12-foot-wide lanes for northbound and southbound Glendale Boulevard with new shoulders and widened sidewalks. This action would not adversely affect any portion of the viaduct complex.

As noted, a part of the proposed undertaking includes replication of the original baluster railing along all portions of the bridge. Enclosed in the 1960s, which damaged the top rails, the basic form of the original railing (built in 1929) is a significant character-defining feature of the bridge

that contributed to the neo-classical design of viaduct complex (the rail covering is not considered a character-defining element). It was one of several architectural elements that unified the three-part Hyperion Avenue viaduct. As a treatment, replicating the original railing meets the *Secretary of the Interior Standards for the Treatment of Historic Properties*, and has been encouraged as an appropriate treatment for this historic property. The replication of the railings is considered to be among the efforts to minimize and mitigate the project's adverse effect. The motorist on the bridge deck or passing under the bridge on I-5 would again be given a sense of the original historic appearance of the bridge, and the monumental nature of the bridge captured with the rehabilitation of this original design detail.

Table 2.6-1, below, provides a summary of the analysis of effects for each historic property within the APE for this project (JRP, 2008). It is concluded that the project would have an adverse effect on two of the six bridges that comprise the viaduct complex. Caltrans submitted the FOE for this project to SHPO, who concurred with the finding of adverse effect for this undertaking in May 2009.[7]

Waverly Drive (53C1179)

The existing covered railing along Waverly Drive (over Hyperion Avenue) would be replicated consistent with the Secretary of Interior's Standards for Rehabilitation, which would return the original balustrades design to the structure. No other work would be performed on the bridge and thus it would not be adversely affected by the project.

Hyperion Avenue over Riverside Drive (53C1882), Hyperion Avenue over I-5 (531069), and Hyperion Avenue over the Los Angeles River (53C1881)

None of the modifications planned for the Hyperion Avenue viaducts would have an adverse effect on these structures. Work includes eliminating the existing 2-foot curb along the east side of Hyperion Avenue (along the retaining wall beneath the Waverly Drive Bridge) and the 4-foot curb on the east side of the Hyperion Avenue (north of Waverly Bridge) and adding a concrete barrier to protect the new replica rails that would be installed. Additional improvements include increasing the width of the sidewalk on southbound Hyperion Avenue from five feet to eight feet, tapering back to four feet along the retaining wall near Waverly Drive, and installing a concrete barrier between the widened sidewalk and traffic. In addition to the rehabilitation and reuse of the existing lighting, the project also includes the addition of replica street lights (if necessary), and, as noted above, replica replacement of the original bridge railings (balustrades), which were altered in the 1960s. The repair, rehabilitation, and reuse, as well as possible replication of the light standards, would further contribute to preserving and retaining the historic character of the Hyperion Avenue bridges and the viaduct complex as a whole. A pedestrian crosswalk (across southbound Glendale Boulevard) is also planned at the northern end of the viaduct complex. This crosswalk would likely have signage or blinking signals, similar to other signage and blinking signals commonly used throughout a city.

The traffic safety measures, including the installation of the center median barrier and concrete railing barriers, do not require any physical demolition of historic fabric, and would not have an adverse effect under 36 CFR Part 800.5(a)(i) or (ii); nor would they have an adverse effect under 36 CFR Part 800 (iii) because previous modern improvements to the bridge deck, and

7 Milford Wayne Donaldson, SHPO, letter to Gregory King, Caltrans Cultural and Community Studies Office, May 5, 2009.

construction of I-5, in the immediate vicinity of the bridge, have already impacted, to a substantial degree, the original setting and feeling of the bridge. When the current setting of the bridge is compared to the original setting as shown in Figure 2-12, the viewer can see the loss of characteristics that contributed the setting and the negligible impact the installation of the concrete barrier and median would have on this feature.

Under 36 CFR Part 800.5(a)(v), the installation of the barrier and median do not introduce "visual elements that diminish the integrity of the property's historic significance features." Placement of the concrete barrier between the pedestrian walk along southbound Hyperion Avenue and the roadway is far enough from the railing that it does not impair the view of the bridge from southbound I-5. Furthermore, the barrier would be a reversible treatment and thus meets the *Secretary of Interior Standards* for this reason. Finally, the road has been resurfaced and repaved numerous times in its 75-year history and the median barrier or repaving would not alter the historic features of the deck.

Although portions of the improvements to the pedestrian amenities would remove the sidewalks, and as a result some original fabric, the work would not have an adverse effect on the structure. Defining elements (pylons, belvederes, etc.) of the complex would not be affected by the proposed work, and the overall intent of the design, allowing pedestrian access across the viaduct complex, would be maintained with the widened sidewalk on the southbound side of Hyperion Avenue. Again under the *Secretary of Interior Standards for Rehabilitation* guidelines, alterations are permitted when necessary to protect public safety and access issues as in this case. Therefore, this action does not constitute an adverse effect. These elements of the project would not have an adverse effect along any portions of the bridge along Hyperion Avenue.

Table 2.6-1: Potential Effects of the Glendale-Hyperion Project on Historic Properties Within the Project's APE[8]

Bridge #	Feature Intersection	Physical destruction of or damage to all or part of the property	Alteration that is not consistent with Secretary of the Interior's standards for the treatment of historic properties	Removal of the property from its historic location	Change in character of property's use or physical features within the property's setting that contribute to its historic significance	Introduction of visual, atmospheric, or audible elements that diminish the integrity of property's significant historic features	Neglect of a property which causes its deterioration	Transfer, lease, or sale of property out of Federal ownership or control
53C1179	Waverly Dr. over Hyperion Ave.	No adverse effect	No adverse effect	N/A	No adverse effect	No adverse effect	N/A	N/A
53C1882	Hyperion Ave. over Riverside Dr.	No adverse effect	No adverse effect	N/A	No adverse effect	No adverse effect	N/A	N/A
53 1069	Hyperion Ave. over I-5	No adverse effect	No adverse effect	N/A	No adverse effect	No adverse effect	N/A	N/A
53C1881	Hyperion Ave. over southbound Glendale Blvd and the Los Angeles River	No adverse effect	No adverse effect	N/A	No adverse effect	No adverse effect	N/A	N/A
53C1883	Southbound Glendale Blvd. over the Los Angeles River	Adverse effect	No adverse effect	N/A	No adverse Effect	No adverse effect	N/A	N/A
53C1884	Northbound Glendale Blvd. over the Los Angeles River	Adverse effect	No adverse effect	N/A	No adverse effect	No adverse effect	N/A	N/A

Source: JRP Historical Consulting, LLC Finding of Effect for Glendale-Hyperion Bridge Complex Improvement Project, October 2008.

8 The categories of effects listed in the table above were generated from the examples of adverse effects listed in 36 CFR 800.5(a)(2). No other types of effects to historic properties were identified or are anticipated.

Southbound Glendale over Los Angeles River (53C1883) and Northbound Glendale over the Los Angeles River (53C1884)

The project would have an adverse effect on the viaduct complex by adversely affecting two of the six structures. Both the Southbound Glendale Boulevard Bridge over the Los Angeles River (53C1883) and the Northbound Glendale Boulevard Bridge over the Los Angeles River (53C1884) would be widened as part of this project. These two structures are contributing components of the viaduct complex, albeit secondary structures within the overall property. The project would alter portions of these structures that are character-defining features of the viaduct complex. The wider replacement structure would replicate the arches of the original structure, along with the railings as discussed above, and the original pylons would be retained, rehabilitated, and placed back at their appropriate locations at the end of the railings of the Southbound Glendale Boulevard Bridge over the Los Angeles River (53C1883) and the Northbound Glendale Boulevard Bridge over the Los Angeles River (53C1884).

Work planned for both the southbound and northbound Glendale Boulevard bridges over the Los Angeles River includes widening both bridges by eight feet and modifying the I-5 on-ramp to join the widened sections of Glendale Boulevard. To accomplish this, both edges of the bridge would be reconstructed eight feet wider. The new construction would include replicating much of the original design features. All of the architectural details, including concrete arches, railings, and light standards, would be rebuilt using original plans. The original pylons would be carefully removed and repositioned on the bridges in the equivalent position to those they held originally. The flow control walls in the river that once connected this structure to the piers of a now-demolished railroad bridge (for the former Red Car line) to the south would have to be altered to accommodate the shift of the ramp to the east. Although the southbound Glendale Boulevard Bridge over the Los Angeles River (53C1883) and the northbound Glendale Boulevard Bridge over the Los Angeles River (53C1884) would be rehabilitated following, in part, the original design with some original features preserved and relocated, the proposed work would adversely affect the bridge under 36 CFR 800.5(a),(2)(i) because of the physical alteration of a portion of the historic property.

Under 36 CFR 800.5(a)(2)(i), an adverse effect is defined as "physical destruction of or damage to all or part of the property," which under this alternative is partial demolition. The elements of the bridge complex that would be altered include many of the character-defining features essential to conveying the bridges' neo-classical design, which are essential to the complex's eligibility for listing in the NRHP. By removing these original components, the proposed project would diminish the bridge's historic integrity.

For the portions of the project that would affect the complex's historic character-defining features, the City is designing the project to follow the Secretary of Interior Standards for Rehabilitation. The City is retaining and maintaining the viaduct complex's original use, preserving its historic character and distinctive features, and replacing deteriorated historic features to match the old features in design, color, texture, and its visual qualities. These include the modified railings on most of the structures that comprise the viaduct complex and replicating original light standards. The new features would also not create a false sense of history that would result if the project were adding features based on conjecture. Rather, the project would be partially accomplished by basing the design of the new structure on the documentary and physical evidence of the original design and by the new materials used that can be distinguished from the historic materials. Other than the specific features that are required for the widening of

the Glendale Boulevard bridges, the new additions to the viaduct complex would not destroy historic materials or features of the complex, and if the improvements made to the viaduct complex were to be removed in the future, the essential form and historic integrity of the historic property would remain.

Further project elements related to improving the Glendale Boulevard bridges include modifying the I-5 on-ramps to join the widened sections of northbound and southbound Glendale Boulevard. These two ramps are not part of the historic viaduct complex.

Several pedestrian enhancements are planned for the vicinity of both Glendale Boulevard bridges. These enhancements would not have an adverse effect on either of the bridges. Improvements in this category would consist of a pedestrian walkway beneath the viaduct complex along the Los Angeles River and the addition of a new pedestrian/bicycle ramp near the east side of the northbound bridge to provide access to the existing Los Angeles River bike path. A second pedestrian crossing would be added at southbound Glendale Boulevard at the northern end of the viaduct complex.

Because these activities do not entail removing, changing or altering any historic features or fabric of these bridges they would not have an adverse effect on either bridge or the viaduct complex as a whole.

Seismic Improvements

As explained in the project description, seismic retrofitting is planned for portions of the bridge so that the entire viaduct complex would meet current seismic performance standards. The retrofit action consists of four elements, including abutment transverse wall shear friction retrofit, spandrel column ductility retrofit, interior spandrel wall strengthening, and pier wall channel lining retrofit. All four of these elements would be undertaken along Hyperion Avenue. The abutment transverse wall shear friction retrofit and pier wall channel lining retrofit would be located on the lower portions of the bridge and would include limited physical impact to the bridge, whereas the spandrel column ductility retrofit and interior spandrel wall strengthening would consist of work to the open spandrel areas of the bridge and include construction of additional elements to the bridge. Each of the construction activities associated with the seismic retrofit and their effects is discussed below.

Abutments/Pier Seismic Improvements

Under the applicable sections of 36 CFR 800.5(a)(2), this work would not have an adverse effect. The construction work proposed would not under Section (i) cause physical damage to the property except in a localized portion of the abutment and piers. Under 36 CFR 800.5(a)(2)(ii), seismic work would consist of repair and maintenance activities that are consistent with the Secretary's guidelines because the work proposed does not threaten to diminish the historic appearance of the historic property. For the same reasons, this work would not cause an adverse effect by introducing visual elements that diminish the integrity of the viaduct complex. As stated in the standards, "if a building needs to be seismically upgraded, modifications to the historic appearance should be minimal." Although specifically referring to a building, this statement is applicable to a bridge as well. Work proposed to seismically improve the abutments would be consistent with this statement, would be minimal, and would not affect the historic appearance of the abutments or piers.

Spandrel Column Ductility Retrofits and interior Spandrel Wall Strengthening

Under the applicable sections of 36 CFR 800.5(a)(2), the spandrel column ductility retrofit and interior spandrel wall strengthening would not have an adverse effect. The construction activities for this work do not call for demolition (localized or otherwise); thus, the effects from these actions would not cause physical damage to all or any part of the resource. Therefore, it would not be an adverse effect under Criterion (i). Under section (ii) of the criteria, the activities for this project fall within the category of rehabilitation and are subject to the standards for this treatment. Within this treatment, the Secretary of Interior Standards for Rehabilitation allow for some alterations to a resource to ensure its continued use, provided that the alterations do not radically change, obscure, or destroy character-defining features. Adding fiber wrapping and concrete bolsters to the spandrel columns would not necessitate the removal of distinctive material along the spandrel arch, nor would it radically change or destroy character-defining features of the open spandrel portion of the bridge. Fiber wrapping the columns would obscure the original fabric along the column; however, cladding the column with an exact match of the exterior appearance original column would constitute an "in kind" treatment. Also, the original column would be retained beneath the work, preserving the original fabric, should the work be removed in the future. Moreover, the proposed "in kind" treatment would not alter the spatial relationship of the column to the arch. Considering the size and scale of the changes, the seismic retrofit impacts to the appearance of the column would be negligible.

Additionally, these actions would not alter the character of the complex's use or alter physical features within the complex's setting that contribute the historic significance under Criterion (iv). The open spandrel arches are one of the most prominent character-defining features of the bridge and sensitive treatment is necessary to retain a high threshold of integrity. For the same reasons as described above, the arch retrofits would not adversely impact the integrity of the arches. These actions would minimally alter the physical characteristics of these arches and are designed so that the size and scale of the new features do not adversely impact the original features. These changes would not introduce visual elements that diminish the integrity of the bridge. Overall, the viaduct complex displays a high degree of integrity, and the proposed actions would not alter that status in any significant level. In plan elevation, the overall appearance of the bridge would not appear to be altered by this work.

2.6.3.3 Cumulative Impacts

The original balustrades along the viaduct complex were repaired in 1962 by covering them with gypsum and reinforced gunite. As part of the railing covering project, the sides of the top rails were broken, presumably to provide a base for adhesion of the gunite. The past repair job has damaged original historic fabric.

The proposed project would replace the existing covered railings with new balustrades based on the original balustrade design, which would restore the viaduct complex to its original appearance.

Although the proposed project would result in an adverse effect to the southbound and northbound Glendale Boulevard bridges over the Los Angeles River related to the removal of some original historic fabric from the widening, the City is designing the project to follow the Secretary of Interior Standards for Rehabilitation, including retaining and maintaining the viaduct complex's original use, preserving its historic character and distinctive features, and replacing deteriorated historic features to match the original features in design, color, texture, and its visual qualities. These include replica balustrades on most of the structures that comprise

the viaduct complex and replicating original light standards. At a project level, the new additions to the viaduct complex would not destroy features of the bridge complex, other than the specific features that are required for the widening of the two Glendale Boulevard bridge structures, and if the new improvements made to the bridge complex were to be removed in the future, the essential form and historic integrity of the historical resource would remain. There are also no known projects in the foreseeable future that might adversely affect the historic property. Furthermore, project-level mitigation would be implemented, as described in Section 2.6.3.4 below. Because of this, the proposed project would not make a cumulatively considerable contribution to a cumulatively significant impact to this historic property.

As noted, the Glendale-Hyperion Viaduct is City of Los Angeles Historic Cultural Monument #164 and it was included in the Caltrans Los Angeles Monumental Bridges study. The study concluded that the monumental bridges are significant for their association with LABOE's bridge program in the early to mid-twentieth century, but that they do not constitute a historic district.[9] There are projects that have and are currently affecting other Los Angeles monumental bridges, 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). There is no historic district to which these bridges contribute and thus the adverse effect on the Glendale-Hyperion Viaduct does not constitute a cumulative effect under Section 106 for impacts to the Los Angeles monumental bridges. Under CEQA, the Los Angeles monumental bridges are thematically linked and impacts on one bridge could potentially have a cumulative impact on this group. The project on the Glendale-Hyperion Viaduct will not demolish the structure and it will remain listed as a HCM. Efforts to minimize and mitigate the effects to the Glendale-Hyperion Viaduct lessen the impacts to this historical resource such that do not create a cumulative impact to the group because the bridge's character-defining features will remain and mitigation includes replicating the historic railings through the viaduct complex enhancing the historic structure's original design character.

There are no other key related projects which in conjunction with the proposed project, could result in cumulative impacts to the viaduct complex.

2.6.3.4 Avoidance, Minimization, and/or Mitigation Measures

The project has been designed to incorporate features to minimize adverse effects to the viaduct complex, while meeting the project's engineering requirements. Features include replication of the original balustrades that are character defining.

The proposed project would result in adverse effects to the Glendale Boulevard bridges over the Los Angeles River, which would be minimized by implementation of the following mitigation measures:

H-1: Recordation to Historic American Engineering Record (HAER) Specifications: Prior to the start of any work that could adversely affect characteristics that qualify the Glendale-Hyperion Viaduct Complex as a historic property, contact the National Park Service Pacific West Region Office (NPS), to determine if additional recordation is required for the historic property beyond that provided in

9 JRP Historic Consulting for Caltrans, City of Los Angeles Monumental Bridges, 1900-1950, May 2004.

"Historic American Engineering Record, Glendale-Hyperion Viaduct, HAER No. CA-272," 2000-2001. NPS should respond to the additional recordation request within 30 days. If additional documentation is required, it should be completed and accepted by the NPS before the viaduct is altered. Prepare draft and final reports.

H-2: Historic American Buildings Survey (HABS)/HAER Dissemination: Upon completion of the documentation prescribed in Mitigation Measure **H-1**, documentation meeting current archival quality standards established by the NPS' Heritage Documentation Program to District 7 and the Caltrans Transportation History Library in Sacramento shall be provided. Archive quality documentation shall also be provided to NPS, if NPS requests it. Copies of the documentation shall be offered to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, and the California Office of Historic Preservation.

H-3: Online Publication: Work with the Los Angeles Public Library to place the historical information from the HAER report, prescribed in Mitigation Measure **H-1**, on a City website with a link to a public library website, such as the Los Angeles Public Library website, available to the public for a minimum period of three years. The information link shall also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.

H-4: Video Documentary: 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.

H-5: Informational Booklet: 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 the California Department of Transportation (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. Ensure that an electronic version of the booklet is posted on a City website 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. Ensure that the camera-ready master booklet is maintained and produce additional copies if there is demand.

H-6: Design Plan and Specifications Review: Ensure that a Caltrans Professionally Qualified Staff Principal Architectural Historian reviews the 65% and 95% design plans and specifications for the Glendale-Hyperion Viaduct Complex are in conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (SOI Standards), and that SHPO is afforded the opportunity to review the same design plans and specifications. Failure of the SHPO to respond within thirty (30) calendar days after receipt of the plans shall not preclude Caltrans from proceeding with the undertaking. Should the SHPO or the Council object within thirty (30) calendar days to any plans and specifications submitted for review, then Caltrans shall consult with the objecting party, for a period not to exceed ten (10) calendar days, to resolve the objection. If the objection cannot be resolved within this time period, the FHWA shall request the Council review the Finding in accordance with 36 CFR 800.5(c)(3).

H-7: Construction Monitoring Plan: Prepare construction monitoring plan and conduct periodic monitoring of construction activities to ensure the project is conducted in a manner that meets the SOI Standards. Provide Caltrans a draft construction monitoring plan, in which Caltrans shall have thirty (30) calendar days after receipt of the document to review and comment, and prepare a final construction monitoring plan. The plan shall include description of the project, description of the historic property's character-defining features, discussion of the monitoring's purpose, and construction activities to be monitored, as well as methods, schedule, and procedures for monitoring and reporting. Caltrans shall ensure that the construction monitoring plan is implemented. Monitoring reports shall include photographs indicating that the activities are in compliance with the SOI Standards. The monitor shall meet the Secretary of the Interior's Professional Qualifications Standards for Architectural Historian or Historic Architect pursuant to CFR 36 CFR Part 61, Appendix A (PQS Standards).

2.6.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts to historic resources relative to existing conditions.

2.7 Archaeological Resources

This section evaluates potential effects of the proposed project on archaeological resources.

2.7.1 Regulatory Setting

The same regulatory framework that applies to historic properties also applies to archaeological resources.

In addition, the LABOE has issued a Special Order (No. S002-0590) for the protection of archaeological resources. This special order requires an archaeological monitor for construction in archaeologically sensitive areas. If archaeological resources are encountered, the construction inspector will halt work while the archaeologist evaluated the significance of the artifacts. Any culturally significant materials field notes, reports, and photographs are to be placed with an appropriate archaeological repository or appropriate Native American tribe.

2.7.2 Affected Environment

An Archaeological Survey Report (ASR) was prepared in February 2008 (AEW, 2008) to identify potential archaeological sites in the architectural area of potential effects (APE) as part of the HPSR (see Section 2.6).

The archeological APE consists of areas where excavation would occur during construction, including footings and frontage road widening.

The project area is located along the Los Angeles River floodplain in northeast Los Angeles. Elevation of the project area is approximately 400 feet above mean sea level. Vegetation in the area was formerly dominated by species characteristic of riparian and chamise-chapparal communities (Muntz, 1974). Currently, the project area is urbanized with a built environmental setting. Most of the project area consists of existing freeway, highway, ramps, viaducts/bridge over-crossings, and other related transportation improvements. I-5 and the Los Angeles River are prominent elements of the existing environment, while modern buildings and landscaping characterize much of the remaining project area. Griffith Park is located northwest of the project area and contains remnants areas of native vegetation. Past construction of these transportation-related features has resulted in grading and disturbances to all natural areas in the APE.

2.7.3 Environmental Consequences

2.7.3.1 Temporary Impacts

Based on the database research and field investigation, no temporary impacts to archaeological resources are anticipated from the proposed project due to the lack of such resources within the project APE and the disturbed nature of the project area. No further cultural resource work is recommended.

Although no archaeological resources are expected to be encountered during construction, a professional archaeologist would monitor all ground disturbing activities as requested by the Chairman of the Gabrielino/Tongva Tribal Council. (See A-1 in section 2.7.3.4.)

If human remains are encountered during construction, standard policy of the City of Los Angeles and Caltrans would be followed. This includes notifying the County Coroner. In such an event, construction would be halted. If the remains are Native American, the Coroner is responsible for contacting the NAHC within 24 hours. The Commission, pursuant to Section 5097.98 of the PRC, shall immediately notify those persons it believes to the most likely

descendants of the deceased Native Americans. Treatment of the remains would be dependent on the views of the most likely descendent.

2.7.3.2 Permanent Impacts

The ASR was completed for the proposed project and is provided as part of the HPSR (JRP, 2008). The ASR consisted of:

- A records search for archaeological resources, encompassing the following sources:
  - South Central Coastal Information Center at California State University, Fullerton
  - Office of Historic Preservation Database of Determinations of Eligibility
  - Department of Parks and Recreation California Points of Historical Interest
  - California Historic Landmarks
  - California Inventory of Historic Resources
  - National Register of Historic Places
  - City of Los Angeles Cultural Monuments List
- A pedestrian surface reconnaissance survey of the entire APE.

Neither the records search nor the field survey revealed evidence of prehistoric or historic archaeological resources within the APE.

In accordance with Section 106 of the National Historic Preservation Act, a request was made to the Native American Heritage Commission (NAHC) for a review of the *Sacred Lands Files* in May 2004 to determine if any known cultural properties are present within or adjacent to the project APE. The NAHC responded, stating that no Native American Cultural resources are known to exist within or adjacent to the project APE. However, the NAHC requested that 11 Native American individuals and organizations be contacted to solicit any information regarding cultural resources issues related to the project. These individuals and organizations were contacted, and the Chairman of the Gabrielino/Tongva Tribal Council contacted the archaeologist, stating that he had concerns regarding the project due to its proximity to the Los Angeles River where Native peoples often located their villages and cemeteries. The chairman requested that a professional archaeologist be present during ground-disturbing activities. No other comments have been received from the Native American individuals or organizations contacts.

Based on the database research and field investigation, no permanent impacts to archaeological resources are anticipated from the proposed project due to the very disturbed nature of the APE and the lack of such resources within or near the project APE. No further cultural resource work is recommended unless the project expands beyond the current APE.

2.7.3.3 Cumulative Impacts

On the basis of records research and field investigation, no cumulative impacts to archaeological resources are anticipated from the proposed project in conjunction with other projects because no related projects would affect the APE, due to the lack of such resources within the project APE, and because of the disturbed nature of the project area. No further cultural resource work is recommended unless the project expands beyond the current APE.

2.7.3.4 Avoidance, Minimization, and/or Mitigation Measures

Although the proposed project is not expected to affect archaeological resources, as requested by the Chairman of the Gabrielino/Tongva Tribal Council, the following measure would be implemented:

A-1: A professional archaeologist would monitor all ground disturbing activities during construction and would act according to the Special Order and Caltrans policies if archaeological resources are discovered.

In addition, if buried cultural materials are encountered during construction, work in the area of the resource would be halted and applicable actions under City of Los Angeles and Caltrans policy would be implemented.

2.7.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts to archeological resources relative to existing conditions.

Physical Environment

2.8 Hydrology, Water Quality, Stormwater Runoff

This section evaluates potential effects of the proposed project on hydrology, water quality, and urban runoff.

2.8.1 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 Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order 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."

Federal Requirements: Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the 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 storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate 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 discharges (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 storm water 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 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 U.S. EPA's Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. 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 which 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 the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

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 (liquid, solid, or gaseous) 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., such as groundwater and surface waters not considered Waters of the U.S. Additionally, it prohibits discharges of "waste" as defined; the definition of waste 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, the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (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. RWCQBs 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 storm water dischargers, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as any conveyance or system of conveyances (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 storm water, that are designed or used for collecting or conveying storm water. The SWRCB has identified Caltrans as an owner/operator of an MS4 by the SWRCB. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, under revision at the time of this writing, contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);

2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and

3. Caltrans storm water 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, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water 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 Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Part of and appended to the SWMP is the Storm Water Data Report (SWDR) and its associated checklists. The SWDR documents the relevant storm water 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.

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 storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one 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; 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 storm water 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 Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

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.

The Los Angeles Regional Water Quality Control Board is required by federal law to issue permits to municipalities so that, over time, the source of pollution is reduced to the maximum extent practicable. The Los Angeles County Storm Water Permit requires that city departments coordinate and implement best management practice in several program areas including

- Public Outreach and Education
- Planning and Construction
- Public Agency Activities
- Business Inspections, and
- Illicit Connection and Illicit Flows Detection and Elimination

The purpose of these programs is to implement pollution prevention programs that will, to the maximum extent practicable, reduce the discharge of pollutants from the storm drain system to protect receiving waters and their beneficial uses The City of Los Angeles falls is a permittee that is subject to this permit, and has Standard Urban Stormwater Mitigation Plan. Project applicants are required to prepare and implement a Standard Urban Stormwater Mitigation Plan when their projects fall into any of these categories:

- Single-family hillside residential developments
- Housing developments of 10 or more dwelling units (including single family tract developments)
- Industrial /Commercial developments with one acre or more of impervious surface area
- Automotive service facilities
- Retail gasoline outlets
- Restaurants
- Parking lots of 5,000 square feet or more of surface area or with 25 or more parking spaces

- Projects with 2,500 square feet or more of impervious area that are located in, adjacent to, or draining directly to designated Environmentally Sensitive Areas (ESA).[10]

2.8.2 Affected Environment

The project site is located along an urbanized roadway about five miles north of the Los Angeles civic center. The existing viaduct complex traverses the Los Angeles River, and runoff from the project area is conveyed to the Los Angeles River through the storm drain system.

A Location Hydraulic Study was performed in 2004 by CH2M HILL. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels 06037C1610F and 06037C1626F (Figures 2-13 and 2-14), effective date September 26, 2008, the Los Angeles River is within a FEMA Zone A floodplain. FEMA defines a Zone A as an "area of 100 year flood base flood; base flood elevations and flood hazard factors not determined. These maps also show that the remainder of the project area is within Zone X, which is defined by FEMA as "areas determined to be outside of the 0.2% annual chance floodplain." Water Resources Control Board and the LARWQCB have jurisdiction over water quality at the project site. The *Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (LARWQCB, 1995), is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan (1) designates beneficial uses for surface and groundwater, (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, and (3) describes implementation programs to protect all waters in the region.

Under the Basin Plan, the Los Angeles River has the following existing beneficial uses: agricultural supply (AGR), water contact recreation (REC 1), non-contact water recreation (REC 2), warm freshwater habitat (WARM), wildlife habitat (WILD), and wetland habitat (WET); and the following potential beneficial uses: municipal and domestic supply (MUN) and industrial service supply (IND).

The Los Angeles River upstream and downstream of the viaduct complex is open-bottomed and lined with cobbles. The banks are concrete-covered riprap. A concrete pad forms the bottom of the Los Angeles River at the viaduct complex crossing. The concrete pad along the river bottom extends between 60 to 130 feet upstream of the viaduct piers and downstream from 250 to 360 feet from the viaduct support piers.

The existing storm drain system conveys precipitation and other runoff from the project site and vicinity to the Los Angeles River, which subsequently empties into the Pacific Ocean.

The project site is on the border of the San Fernando Valley and San Gabriel Valley Groundwater Basins. The San Fernando Basin is a significant source of drinking water, with an estimated total volume of three million acre-feet of groundwater stored in aquifers within the alluvial fill of the basin. The groundwater of the San Fernando Basin has been used as a source of drinking water for more than 800,000 residents within the cities of Los Angeles, Burbank, Glendale, and San Fernando (CH2M HILL, 2002).

[10] Los Angeles Stormwater. http://www.lastormwater.org/green-la/standard-urban-stormwater-mitigation-plan/. Accessed June 22, 2012.

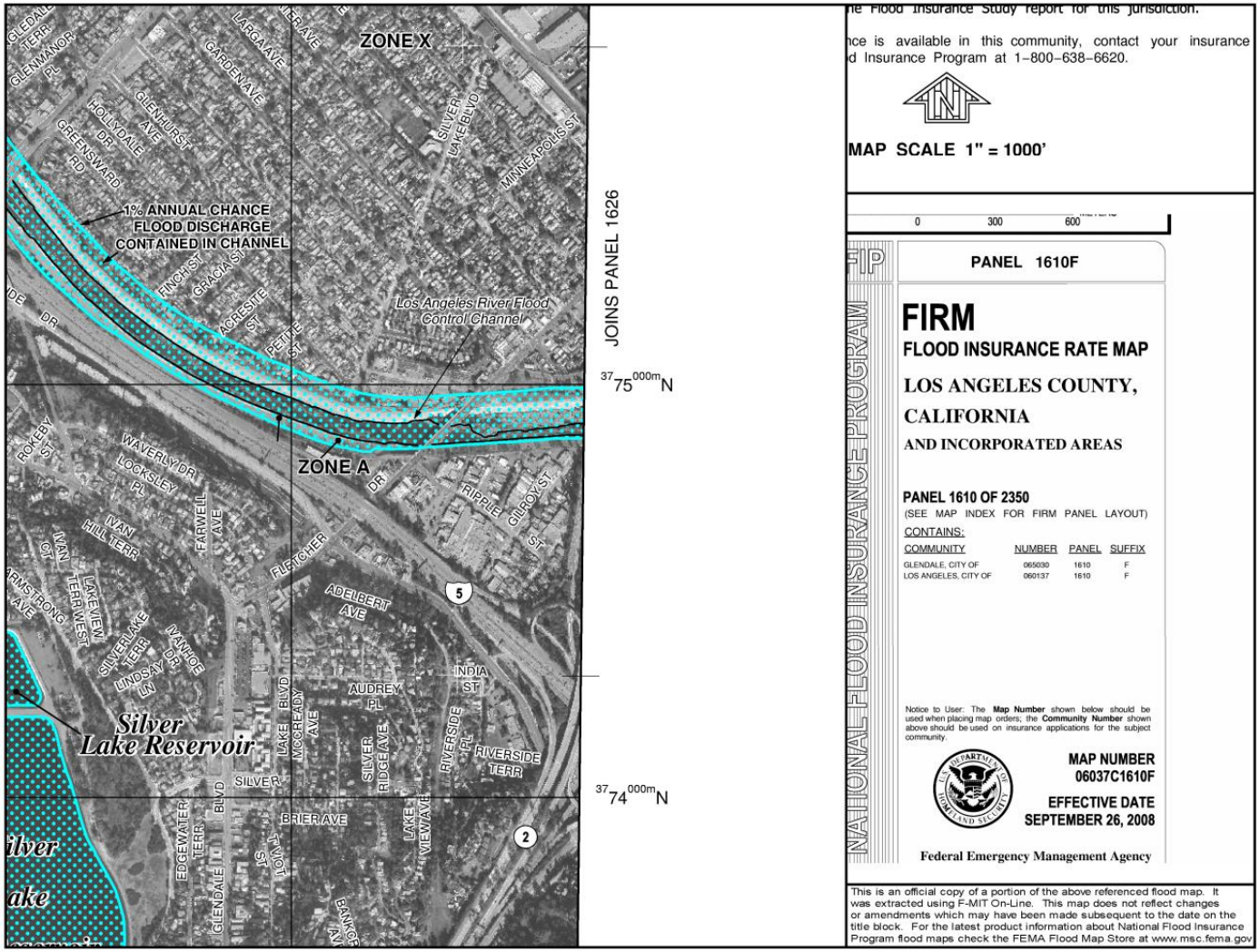


Figure 2-13: FEMA Map

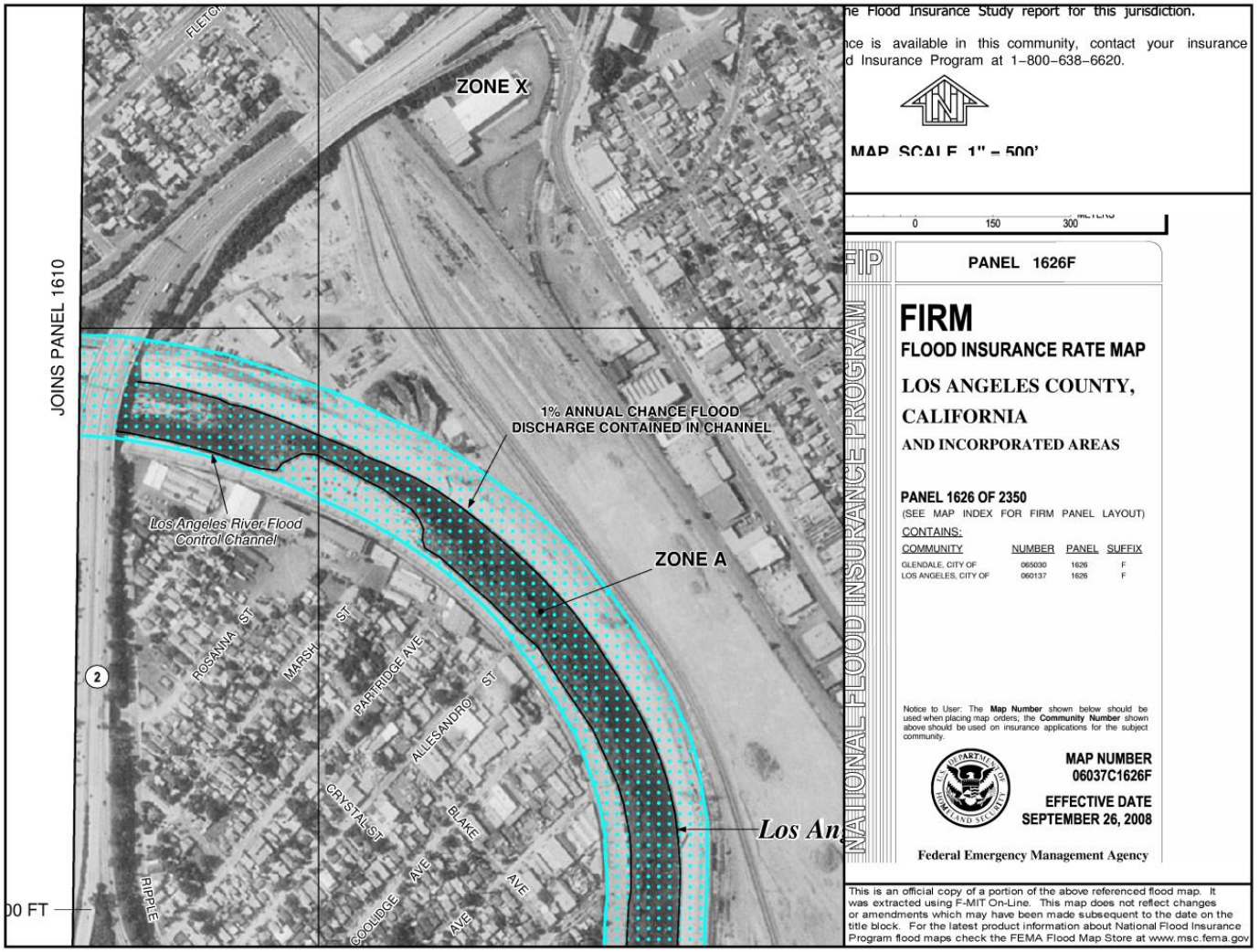


Figure 2-14: FEMA Map

Groundwater quality in the region is generally degraded by infiltration of contaminants from surrounding land uses. Some examples of the primary pollutants in much of the groundwater throughout these basins are volatile organic compounds from industry, as well as nitrates from past agricultural activities. Portions of the Subject Property are situated over a National Priorities List (NPL) groundwater contamination site (CH2M HILL, 2004). As part of the Northeast Interceptor Sewer Phase II environmental work, City staff identified the extent of the Pollock superfund site (TCE and PCE contaminated groundwater) in the Los Angeles Narrows area, and the viaduct complex is located above a portion of the site (CLA, 2005b). The concentration of TCE and PCE contamination within the Pollock superfund site varies by location.

2.8.3 Environmental Consequences

2.8.3.1 Temporary Impacts

The minimum channel capacity conveyance would be preserved during construction, allowing the flow to pass through unobstructed. No impacts to flood flow due to construction activities are anticipated.

The viaduct complex is an earth-filled bridge structure, and during construction earth would be exposed. The proposed project could result in erosion of exposed surfaces during construction if rain events occur before construction is completed. In such cases, sediment in runoff from the construction site could flow into the local storm drain system. The total area of the project work zones would be approximately 6 acres. However, fewer than two acres would be under construction at any given time. Nonetheless, construction would require coverage under the Los Angeles Regional Water Quality Control Board (LARWQCB).permit for storm water discharges resulting from construction. In addition, because the northbound I-5 off-ramp is controlled by Caltrans, construction of this element would require coverage under the statewide permits, including CAS 000002 and CAS 000003. Therefore, a stormwater pollution prevention plan (SWPPP) and monitoring program would be prepared and subsequently implemented during construction. In addition, a Storm Water Data Report (SWDR) would be prepared and submitted to Caltrans for approval.

Construction of the proposed project would occur in a staged manner to keep traffic lanes open during construction. As mentioned above, soil surfaces would be exposed during construction, which could erode and enter the storm drain system and the Los Angeles River during rain events or if overwatering of the site for dust suppression occurs.

Widening of the Glendale Boulevard bridges over the Los Angeles River would require the placement of timber falsework in the river channel, and the casting (in concrete) of bridge structures. The placement of the falsework is not in itself expected to result in contaminants that could enter affect water quality; however, casting of the new bridge structures could result in unset concrete leakage or drippings into the river.

The proposed project would also require construction in the Los Angeles River to install foundations for the pier extensions and abutment extensions. This work would require temporary in-channel flow diversions around the pile excavation locations, such as cofferdams. Excavated soil would be immediately removed from the work area and concrete piles casted. Because there would be excavation within the Los Angeles River, construction equipment would be present in the river channel (albeit restricted to the concrete pad). Construction activity could

result in excavated soil, sediment, and possibly equipment fluids entering the river, which would be adverse to water quality in the river.

The SWPPP would include erosion and sediment control, non-storm runoff management, post construction stormwater management, waste and disposal management, maintenance, inspection, and a sampling and analysis protocol for potentially contaminated runoff. The SWPPP would identify specific Best Management Practices (BMPs) that would be implemented during construction to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind. Examples of BMPs with proven effectiveness and that are likely to be specified in the SWPPP include:

- Utilization of temporary silt fence
- Daily sweeping of the work area to minimize sediment buildup,
- Stockpile management for excavations in the Los Angeles River, and
- Control barriers (gravel bag berm, temporary silt fence, fiber roll, or other material) to control work area runoff.

With preparation and implementation of the SWPPP and associated BMPs, adverse impacts to water quality during construction are not likely to occur.

As mentioned above, groundwater quality in the project area is generally degraded. Construction of the proposed project would not adversely affect groundwater quality because it would not add additional pollutant constituents to groundwater. For the construction of piles in the river channel/banks, contaminated groundwater may be encountered. To install piles by drilling, the hole would first be drilled, then a reinforcing cage lowered into the hole, and the hole filled with concrete. As the concrete fills the hole, groundwater within the hole becomes displaced and is discharged from the drilled hole. Any uncontrolled discharges of displaced groundwater would flow into the river and adversely affect water quality in the river.

Any groundwater that must be dewatered during construction would be tested for the presence of petroleum hydrocarbons and other contaminants. If contaminants are present, the dewatered groundwater would be treated prior to discharge to the City's sewer system. Such discharges would require an Industrial Waste Discharge permit from the City's Bureau of Sanitation and be required to comply with the specified discharge pollutant levels. Since the dewatered groundwater would be tested and treated (if necessary) prior to discharge to the sewer system, adverse impacts would not occur.

2.8.3.2 Permanent Impacts

The entire project site is paved with asphalt or concrete, and storm flows generated on the viaduct complex and at-grade streets during rain events flow to various storm drain inlets, and are conveyed and discharged to the Los Angeles River. The proposed project would provide roadway and pedestrian improvements to Hyperion Avenue along the viaduct complex, would widen the existing Glendale Boulevard Bridge by approximately eight feet on each side, and would reconfigure the northbound I-5 off-ramp to Glendale Boulevard.

Although the widening of the Glendale Boulevard bridges over the Los Angeles River represents an increase in paved area, it would not result in the generation of additional storm water runoff as the widened area would capture rainfall that would otherwise fall or be conveyed to the Los

Angeles River. None of the other project elements would increase runoff to flow to the Los Angeles River.

In the project area, the Los Angeles River is mapped on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM, panel number 060137 0056 C), which shows that the FEMA 100-year flood would be fully contained within the channel (CLA, 2005a). The proposed project includes the placement of some fill material within the Los Angeles River for piles to the support the pier extensions; however, the piles and pier extensions would be emplaced along a completely paved (on the concrete pad) portion of the river. The new piles that would support the pier extensions would be below the existing channel bottom, the pier extensions would be minor, and the pier extensions would be designed to not affect channel hydraulics. In addition, the walkway along the left river bank would be designed not to affect channel hydraulics. As a consequence, the proposed project would not expose people or structures to a significant risk of loss, injury, or death from flooding.

The proposed project is not capacity-enhancing and would not add new travel lanes. Although it would slightly widen the Glendale Boulevard bridge structures over the Los Angeles River, no substantial increases in pollutant deposition to the roadway would occur because increased vehicular travel would not occur. To the contrary, with the reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard, a small reduction in vehicle miles traveled would occur from the elimination of the existing right-turn only (to northbound Glendale Boulevard) from the off-ramp. As such, a minor reduction is pollutant deposition on roadways is expected with a resultant minor decrease in pollutant loadings to the Los Angeles River.

Risk Assessment

The project site is included on the FEMA Flood Insurance Rate Maps, as previously discussed in Section 2.8.2. The Los Angeles River flood flows are confined within the levees. The Los Angeles River is a major floodway, and the 100-year flood is contained in the channel. 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 pedestrian crossing over the Los Angeles River that is downstream of the viaduct complex (previously discussed) will have no impact on the floodwater conveyance or water quality of the river; no support columns will be constructed in the river as part of this crossing.

There is no longitudinal encroachment due to the project. The project does not represent a significant encroachment into the Los Angeles floodplain, as defined in the Federal Aid Highway Program Manual. Because there are no floodplain values that will be impacted, no restoration or preservation of floodplain values is required.[11]

2.8.3.3 Cumulative Impacts

The proposed project would improve the viaduct complex and is not anticipated to result in any significant effects related to hydrology and water quality. The proposed project would not result in an adverse cumulative impact related to hydrology and water quality.

11 CH2M HILL. 2004. *Location Hydraulic Study, Glendale-Hyperion Viaduct Improvement Project*. April 2004.

2.8.3.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid potential releases of exposed soil from construction areas to the Los Angeles River and the resultant increases in turbidity, implementation of the Storm Water Pollution Prevention Plan (SWPPP) would include certain avoidance and minimization measures.

As part of the SWPPP, a runoff management plan and measures that would minimize the potential for sediments from entering the river from construction areas would be implemented. Such measures could include the use of water diversion, coffer dams, or other filters to keep sediments from entering the storm drains.

To avoid potential releases of concrete drippings to the Los Angeles River during widening of the Glendale Boulevard bridges over the river, the SWPPP would implement a management plan and measures that would minimize the potential for unset concrete to drip in to the Los Angeles River. Such measures could include the installation of secondary catch or containment systems.

To avoid potential releases of excavated soil to the Los Angeles River and the resultant increases in turbidity from construction of the pier extensions, the SWPPP would implement a spoils management plan with measures that would minimize the potential for excavated soil releases from pile drilling to the Los Angeles River. Such measures could include immediate containment of excavated soils by effective soil management methods.

To avoid potential release of contaminated groundwater into the Los Angeles River during construction of the piles for the pier extensions, the SWPPP would implement a groundwater management plan and measures that would minimize the potential for dewatered groundwater from pile construction to enter the Los Angeles River. Such measures could include concurrent withdrawal of groundwater within pile holes while the piles are being cast, or other equally effective method to manage displaced water from drilled pile holes (during pile casting).

In addition to the measures addressed in the SWPPP, a detention/infiltration basin would be established as part of the Sunnynook Park and a permanent water quality Best Management Practice (BMP) for purposes of runoff from the viaduct complex. This would utilize the construction staging area between I-5 and the Los Angeles River just northwest of the viaduct complex. Preparation of this facility would involve excavation of the ground, removal of several trees to construct the basin, and planting of new trees and ground cover after demobilization of contractor facilities. The basin would provide detention for reduction of peak runoff volume, infiltration for groundwater recharge and volume reduction and pre-treatment of stormwater prior to river discharge. The basin would be provided with metered drainage to prevent insect vector issues as well as provide for emergency overflow into the river as protection for adjacent transportation.

2.8.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts to hydrology, water quality, and stormwater runoff relative to existing conditions.

2.9 Hazardous Waste/Materials

This section evaluates potential effects of the proposed project-related to hazardous wastes and materials.

2.9.1 Regulatory Setting

Hazardous materials and hazardous waste 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. RCRA provides for "cradle to grave" regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts 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 Resource Conservation and Recovery Act of 1976, 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.

2.9.2 Affected Environment

The current adjoining properties and portions of the project site are comprised of transportation, residential, commercial, and industrial land uses.

Based on a review of historical aerial photographs, historical topographic maps, Sanborn maps, and city directories for the project site, the past uses of adjoining properties are generally consistent with current land uses. A records search of all reasonably ascertainable environmental databases including the standard state and federal sources in accordance with ASTM standard

practice was conducted (by Environmental Data Resources, Inc.) to identify potential sources of contamination that could affect the project, as indicated in the Supplement to *Initial Site Assessment Report for Glendale Hyperion Bridges and Street Improvement Project* (CH2M Hill, April 2012). The original Initial Site Assessment has since been updated for current conditions.

The database report identified six known sites of environmental significance within the ASTM search distance, but none within the project boundaries. The remaining sites were determined to have a low potential to impact the project site they had no reported impacts to groundwater, they received closure approval received from the lead regulatory agency, and/or they are located at relative distance from the project site.

- San Fernando Valley Area #2 and #4. These sites are listed on the National Priorities List (NPL). They are part of the large-scale contamination located in the San Fernando Valley. In 1986, four sites from the San Fernando Valley were included on the Superfund NPL based on drinking water well fields that were known to be contaminated by volatile organic compounds (VOCs). The Area #2 well field is located approximately 4 miles north of the Subject Property, and the Area #4 well field is located approximately 1 mile southeast of the Subject Property.

  Contamination in many of the areas of the four sites has migrated together as one large plume; therefore, both sites are being addressed here together. Groundwater at both of the sites is contaminated with tetrachloroethylene (PCE) and trichloroethylene (TCE). Plume maps indicate that there may be low levels of PCE in the shallow groundwater east of the project site. The groundwater contamination plume extends into the project area. Remedial investigations and feasibility studies were completed in 1992. Records of Decision (ROD) were issued in 1996. Remedial measures at the sites include pump-and-treat systems and well-head treatment. Another ROD was issued in 2009 to include treatment systems that would remove chromium and 1,4-dioxane, as well as enhance VOC recovery.[12]

- Los Feliz Fuel Stop, 3160 Riverside Drive (currently the Riverside Service Station). This site is located approximately 600 feet north of the Hyperion Avenue overcrossing of Riverside Drive. This site had an open leaking underground storage tank (UST) site on file with the LARWQCB. A diesel and gasoline fuel leak was discovered during a tank removal in 1994. Methyl-tert-butyl-ether (MTBE), and benzene, toluene, ethylbenzene, and xylene (BTEX) have been detected in soil and groundwater. BTEX and MTBE groundwater plumes migrated offsite 150 feet toward the east-southeast. Groundwater at the site is approximately 18 feet below ground surface (bgs). The site was closed in January 2009 because the extent of soil and groundwater contamination was defined; residual soil contamination was below screening levels; and groundwater modeling and other observations indicated that the plume is contained and would naturally attenuate.[13]

12 "Supplement to *Initial Site Assessment Report for Glendale-Hyperion Bridges and Street Improvement Project*, Los Angeles, California, dated June 2004, prepared by CH2MHILL, Santa Ana, California." Letter report from Dan Herlihy, UltraSystems Environmental, Inc., Irvine, California to Robert Sennett, MGE Engineering, Inc., Sacramento, California (April 11, 2012).

13 *Ibid.*

- Shell Service Station, 3047 Glendale Boulevard. This site is located on the northwest corner of Glenfeliz Boulevard and Glendale Boulevard adjacent to the project site. This site is listed (with the LARWQCB) as having had a leaking UST. The site was closed in July 1998. Both groundwater and soil were contaminated at the site. Contaminated soil was excavated from the site. Groundwater is approximately 20 to 30 feet bgs and flows to the south, toward the project site. Three monitoring wells were installed at the site.
- Unocal #5140, 3070 Glendale Boulevard. This site is located on the southwest corner of Glenhurst Avenue and Glendale Boulevard adjacent to the Subject Property. This site was listed (with the LARWQCB) as a leaking UST. This site was closed in March 1997. Two gasoline leaks were discovered in April and May 1994. Both soil and groundwater were impacted by the gasoline releases. Contaminated soil was excavated and removed, and a vacuum extraction system was installed and operated for 4 months. The site was closed in September 2010 because the extent of soil and groundwater contamination was defined; active soil and groundwater remediation has been completed; residual soil contamination would not cause harm to human health and the environment; and the nearest production well is 3,665 feet from the site.[14]
- Douglas Berglund/Former Texaco, 2900 Riverside Drive (currently the Valero station). This site is located approximately 700 feet from the south end of the northbound Glendale Bridge. This site was listed (with the LARWQCB) as a leaking UST. During tank closure, gasoline was observed at the water table, approximately 23 feet bgs. Remedial action was implemented. Groundwater flow is estimated to flow east-southeast (away from the project location). Vapor extraction, sparging and groundwater treatment were conducted in 2005. The site was closed in June 2006 after confirmation boring data indicated that petroleum hydrocarbon concentrations in soil and groundwater beneath the site were significantly reduced.[15]
- Triangle Texaco, 2918 Riverside Drive (currently the Valero station). This site is located approximately 700 feet from the south end of the northbound Glendale Bridge and is located in the same location as the Douglas Berglund site above. This site was listed as an open leaking UST site. A gasoline leak was discovered in a UST in 1996. Soil samples collected indicated soil contamination. No groundwater contamination at the site was reported. Vapor extraction, sparging and groundwater treatment were conducted in 2005. The site was closed in June 2006 after confirmation boring data indicated that petroleum hydrocarbon concentrations in soil and groundwater beneath the site were significantly reduced.[16]

Four of the above six sites have been identified as having the potential to impact the project site because of contaminated soil or groundwater at these sites. These sites are located adjacent to the project site and have had significant contamination. They include the San Fernando Valley NPL site, the Los Feliz Fuel Stop site, the Shell Service Station site, and the Unocal #5140 site. However, as noted above, the Los Feliz Fuel Stop site and the Unocal #5140 site are now

14 *Ibid.*

15 *Ibid.*

16 *Ibid.*

considered not to pose a threat of contamination. The remaining two sites described above have significant contamination but are unlikely to impact the Subject property. They are located south of the project boundaries, and groundwater contamination in this area tends to migrate east-southeast.

I-5 is located beneath a portion of the viaduct complex. The existing off-ramp from northbound I-5 that exits at Glendale Boulevard is located just south of the northbound Glendale Boulevard bridge. There is a landscaped area between I-5, Glendale Boulevard, and the off-ramp, and due to its proximity, this area could contain aerially deposited lead (ADL) from vehicular emissions when leaded gasoline was commonly used.

The viaduct complex contains multiple traffic lanes that are delineated with yellow striping. Prior to 1997, yellow traffic paint, yellow thermoplastic paint, or permanent tapes were known to contain lead chromate as the pigment. Because of this, the striping along Hyperion Avenue, Riverside Drive, and Glendale Boulevard may contain hazardous levels of lead and/or chromium that could affect both the environment and human health.

In some bridges, asbestos-containing materials (ACM) have been used in the joints as seals. A review of the as-built plans for the viaduct complex did not identify the presence of such material; however, its lack of identification in the as-built plans cannot guarantee that ACM is not present.

On some bridges, paint coatings contain lead-based paint (LBP). The existing covered rails are painted, and their removal could result in releases of LBP (if present) in the form of dust and debris. A review of the as-built plans for the viaduct complex did not identify if the coatings are lead-based.

2.9.3 Environmental Consequences

2.9.3.1 Temporary Impacts

Temporary impacts related to hazardous materials encountered during construction could occur if existing laws and regulations governing the identification and handling of such materials are not complied with.

Contaminated Soils and Groundwater

Due to the presence of potential sources of hydrocarbon contamination in groundwater near the project site (past leaks associated with nearby gas stations) and because the TCE and PCE groundwater contamination plume (San Fernando Valley NPL) has extended into the project area, there is a potential for excavations to encounter contaminated groundwater and soils during construction. Because the potential sources of contamination are not located immediately adjacent to the project site, any groundwater contamination that is encountered likely would have migrated to the project site.

The majority of excavations for the project would be relatively shallow for abutment strengthening work and are not expected to encounter groundwater. In addition, other seismic strengthening improvements and roadway improvements to the viaduct complex would not encounter groundwater. Construction of the project would however, require construction of foundations (including installation of piles) for pier and abutment extensions for the widening of the Glendale Boulevard bridges. The installation of piles in the bottom of the Los Angeles River would occur by casting in drilled holes. During the drilling process, contaminated groundwater could seep into the drilled holes, and when the piles are cast with concrete, the contaminated

groundwater would be displaced to the river channel as the concrete fills the bottom of the drilled hole. In addition, the excavated soils may be contaminated. The potential exposure to the contaminated groundwater and possibly contaminated soil by construction workers could pose some health hazards to the workers.

Aerially Deposited Lead (ADL)

Historically, lead-based additives in gasoline, emitted through automobile engine exhaust, have settled onto the adjacent road shoulders and medians. Because the landscaped area where the existing northbound off-ramp from I-5 to Glendale Boulevard would be reconfigured has been subjected to past aerial deposition of lead from vehicular emissions, ADL-containing soils may be encountered during the reconfiguration, which could pose safety hazards to workers or the public.

Lead Chromate Traffic Striping

Prior to 1997, yellow traffic paint, yellow thermoplastic paint, or permanent tapes were known to contain lead chromate as the pigment. These materials have the potential to contain hazardous levels of lead and/or hexavalent chromium that would affect both the environment and human health. The Project would require the removal of existing traffic striping and pavement markings along the viaduct complex. Traffic paint and markers are typically removed using sand blasting or air blasting equipment. Yellow traffic striping is present along the center of Hyperion Avenue along the viaduct complex and Glendale Boulevard (near the location of the new signalized intersection at the I-5 off-ramp). Because the existing yellow traffic paint on the project site may contain lead chromate pigments, and if removed by sand blasting, aerial dispersion of the material could occur; there is a potential for adverse health impacts to workers and the public.

Asbestos-Containing Materials (ACM)

As discussed above, there is the potential for ACM to be present in bridge joints. If present, ACM could be disturbed during demolition activities associated with the widening of the northbound and southbound Glendale Boulevard bridges (over the Los Angeles River), which could result in adverse impacts.

Lead-Based Paint (LBP)

As discussed above, portions of the viaduct complex that would be removed have been painted, such as the covered rails, and there is the potential that some layers are lead-based. If present, LBP could be disturbed during demolition activities associated with the removal of the existing rails along the viaduct complex, which could result in adverse impacts.

2.9.3.2 Permanent Impacts

Once roadway improvements are constructed, traffic operations on these roadways would not result in the generation of hazardous wastes that could impact the corridor. Likewise, motorists would not impact the existing sites in the vicinity of the roadways simply by driving through the area.

Occasional vehicular accidents could result in the release of hazardous waste or materials, such as fuels for motor vehicles or hazardous material cargo. The potential for such releases is not considered substantial, as all hazardous materials must be properly manifested, packaged, labeled, and transported in accordance with federal regulations (49 CFR 170-179). Compliance with other federal, state, and local laws and regulations (e.g., driver training and licensing and USDOT packaging requirements) would further serve to limit potential hazardous materials

releases. In addition, releases would be expected to be cleaned up as part of the established emergency response to each vehicle crash and would not constitute adverse impacts.

Furthermore, the center median barrier, realigned I-5 off-ramp, and wider Glendale Boulevard bridges are expected to decrease the potential for vehicular accidents along the viaduct complex.

2.9.3.3 Cumulative Impacts

Although the proposed project could result in adverse impacts from encountering contaminated groundwater or soil, from the removal of lead chromate based traffic paint, from handling ADL-affected soils, and from encountering ACM or LBP during demolition/construction, these impacts would be avoided or mitigated, as described below. Since no other projects are known that could result in additive hazardous material impacts, no adverse cumulative impacts related to hazardous wastes/materials are anticipated to occur under the proposed project.

2.9.3.4 Avoidance, Minimization, and/or Mitigation Measures

Existing federal and state laws and regulations provide stringent control over hazardous waste management, as well as prevention and response to spills and releases. Construction of the proposed project or any alternative would be required to comply with all existing hazardous waste laws and regulations. To ensure that the potential to encounter contaminated groundwater or soil are planned for, the following avoidance measures would be implemented in compliance with laws and regulations.

HZ-1: Contaminated Ground Water. Conduct groundwater sampling and testing during the design phase to determine the level of groundwater contamination and the depths. Require the selected contractor to prepare and implement a management plan in the event that hazardous wastes, petroleum hydrocarbons, or contaminated groundwater are encountered during construction. Implementation could require the contractor to utilize a photo-ionization detector (PID) or other organic vapor detector during all pile drilling/boring activities and to employ appropriate worker protection measures should detected levels exceed Cal-OSHA standards. Groundwater that seeps into the drilled hole for pile installations would be pumped out of the pile hole as or before it is filled with concrete. The contaminated water would be temporarily stored, and the water removed (vacuum truck) or treated and discharged under permit from the City or LARWQCB, depending on the discharge outlet. All contaminated groundwater, contaminated soil, and hazardous wastes and debris encountered or generated during construction would be properly excavated, stored, tested, treated and/or disposed in accordance with all federal, state, and local laws and regulations.

HZ-2: Lead Chromate Traffic Paint. Perform representative sampling and testing of yellow traffic paint along the viaduct complex (during the project design phase or prior to construction) that could be affected by construction. If lead, lead chromate, or other hazardous materials in the paint exceed standards, abate the traffic paint (prohibit its removal by sand-blasting or grinding methods) and properly dispose of the material prior to construction.

The measure below would be required to avoid or minimize potential hazardous waste impacts related to encountering ADL in the landscaped area where the off-ramp from northbound I-5 to Glendale Boulevard would be reconfigured.

HZ-3: Aerially Deposited Lead. During design of the northbound I-5 off-ramp reconfiguration to Glendale Boulevard, perform representative sampling and testing of the area ramp alignment area for the presence of ADL. If ADL is present above action levels, abate the ADL-contaminated soil, in accordance with all applicable laws and regulations, prior to construction of the reconfigured ramp. A Health and Safety Plan by Contractor would be required pursuant to Contract General Conditions/General requirements (GC/GR).

The measure below would be required to avoid disturbing ACM if present in the bridge joints and/or LBP (if present) that could be affected by demolition/construction activity.

HZ-4: Asbestos-Containing Materials or Lead-Based Paint. Perform a survey (during the design phase or prior to construction) of the bridge joints that could be disturbed from demolition or construction activity to determine if they contain asbestos. In addition, conduct a survey for the presence of LBP in areas of the viaduct complex to be removed or physically affected. If present, remove the ACM and/or LBP prior to or as part of the demolition process, in accordance with all applicable laws, regulations, and rules. A Health and Safety Plan by Contractor would be required pursuant to GC/GR requirements.

2.9.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts related to hazardous waste/material relative to existing conditions.

2.10 Air Quality

This section addresses the potential impacts to air quality associated with the implementation of the proposed project.

2.10.1 Regulatory Setting

The Federal Clean Air Act (FCAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), 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 transportation-related 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 matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM_{10} and particles of 2.5 micrometers and smaller – $PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. These standards can be found in Table 2.10-1. 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 the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (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 State Implementation Plan (SIP) for achieving the goals of Clean Air Act requirements related to the NAAQS. "Transportation Conformity" 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. U.S. 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 carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb). However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. 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 or not the implementation of those projects would conform to emission budgets or other tests showing that

requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), such as the Southern California Association of Governments (SCAG); Federal Highway Administration (FHWA); and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. 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 carbon monoxide (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is "nonattainment" if one or more of the monitoring stations in the region measures violation of the relevant standard and U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter 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 particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Table 2.10-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
			Primary[3]	Secondary[4]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	– [5]	Same as Primary Standard
	8-Hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon Monoxide (CO)	1-Hour	20 ppm (23,000 µg/m^3)	35 ppm (40,000 µg/m^3)	–
	8-Hour	9.0 ppm[6] (10,000 µg/m^3)	9 ppm (10,000 µg/m^3)	–
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm (338 µg/m^3)	0.100 ppm [9] (188 µg/m^3)	–
	Annual Arithmetic Mean	0.03 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
Sulfur Dioxide (SO_2)	1-Hour	0.25 ppm (655 µg/m^3)	0.075 ppm[7] (196 µg/m^3)	–
	3-Hour	–	–	0.5 ppm (1,300 µg/m^3)
	24-Hour	0.04 ppm (105 µg/m^3)	– [8]	–

Table 2.10-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
			Primary[3]	Secondary[4]
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	–	
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	–	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3	15 µg/m^3
Sulfates	24-Hour	25 µg/m^3	–	–
Lead (Pb)	30-Day Average	1.5 µg/m^3	–	–
	Rolling 3-Month Average	–	0.15 µg/m^3	Same as Primary Standard
Hydrogen Sulfide (H_2S)	1-Hour	0.03 ppm (42 µg/m^3)	–	–
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	–	–
Visibility Reducing Particles	8-Hour (10 A.M. to 6 P.M., PST)	See Footnote[10]	–	–

[1]California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

[2]National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic means) 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 µg/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. For NO_2, the 1-hour standard is attained when the 3-year average of the 98th percentile of the daily maximum 1-hr average at each monitor within an area does not exceed 0.1 ppm. For SO_2, the 1-hour standard is attained when the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area does not exceed 0.075 ppm.

[3]National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[4]National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5]The federal 1-hour ozone standard was revoked by USEPA in June 2005.

[6] Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.

[7] EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of September 2012.

[8]On June 2, 2010, the USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The USEPA also revoked both the existing 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm, effective August 23, 2010.

[9]Final 1-hour NO_2 NAAQS published in the Federal Register on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

[10]Visibility of 10 miles or more at relative humidity is less than 70 percent. In 1989, the ARB converted the general statewide 10-mile visibility standard to an instrumental equivalent, which is "extinction of 0.23 per kilometer."

ppm = parts per million; µg/m^3 = micrograms per cubic meter

Source: U.S. Environmental Protection Agency (2011); California Air Resources Board (2013).

2.10.2 Affected Environment

The Project site is located in the greater Los Angeles area within the South Coast Air Basin (SCAB). The SCAB encompasses all or portions of Los Angeles, Orange, San Bernardino, and Riverside Counties. The SCAB is bordered by the Pacific Ocean to the southwest and coastal mountains to the north and east. The following air quality sections were written with reference to the *Air Quality Technical Study Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project* (July 2012).

2.10.2.1 Climate and Meteorology

An important consideration in any atmospheric analysis is the local climate of the area under study. The following sections discuss the climatology and meteorology of the Southern California area to assist in understanding the conditions that may be favorable or unfavorable to the dispersion of pollutants emitted in association with this project.

Warm dry summers, low precipitation, and mild winters characterize the overall climate within the SCAB. The combination of topography, summer sunshine, temperate winters, infrequent rainfall, light winds, and moderate humidity, contribute to the SCAB's air pollution conditions. The region experiences frequent temperature inversions where air temperatures that normally decrease with height instead increase with increasing altitude. Temperature inversions, prevent air close to the ground surface from mixing with the air aloft. The resulting condition traps air pollution near the ground. The condition is exacerbated during the summer due to the interaction between the ocean surface and lower layer atmosphere, creating a moist marine layer, preventing pollutants from mixing and dispersing upwards.

Particulate matter with diameters less than 10 micrometers and 2.5 micrometers (PM_{10} and $PM_{2.5}$, respectively) cause considerable inhalation health concerns throughout the year. The dry and moderately windy summers create windblown particulate matter. During the winter months, overcast skies and marine layers help to trap PM_{10} and $PM_{2.5}$, which contributes to keeping particulate matter levels elevated in the SCAB.

Photochemical smog results from a chemical reaction in the air between hydrocarbons and nitrogen dioxide (NO_2) under strong sunlight to form ozone (O_3). Thus, the worst smog conditions occur during the summer. Light westerly daytime summer winds that drive air pollution inland toward the mountains further influence local smog concentrations in the SCAB.

During the fall and winter seasons, the air pollutants of principal concern are carbon monoxide (CO) and NO_2. High NO_2 levels typically occur during autumn and winter on days having summer-like conditions. CO concentrations are highly localized and, because most CO emissions are from motor vehicles, the highest CO concentrations are associated with heavy traffic.

The South Coast Air Quality Management District (SCAQMD) maintains monitoring stations throughout the SCAB to observe progress toward attainment of air quality standards. The monitoring station representative of the project site is the Burbank West Palm Avenue Station located at 228 West Palm Avenue in Burbank. Table 2.10-2 shows a five-year summary (2006 through 2010) of data collected at this station for nonattainment air pollutants (CARB, 2011a).

Table 2.10-2: Summary of Ambient Monitoring Levels at the Burbank West Palm Avenue Station

Pollutant	Standard/Exceedance	2006	2007	2008	2009	2010
CO (ppm)	Year Coverage (%)	99	97	97	97	40
	Max. 1-hour Concentration (ppm)	4	4	3	3	ND
	Max. 8-hour Concentration (ppm)	3.38	2.78	2.48	2.89	2.33
	# Days>Federal 1-hour Std. of >35 ppm	0	0	0	0	0
	# Days>Federal 8-hour Std. of >9 ppm	0	0	0	0	0
	# Days>California 8-hour Std. of >9.0 ppm	0	0	0	0	0
O_3 (ppm)	Year Coverage (%)	99	97	98	97	89
	Max. 1-hour Concentration (ppm)	0.166	0.116	0.133	0.145	0.111
	Max. 8-hour Concentration (ppm)	0.129	0.097	0.110	0.097	0.084
	# Days>Federal 8-hour Std. of >0.075 ppm	22	13	17	14	4
	# Days>California 1-hour Std. of >0.09 ppm	25	13	20	16	3
	# Days>California 8-hour Std. of >0.07 ppm	34	19	34	28	8
NO_2 (ppm)	Year Coverage (%)	100	96	97	85	51
	Max. 1-hour Concentration (ppm)	0.103	0.087	0.105	0.088	0.082
	Annual Average (ppm)	0.027	0.029	0.029	0.027	ND
	# Days>California 1-hour Std. of >0.18 ppm	0	0	0	0	0
SO_2 (µg/m^3)	Year Coverage (%)	96	98	97	49	39
	Max. 24-hour Concentration (ppm)	0.004	0.003	0.003	0.003	0.003
	Annual Average (ppm)	0.000	0.001	0.000	ND	ND
	# Days>California 24-hour Std. of >0.04 ppm	0	0	0	0	0
PM_{10} (µg/m^3)	Year Coverage (%)	88	44	86	97	95
	Max. 24-hour Concentration (µg/m3)	71.0	109.0	66.0	80.0	51.0
	#Days>Fed. 24-hour Std. of >150 µg/m3	ND	ND	0.0	0.0	ND
	#Days>California 24-hour Std. of>50 µg/m3	ND	ND	ND	60.9	ND
	Annual Average (µg/m3)	31.7	24.0	35.6	39.2	27.5
$PM_{2.5}$ (µg/m^3)	Year Coverage (%)	86	80	95	100	100
	Max. 24-hour Concentration (µg/m3)	50.7	56.5	68.9	67.5	43.7
	State Annual Average (µg/m3)	ND	ND	13.9	14.3	12.4

#Days>Fed. 24-hour Std. of >35 µg/m3	22.1	ND	6.1	11.8	4.0
Annual Average (µg/m3)	16.5	16.9	13.9	15.3	12.8

Notes:
Hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored in the SCAB.
ND = No Data, or not enough data.

Sources:
http://www.aqmd.gov/smog/historicaldata.htm
http://www.arb.ca.gov/adam/

2.10.2.2 Attainment Status and State Implementation Plans

As mentioned in Section 2.10.1, the greater Los Angeles area within the South Coast Air Basin (SCAB) is in federal attainment or maintenance for CO, NO_2, and SO_2. Table 2.10-3 summarizes both the current Federal and State attainment status for the greater Los Angeles area within the SCAB.

Table 2.10-3: Federal and State Attainment Status for the South Coast Air Basin

Pollutant	Federal Classification	State Classification
Ozone (O_3)	Non-Attainment (Extreme)	Non-Attainment
Particulate Matter (PM_{10})	Non-Attainment (Serious)	Non-Attainment
Fine Particulate Matter ($PM_{2.5}$)	Non-Attainment	Non-Attainment
Carbon Monoxide (CO)	Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Maintenance	Non-Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)[1]	Non-Attainment	Non-Attainment

[1]For the Los Angeles County portion of the SCAB.

Sources: U.S. Environmental Protection Agency, "California 8-Hour Ozone Nonattainment Areas (1997 Standard)." Green Book. Internet URL: www.epa.gov/air/oaqps/greenbook/ca8.html. Updated December 2010. Last accessed: March 8, 2011; U.S. Environmental Protection Agency, "Particulate Matter (PM-10) Nonattainment State/Area/County Report As of December 17, 2010." Green Book. Internet URL: http://www.epa.gov/air/oaqps/greenbook/pncs.html#CALIFORNIA. Last accessed: March 8, 2011; U.S. Environmental Protection Agency, "Particulate Matter (PM-2.5) 2006 Standard Nonattainment State/Area/County Report as of December 17, 2010." Green Book. Internet URL: http://www.epa.gov/air/oaqps/greenbook/rncs.html#CALIFORNIA. Last accessed: March 8, 2010; California Air Resources Board, "Area Designations Maps/State and National." Internet URL: www.arb.ca.gov/desig/adm/adm.htm. Last accessed March 8, 2011.

The South Coast Air Quality Management District (SCAQMD) is presently guided by the following portions of the California State Implementation Plan (SIP) for nonattainment or maintenance criteria pollutants:

- 2007 Ozone SIP
- 2003 PM_{10} SIP
- 2007 $PM_{2.5}$ SIP
- 2005 CO SIP (Maintenance Plan)
- 2007 NO_2 SIP (Maintenance Plan)

The most recently approved Air Quality Management Plan (AQMP) was adopted by the SCAQMD Governing Board on June 1, 2007 and revised in October 2007. The 2007 AQMP projects attainment of the federal 8-hour O_3 and 24-hour $PM_{2.5}$ standards by 2023 and 2014, respectively. However, to meet those targets, it is necessary to supplement the identified control measures with undefined long-term ("black box") measures that will reduce emissions by approximately 27 tons per day of VOC and 190 tons per day of NO_x (SCAQMD, 2007a). Given the uncertainty in its ability to find effective black box measures, the SCAQMD Board asked CARB to request of USEPA that the federal 8-hour ozone classification be changed to "extreme," which would modify the attainment deadline to June 15, 2024 (SCAQMD, 2007b). When CARB submitted the October 2007 version of the AQMP to USEPA as a SIP revision, it concurred with the SCAQMD's request for reclassification of the 8-hour ozone status from severe 17 to extreme (CARB, 2007). On May 5, 2010, USEPA granted the request (Federal Register, 2010).

2.10.3 Environmental Consequences

The proposed project is a non-capacity enhancing project that would not increase the number of traffic lanes; rather, it would provide safety improvements to motorists and pedestrians that use the viaduct complex, seismic improvements to increase the reliability of viaduct complex to withstand earthquakes, slightly wider Glendale Boulevard bridges over the Los Angeles River to provide shoulders and standard traffic lane widths, reconfiguration and signalization of the northbound I-5 off-ramp to Glendale Boulevard to improve site distance and allow left-turns on to southbound Glendale Boulevard, a new access point to the Los Angeles River bike path, and replacement balustrades that replicate the original balustrade design on the complex. The following sections describe regional conformity, project level conformity, and other air quality impacts.

2.10.3.1 Temporary Impacts

2.10.3.1.1 Issues to Consider

Construction Impacts

Short-term increases in air pollutants would result from construction activities associated with the project. Equipment would be used during site preparation; removal of the rails along the viaduct complex; and excavation, demolition, and paving involved with the construction of substructure and superstructure improvements. These construction activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of pollutants, namely NO_X, CO, PM_{10}, $PM_{2.5}$, SO_X, and VOC. Fugitive dust (PM_{10}) would be generated during excavation and other construction activities as well. Additionally, construction of the proposed project would be phased to keep the viaduct complex open to traffic.

Because of the need to keep Hyperion Avenue, Glendale Boulevard (both northbound and southbound), and Riverside Drive operational during construction (refer to Section 2.4), construction would be phased over the entire construction duration (30 months). However, to keep the overall construction duration within reasonable limits, concurrent construction of specific phases would be necessary. From an air quality standpoint, the worst-case construction scenario would include the following phases:

- Pedestrian Bridge (see Section 2.4) and Off-ramp Realignment

- Hyperion Avenue retrofit and substructure retrofit,
- Glendale Boulevard excavation for widening

Although the contractor would have discretion in scheduling all phases of the project to meet the construction schedule, these concurrent activities are assumed because they represent the most intensive phases of work and the maximum overlap under worst-case conditions. Emissions associated with these construction phases were estimated using projected construction activities, estimated hours of equipment operations, and estimated load factors of equipment for each activity. Specific construction information consisted of the following:

- Number of pieces and types of construction equipment
- Equipment load factors (percent of operations under load conditions)
- Equipment usage factors (amount of time the equipment is used during the day)
- Number of daily construction workers onsite during a typical peak construction day
- Total volume of excavated material
- Construction start date: June 2014
- Construction end date: December 2016
- Construction duration: 2.5 years (30 months)

The construction emission calculations followed the general procedures in the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993) and incorporated the emission factors from OFFROAD2007 for the construction equipment, EMFAC2007 for the vehicles, and CalEEMod (Version 2011.1) for fugitive dust.

Table 2.10-4 provides a summary of maximum daily emissions by source for project-related construction activities. These values represent the maximum daily emissions calculated for each source, and include the installation of a steel-construction pedestrian bridge (see Section 2.4) as a mitigation measure to accommodate the community's desire to maintain pedestrian access across the Los Angeles River during construction. Table 2.10-4 also identifies the maximum daily emissions when maximum overlap would occur. It should be noted that the maximum daily emissions would not be sustained over the entire construction duration; rather, they would exist only when construction phase overlap peaks. The maximum combined daily emissions from all sources for the project-related construction activities and applicable SCAQMD significance thresholds (SCAQMD, 1993) are also provided.

Table 2.10-4: Maximum Daily Construction Emissions

	Pounds/ Day					
	CO	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**VOC**
Daily Maximum (lb/day)[a]	39	65	0.1	11	5	18
SCAQMD Mass Daily Thresholds (lb/day)	550	100	150	150	55	75
Impact?	No	No	No	No	No	No

Source: UltraSystems Environmental, 2011.

[a] Bolded values indicate exceedance of the SCAQMD thresholds.
ROG = reactive organic gases

The major sources contributing to the NO_X emissions would be construction equipment exhaust and, to a lesser extent, offsite construction-related vehicle exhaust. Although the maximum daily NO_X emissions come close to the SCAQMD threshold, it is unlikely that the NO_X emissions will exceed the daily threshold because the construction analysis is considered conservative.

As shown in Table 2.10-4, none of the criteria pollutant emissions are predicted to exceed daily significance thresholds for construction of the Glendale-Hyperion Viaduct Complex improvements; thus the construction emissions impacts would be less than significant and no avoidance, minimization or mitigation measures are required during construction.

Comparison to Localized Significance Thresholds

In addition to the regional significance thresholds discussed above, the SCAQMD has developed localized significance thresholds (LSTs) for use in CEQA air quality impacts assessments. For project sites that are 5 acres or less, the SCAQMD-developed LSTs can be used to determine whether a project would generate significant localized air quality impacts (SCAQMD, 2008) in lieu of conducting a dispersion modeling analysis. As shown in Table 2.10-5, none of the construction criteria pollutant emissions are predicted to exceed the localized significance thresholds. Therefore, localized impacts from criteria pollutant emissions would result in a less than significant impact to air quality.

Table 2.10-5: Maximum Daily Construction Emissions Comparison to LSTs

	CO	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**
Daily Maximum (lb/day)[a]	36	65	0	5	3	0
SCAQMD Localized Thresholds (lb/day)	1695	123	NA	36	11	NA
Impact?	No	No	NA	No	No	NA

Source: UltraSystems, 2011

[a]Bold values indicate exceedance of the SCAQMD thresholds.
NA = Not applicable, LST has not been established.

Approximately 44 percent of the PM_{10} and $PM_{2.5}$ emissions result from fugitive dust. Project construction activities will be required to comply with fugitive dust control measures listed in

SCAQMD Rule 403 (Fugitive Dust). However, as Tables 2.10-3 and 2.10-4 indicate, even without Rule 403, the emissions from PM_{10} and $PM_{2.5}$ are less than the SCAQMD thresholds. Therefore, localized air quality impacts from PM_{10} and $PM_{2.5}$ emissions are expected to be to less than significant without Rule 403.

Other Pollutants

Another pollutant of potential concern in assessing localized air quality impacts associated with construction activities is naturally occurring asbestos. Asbestos is a toxic air contaminant that is regulated under the Asbestos Airborne Toxic Control Measure (AATCM), which was adopted by the California Air Resources Board (CARB) in 1990 and amended in 2000. The AATCM states that allowable asbestos content in surfacing materials must be less than 0.25 percent, effective spring 2001. In addition to surfacing materials, asbestos may occur naturally in serpentinite and ultramafic rock and can be released when the rock is broken or crushed.

According to the Department of Conservation, Division of Mines and Geology, the project is in a county that contains serpentinite or ultramafic rock (Department of Conservation, 2000). However, any serpentinite or ultramafic rock found in Los Angeles County is restricted to the Catalina Islands. The surficial geology of the Los Angeles area is composed of quaternary alluvial material that consists of sands, gravels, silts, and clays but not ultramafic or serpentinite material. Therefore, fugitive asbestos from naturally occurring materials would not be emitted in significant quantities during construction or operation of the Glendale-Hyperion Viaduct Complex. Surfacing materials would also not contain more than 0.25 percent asbestos; therefore, the proposed project would not cause a significant impact on air quality from emissions of asbestos.

2.10.3.2 Permanent Impacts

2.10.3.2.1 Regional Conformity

Federally funded or approved transportation projects, in general, are subject to the transportation conformity requirements of the federal Clean Air Act (CAA) and to evaluation under the National Environmental Policy Act (NEPA). Transportation conformity requires two conformity determinations (i) regional conformity determination and (ii) project level conformity determination in nonattainment and maintenance areas for CO, PM_{10}, and $PM_{2.5}$.

This project is exempt from regional conformity requirements because it is exempt under 40 CFR §93.127 from regional emissions analysis as it would be classified as an intersection signalization project. Separate listing of the project in the Regional Transportation Plan and Transportation Improvement Program, and their regional conformity analyses, is not necessary, although the project is listed in the 2011 FTIP. (See below.) The project will not interfere with timely implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis.

2.10.3.2.2 Project Level Conformity

The proposed project is included in the 2011 FTIP under Project IDs LA0F007, LA0F008, and LA0F009. Because the proposed project would not increase traffic throughput or increase the capacity of the viaduct complex (see Table 2.10-6 and Table 2.10-7), no increases in criteria pollutants would result that could cause adverse impacts to air quality. Furthermore, operation of

the proposed project would not result in an incremental increase of criteria pollutants relative to the No Project alternative.

The reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard would allow exiting motorists the option of making a left-turn on to southbound Glendale Boulevard, which would eliminate the current approximately 0.5-mile movement whereby motorists exiting the northbound off-ramp have to make a right turn onto northbound Glendale Boulevard, weave to the far left lane of Glendale Boulevard and make a U-turn at Glenfeliz Boulevard to southbound Glendale Boulevard. The reconfigured off-ramp would therefore result in a reduction in total vehicle miles traveled (VMT) and a corresponding reduction in related vehicle emissions, including greenhouse gases. (See Table 2.10-8.)

The reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard would require replacement of the current stop-controlled approach intersection with a new signalized intersection. Without the signalization, the intersection would operate at a Level of Service (LOS) D; however, with the new signalization, the intersection would operate at a (LOS) B in the evaluation year 2036. Carbon monoxide and particulate matter hotspots are a concern when intersections operate at unacceptable levels of service, generally LOS E or F. Because the new signalized intersection at the reconfigured northbound I-5 off-ramp to Glendale Boulevard would operate at a free flowing level (LOS B), no CO or particulate matter hotspots are expected to occur from project operation. (See Table 2.10-9.) Similarly, this new intersection is not expected to result in PM_{10} or $PM_{2.5}$ hotspots because it would operate at LOS B in the future. The following discussions present the documentation for project level conformity for CO and PM hotspots.

Table 2.10-6: Peak Hour Traffic Volume – Build Alternative

Location	Existing (2011)			Opening Year (2016)			RTP Horizon Year (2036)		
	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)
I-5 Mainline	14.1/15.1	240.7	No Data	14.8/15.8	253	No Data	23.2/23.2	328.8	No Data
I-5 NB Off-Ramp	0.5/0.7	7.4	0.1	0.6/0.8	7.8	0.2	0.7/0.9	9.5	0.2
I-5 NB On-Ramp	0.3/0.3	4.1	0.1	0.4/0.3	4.3	0.1	0.4/0.4	5.2	0.1
Glendale Boulevard, NB	0.3/0.5	5.9	0.1	0.3/0.5	6.2	0.1	0.4/0.6	7.6	0.2
Glendale Boulevard, SB	0.7/0.7	8	0.2	0.7/0.7	8.4	0.2	1/1	10.3	0.2
Hyperion Avenue, NB	0.8/1.3	14.1	0.3	0.8/1.4	14.9	0.3	1/1.7	18.1	0.4
Hyperion Avenue, SB	1.3/1.1	13.9	0.3	1.4/1.1	14.6	0.3	1.7/1.4	17.8	0.4

Source: MGE Engineering, Inc., 2012, Email communication from Jeff Crovitz, MGE Engineering, Inc. and Benjamin Wong, UltraSystems Environmental, Inc. (November 16, and 18, 2011), and UltraSystems Environmental, Inc.

Note: Opening Year volumes were based on a conservative increase of 1% per year.

Table 2.10-7: Peak Hour Traffic Volume – No Build Alternative

Location	Existing (2011)			Opening Year (2016)			RTP Horizon Year (2036)		
	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)	A.M./P.M. (1,000's)	ADT (1,000's)	Truck ADT (1,000's)
I-5 Mainline	14.1/15.1	240.7	No Data	14.8/15.8	253	No Data	23.2/23.2	328.8	No Data
I-5 NB Off-Ramp	0.5/0.7	7.4	0.1	0.6/0.8	7.8	0.2	0.7/0.9	9.5	0.2
I-5 NB On-Ramp	0.3/0.3	4.1	0.1	0.4/0.3	4.3	0.1	0.4/0.4	5.2	0.1
Glendale Boulevard, NB	0.3/0.5	5.9	0.1	0.3/0.5	6.2	0.1	0.4/0.6	7.6	0.2
Glendale Boulevard, SB	0.7/0.7	8	0.2	0.7/0.7	8.4	0.2	1/1	10.3	0.2
Hyperion Avenue, NB	0.8/1.3	14.1	0.3	0.8/1.4	14.9	0.3	1/1.7	18.1	0.4
Hyperion Avenue, SB	1.3/1.1	13.9	0.3	1.4/1.1	14.6	0.3	1.7/1.4	17.8	0.4

Source: MGE Engineering, Inc., 2012, Email communication from Jeff Crovitz, MGE Engineering, Inc. and Benjamin Wong, UltraSystems Environmental, Inc. (November 16, and 18, 2011), and UltraSystems Environmental, Inc.

Note: Opening Year volumes were based on a conservative increase of 1% per year.

Table 2.10-8: Daily Peak Hour VMT and Emissions Reduction (U-turn Versus Left-turn) From Northbound I-5 Off-ramp Signalization

		Emissions (lb/day)						
	Total VMT	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO_2**
Off-ramp Opening Year 2015								
U-turn	83	0.47	0.12	0.00	0.01	0.01	0.05	84.39
Left-turn	4	0.02	0.01	0.00	0.00	0.00	0.00	4.08
Reduced	79	0.45	0.11	0.00	0.01	0.00	0.05	80.30
RTP Horizon Year 2036								
U-turn	102	0.24	0.07	0.00	0.01	0.01	0.03	87.86
Left-turn	5	0.01	0.00	0.00	0.00	0.00	0.00	4.25
Reduced	97	0.23	0.06	0.00	0.01	0.01	0.03	83.61

Source: Email communication from Jeff Crovitz, MGE Engineering, Inc. and Benjamin Wong, UltraSystems Environmental, Inc. (October 20, 2011), EMFAC2011-SG, and UltraSystems Environmental, Inc.

Note:
Estimations based on left-turn peak hour (P.M.) volume traffic counts
Intersection signalization will be constructed first and is expected to open in 2015

Table 2.10-9: Level of Service (LOS) at I-5 NB Off-ramp – Build Versus No-Build Alternative (RTP Horizon Year: 2036)

Alternative	**A.M. Peak Hour**	**P.M. Peak Hour**
Existing, Unsignalized (2011)	B	C
Build, Signalized (2036) [1 Left Turn + 1 Right Turn]	B	C
Build, Signalized (2036) [1 Shared Left/Right + 1 Right Turn]	A	B
No-Build, Unsignalized (2036)	B	D

Source: MGE Engineering, Inc., 2012

CO Hotspots

The USEPA redesignated the SCAB as attaining the federal CO standards effective June 11, 2007. Under Section 175A of the Clean Air Act, however, this means that the SCAB is a maintenance area for CO. According to the Transportation Conformity Regulation (40 CFR Part 93 Subpart A), maintenance areas must demonstrate project level conformity for CO. Project level conformity for CO is demonstrated by evaluating the potential for a project to create CO hot spots.

Localized CO impacts resulting from the proposed project were evaluated following the California Department of Transportation (Department) guidance document, Transportation Project Level Carbon Monoxide Protocol (CO Protocol) (UCDITS 1997). The CO Protocol includes two conformity requirement decision flow charts: Figure 1, Requirements for New

Projects, and Figure 3, Local CO Analysis. The following discussion presents the questions from the flow charts and answers for the proposed project.

Responses to Questions from Requirements for New Projects

3.1.1 Is the project exempt from all emissions analyses?

No. The proposed project is not included in the list of projects exempt in Table 1 of the CO Protocol.

3.1.2 Is the project exempt from regional emissions analysis?

Yes. The project is included in the list of projects exempt from regional emissions analysis in Table 2 of the CO Protocol (Intersection signalization projects at individual intersections).

3.1.9 Examine local impacts. (Proceed to Section 4 of the CO Protocol which includes Figure 3.)

According to the Protocol, the determination of project-level CO impacts should be carried out following the Local Analysis flowchart shown in Figure 3 of the protocol. The responses for the questions in Figure 3 of the CO Protocol follow.

Responses to Questions from Local CO Analysis of the CO Protocol

Level 1: Is the project in a CO nonattainment area?

No. The Project site is located in a state CO attainment area (CARB, 2011b) and in a federal CO maintenance area effective September 27, 2010 (EPA, 2011).

Level 1: Was the area redesignated as "attainment" after the 1990 Clean Air Act?

Yes. The area was redesignated "attainment" effective June 11, 2007 for state area designations, but has since been designated as a maintenance area effective September 27, 2010 for national area designations.

Level 1: Has "continued attainment" been verified with the local air district, if appropriate?

Yes. A CO maintenance plan was approved by USEPA for the project area on May 11, 2007 (Proceed to Level 7).

Level 7: Does the project worsen air quality?

No. The CO Protocol lists three criteria to determine whether a project would worsen air quality:

a. Would the project increase the percentage of vehicles operating in cold start mode?

No. A cold start occurs when a vehicle is shut-off, and subsequently started any time after the shut-off. Because this Project involves widening and improvements to a roadway, where vehicles may idle, but will seldom shut-off, this Project is not anticipated to increase the percentage of vehicles operating in cold start mode.

b. Would the project increase traffic volumes greater than 5 percent?

No. Table 2.10-6 and Table 2.10-7 show that there is no increase in traffic volume between the build alternative and no-build alternative.

c. Would the project worsen traffic flow?

No. Table 2.10-9 shows that the Level of Service (LOS) at the proposed signalized intersection would improve compared to the unsignalized or no-build alternative.

In addition to the answers to 4.7.1, Table 2.10-8 shows how emissions, including CO, will be reduced by realigning and signalizing the intersection of the northbound I-5 off-ramp with Glendale Boulevard versus the no-build alternative. Because the project would not increase traffic volumes (see Table 2.10-6 and Table 2.10-7) and would improve traffic flow, the project would not worsen air quality. Therefore, according to the guidance in the CO Protocol, the analysis is complete; and the project does not need further analysis. The project would not be expected to create a CO hot spot; therefore, the project has demonstrated project-level conformity for CO.

PM Hotspots

At the project level, PM_{10} and $PM_{2.5}$ must be evaluated because the proposed project is located in a federal nonattainment area for both pollutants. Although this site is also located in a state nonattainment area for PM_{10} and $PM_{2.5}$, a guidance document for quantitative assessment of the contribution of individual traffic projects to local violations of the state 24-hour standards does not exist at this time, nor is a local PM_{10} and $PM_{2.5}$ analysis required at the state level to show project level conformity.

On March 10, 2006, the USEPA published a final rule that established transportation conformity criteria and procedures for determining which projects must be analyzed for local impacts in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas. The PM guide was developed to help agencies satisfy the requirements of this rule. Following the PM guide, if a project is found not to be a "project of air quality concern (POAQC)," a qualitative $PM_{2.5}/PM_{10}$ analysis is not required. Additionally, a quantitative PM hot-spot analysis is only required if the project is of "local air quality concern" (USEPA, 2010).

Based on 40 CFR 93.123(b)(1), the project would likely be found not to be of local air quality concern; however, an interagency consultation process through SCAG determines whether a project requires a qualitative or quantitative analysis. For projects in SCAG, this consultation process involves submitting a completed "PM Conformity Hot Spot Analysis Project Summary Form for Interagency Consultation" to the SCAG Transportation Conformity Working Group (TCWG) monthly meeting.

The proposed project was presented during the January 24, 2012, SCAG TCWG meeting for consideration. At this meeting, the SCAG TCWG concurred the proposed project would not be a POAQC. Additional discussion can be found in the *Air Quality Technical Study Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project* (December 2011).

2.10.3.2.3 Other Issues to Consider

Mobile Source Air Toxics

As part of the NEPA process for highway projects, an analysis of mobile source air toxics (MSATs) must be considered.

In the USEPA final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235), a group of 21 toxics was identified as mobile source air toxics (FHWA, 2009). USEPA further identified the following subgroup of toxics as priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene (FHWA, 2009). These compounds were selected because motor vehicles are significant contributors to the emissions of these pollutants (66 FR 17235).

According to the Federal Highway Administration (FHWA) *Interim Guidance on Air Toxics Analysis in NEPA Documents*, projects with no meaningful MSAT impacts do not require an MSAT analysis (FHWA, 2009). The proposed project would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that could cause an increase in emissions impacts relative to the no-build alternative. (See Tables 2.10-4 and 2.10-5). Therefore, the project would have minimal air quality impacts from criteria pollutants and is not linked with any special MSAT concerns. In addition, the USEPA projects that between 1999 and 2050, programs to improve vehicle emission standards and gasoline formulations will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 72 percent. Since 1990, the cancer risk from toxic air pollutants has fallen by 45 percent statewide, despite significant industrial growth and a substantial increase in the number of motor vehicles (CARB 2008). Therefore, the proposed project is exempt from the analysis of MSATs.

2.10.3.3 Cumulative Impacts

The proposed project by itself would not generate construction-related emissions that exceed the SCAQMD thresholds. A search using CEQAnet found no projects with overlapping construction periods within 2 miles of the proposed project site (CEQAnet, 2011). As a result, no cumulative construction-related emissions would be expected; thus, the project would result in less than significant cumulative air quality impacts.

The proposed project would not generate additional traffic because roadway capacity would not change as a result of completion of the proposed project. The cumulative impact of all planned transportation impacts, including the proposed project, has been evaluated in the conforming 2008 RTIP. The project also is included in the 2004/2005 HBRR Program. Because the proposed project has been evaluated at a regional level for conformity purposes, the contribution of the project to cumulative regional air quality impacts would not be adverse.

2.10.3.4 Avoidance, Minimization, and/or Mitigation Measures

From the discussion above, the project is expected to have no adverse impacts from air quality emissions.

Project construction activities will be required to comply with fugitive dust control measures listed in SCAQMD Rule 403 (Fugitive Dust).

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce any air quality impacts resulting from construction activities:

- The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 (2010).
    - Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
    - Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right-of-way line depending on local regulations.
- Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.
- Wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in CA Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Near sensitive air receptors, establish Environmentally Sensitive Areas (ESAs) or their equivalent within which construction activities involving the extended idling of diesel equipment would be prohibited, to the extent feasible.

- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.

- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.

- Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.

- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.

- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.

2.10.4 No Build Alternative Impacts

The No Build Alternative would result in no new or additional impacts related to air quality relative to existing conditions. However, the No Build Alternative would not realize the minor beneficial air quality effects of the proposed project, namely, reduced air emissions associated with reduced vehicle miles traveled from the elimination of the right-turn only option at the existing northbound I-5 off-ramp to Glendale Boulevard. (See Table 2.10-8).

2.11 Noise

This section evaluates the potential construction noise impacts on nearby noise-sensitive receptors resulting from the proposed project. For federally funded highway transportation projects, traffic noise must be considered for projects that would result in an increase in traffic or bring traffic closer to sensitive receptors. The proposed project does not involve either; therefore, traffic noise is not discussed further.

2.11.1 Regulatory Setting

Caltrans does not provide specific construction noise criteria. However, the Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, recommends that construction noise levels normally should not exceed a maximum of 86 dBA between 9:00 p.m. and 6:00 a.m. at a distance of 50 feet from the job site activities. If construction noise is anticipated to be a substantial problem, measures to minimize or eliminate adverse construction noise impacts on the communities should be examined.

The policies and regulations of City of Los Angeles Noise Ordinance concerning the generation and control of construction noise are contained in Chapter IV, Article 1, Section 41.40 of the City of Los Angeles Municipal Code (LAMC). The LAMC places the following restrictions on the hours of construction activities:

> "No person shall, between the hours of 9 p.m. and 7 a.m. of the following day, perform any construction or repair work of any kind upon, or any excavating for any building or structure, where any of the foregoing entails the use of any power driven drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified."

The section further states that:

> "No person, other than an individual homeowner engaged in repair or construction of his single-family dwelling shall perform any construction or repair work of any kind upon, or any earth grading for, any building or structure located on land developed with residential buildings under the provisions of Chapter I of this Code, or perform such work within 500 feet of land so occupied, before 8 a.m. or after 6 p.m. on any Saturday or national holiday nor at any time on any Sunday. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited on Saturdays and on Sundays during the hours herein specified."

Section 112.05 of Article 2, Chapter XI, specifies that any powered equipment or powered hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet from construction and industrial machinery is prohibited. The 75 dBA noise limitation does not apply when compliance is technically infeasible. The City's code states, "Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment." To comply with this ordinance, the demolition equipment to be used for the proposed project would be equipped with noise reduction devices such as mufflers. Use of other techniques, such as shields and sound barriers, would be implemented whenever feasible.

Section 41.40 (j) (Noise Due to Construction) of Article 1, Chapter IV (Public Welfare), specifies that "major public works construction by the City of Los Angeles and its proprietary Departments" may obtain a variance from the Board of Police Commissioners to perform nighttime construction activities otherwise prohibited by 41.40 (c), and that such construction must comply with all conditions of the variance. Additionally, the council district offices and neighborhood councils must be notified.

2.11.2 Affected Environment

2.11.2.1 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 cannot be added or subtracted by ordinary arithmetic means. When two equal sound levels are combined, they would produce a combined sound level that is 3 dB greater than the original sound level. 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 sound level is equal to the higher sound level (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 respond. In general, the healthy human ear is most sensitive to sounds between 1,000 Hertz (Hz) and 5000 Hz, and it perceives a sound within that range as being more intense than a sound of a higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a weighting adjustment, referred to as the A-scale, has been developed to approximate the frequency response of humans when listening to most ordinary sounds. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Figure 2-15 show various general noise levels in dBA associated with common sounds.

Noise levels diminish with distance at the rate of approximately 6.0 dBA per doubling of distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise would be 83 dBA at a distance of 100 feet from the noise source, 77dBA at a distance of 200 feet, and so on.

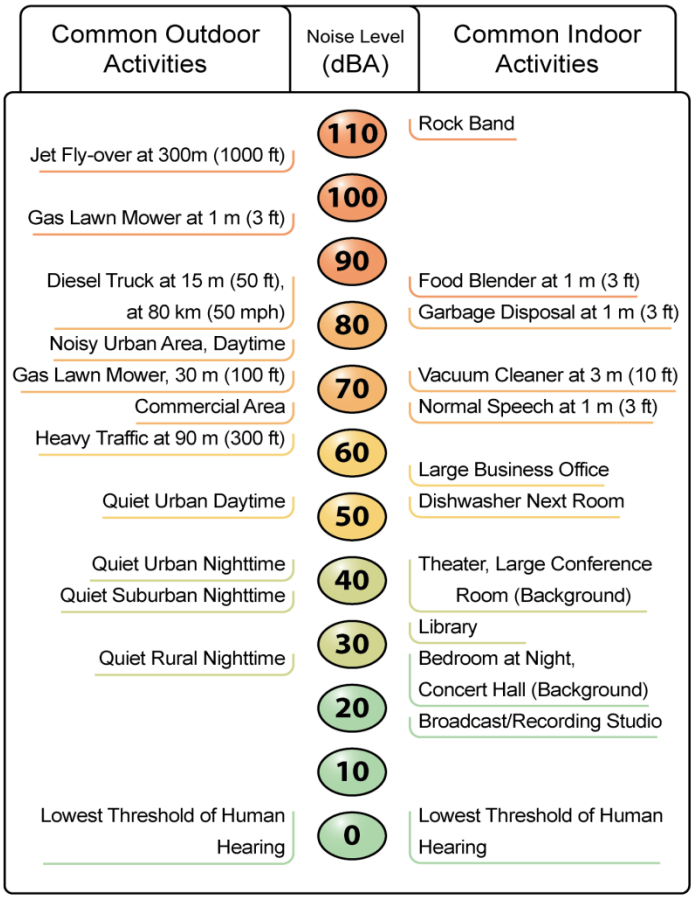


Figure 2-15: A-weighted Decibel Scale

2.11.2.2 Existing Noise Environment

Land Uses

Land uses in the project area are comprised primarily of residential and commercial uses along Hyperion Avenue, Glendale Boulevard, and Riverside Drive. Noise in the project area is dominated by traffic noise along these same streets, as well as I-5, which the viaduct complex traverses.

Along the west side of Glendale Boulevard north of I-5 and the Los Angeles River, commercial uses comprise first row properties with predominantly single-family homes comprising second-row properties and beyond. Along the east side of Glendale Boulevard, both residential and commercial uses make up the first row properties with primarily single-family homes in subsequent rows (including residences with rear yards along the Los Angeles River), although occasional multi-family structures are present. Noise from the viaduct complex and Glendale Boulevard diminishes greatly and blends with the overall background noise (primarily from I-5 traffic) beyond first and second row properties.

Along Riverside Drive, two multi-family residential structures are located near the viaduct complex, one is adjacent to the viaduct complex on the west side (Archstone Apartments), and the other is located farther to the east of Glendale Boulevard. The remaining land uses along

Riverside Drive are commercial and industrial. Several 3rd and 4th floor balconies of a limited number of the units of the Archstone complex face the viaduct complex.

The area surrounding the Waverly Drive Bridge is comprised of mostly single-family homes, although some apartment complexes are present. Along Hyperion Avenue, roadway noise is substantially diminished beyond first row homes.

2.11.3 Environmental Consequences

2.11.3.1 Temporary Impacts

Noise impacts from construction of the proposed project are a function of the noise generated by construction equipment, the location and sensitivity of nearby receptors, and the timing and duration of noise-generating activities.

Construction of the proposed project would be conducted over an approximately 30-month period. Construction noise levels typically vary depending upon construction activities. Each construction activity generates has its own noise characteristics resulting from the mix of construction equipment involved and the related work activity. The construction phases of the proposed project are described in Section 1.3.1.1.9, Project Construction. The loudest construction noise levels are expected to result from demolition of the sides (rails) of the bridge structures and construction of the substructure and superstructure improvements (Glendale Boulevard bridge widening). These construction phases are expected to represent the worst-case phase from a noise standpoint because they involve the highest number of construction equipment and equipment having the greatest noise-generating characteristics. Table 2.11-1 estimates the noise exposure anticipated for various construction phases together with the construction equipment mix used to calculate noise levels for each phase.

Table 2.11-1: Summary of Construction Tasks and Predicted Noise Emissions

Task #	Task	Equipment (Number)	Usage Factor[1]	Noise Level at 50 feet[2], L_{eq}[3] (day), dBA dBA		
A1a	Hyperion Bridge Removal (Within 100 feet from R7)	Compressor (2)	0.48	80	80	
		Generator (2)	0.74	82	84	
		Concrete Saw (2)	0.73	90	92	
		Loader (1)	0.47	85	82	**Total = 93**
A1b	Hyperion Bridge Removal (Outside 100 feet from R7)	Compressor (2)	0.48	80	80	
		Generator (2)	0.74	82	84	
		Concrete Saw (2)	0.73	90	92	
		Loader (1)	0.47	85	82	**Total = 93**
A2a	Hyperion Barrier/Sidewalk Construction (Within 100 feet from R7)	Generator (2)	0.74	82	84	
		Concrete Pump (1)	0.73	82	81	**Total = 85**
A2b	Hyperion Barrier/Sidewalk Construction (Outside 100 feet from R7)	Generator (2)	0.74	82	84	
		Concrete Pump (1)	0.73	82	81	**Total = 85**
A3	Hyperion Abutment Retrofit	Generator (1)	0.74	82	81	
		Excavator (1)	0.58	85	79	
		Concrete Pump (1)	0.73	82	76	**Total = 84**
A4	Hyperion Channel Lining Retrofit	Concrete Saw (1)	0.73	90	89	**Total = 89**
A5	Glendale Widening Excavation	Excavator (2)	0.58	85	86	**Total = 86**
A6	Glendale Widening Demolition	Excavator (2)	0.58	85	86	
		Compressor (2)	0.48	80	80	**Total = 87**
A7	Glendale Foundation Widening	Compressor (2)	0.48	80	80	
		Generator (2)	0.74	82	84	
		Hydraulic Crane (2)	0.43	85	84	
		Auger (2)	0.62	85	86	**Total = 90**
A8	Glendale Substructure Widening	Compressor (2)	0.48	80	85	
		Generator (2)	0.74	82	88	
		Hydraulic Crane (2)	0.43	85	90	
		Concrete Pump (1)	0.73	82	81	**Total = 93**
A9	Glendale Superstructure Widening	Compressor (2)	0.48	80	80	
		Generator (2)	0.74	82	84	
		Hydraulic Crane (2)	0.43	85	84	
		Concrete Pump (2)	0.73	82	81	**Total = 89**

Source: ATS Consulting, LLC. 2007.

Notes:

1 Usage factor is the fraction of time equipment is in use over an eight-hour work shift.

2 FHWA Roadway Construction Noise Model (RCNM) is the source for construction equipment noise levels.

3 L_{eq} is the equivalent steady state sound level which, in a stated period of time, would contain the same acoustical energy as the time-varying sound level during the same period.

In addition to the temporary effects presented above, infrequent and short-term (1-2 days) night-time construction activities would be required to install protective barriers along the viaduct complex structures. Ideally, this construction activity would be scheduled for periods when traffic activity on the viaduct complex roadways and I-5 freeway below are at minimum use levels. While these construction activities would not be particularly noisy, they do have the potential to exceed acceptable nighttime ambient levels for nearby sensitive receptors. As noted

above, the prohibitions on night and weekend construction do not apply to construction of major public works projects. In this case, the Board of Police Commissioners would grant a variance which would impose conditions on the work to protect nearby residents from noise impacts.

The City's standard construction specifications require construction equipment to have noise-suppressing devices and require noise controls such as placement of noise barriers, use of low-noise-generating equipment, maintenance of mufflers and ancillary noise-abatement equipment, scheduling of high-noise-producing activities during periods that are least sensitive, routing of construction-related truck traffic away from noise-sensitive areas, and reduction of construction vehicle speeds. Despite the required noise controls, it may not be technically feasible for all construction equipment to meet the 75 dBA maximum noise level.

The noise emissions described in Table 2.11-3 above are at a distance of 50 feet with no attenuating factors. A resident inside a house or apartment would experience lower noise levels. According to the Federal Highway Administration (FHWA Highway Traffic Noise Analysis and Abatement Policy (2011), a building with open windows would provide approximately 10 dB reduction, and a building with closed windows could expect an additional 10-25 dB reduction depending on window type and building type. For example, a light frame building with a closed ordinary sash window would reduce the noise levels by 20 dB.

Where technically feasible, construction equipment noise would be maintained at or below the 75 dBA maximum level, and where not technically feasible, construction would occur within the allowed times, in compliance with City regulations and conditions of approval of any variance. Also, construction would be conducted in compliance with the standard specifications for public works construction, which includes noise minimization measures as described above. Therefore, the noise impacts would be less than significant.

2.11.3.2 Permanent Impacts

The proposed project includes reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard. This change is expected to reduce the vehicle miles traveled along Glendale Boulevard by allowing motorists who desire to travel south on Glendale Boulevard to simply make a left turn from the off-ramp to southbound Glendale Boulevard (this movement is not currently allowed). Because this project is not capacity increasing, and as a result of this reconfiguration, traffic noise along Glendale Boulevard (north of the off-ramp) would be slightly or minimally reduced. Based on the above, no permanent adverse noise impacts would occur from the project.

2.11.3.3 Cumulative Impacts

Because there would be no anticipated construction overlap of the proposed project and other projects within the vicinity, cumulative construction noise impacts would not occur.

2.11.4 No Build Alternative Impacts

The No Build Alternative would result in no project-related changes to existing noise.

Biological Environment

This section of the document focuses on issues covered in the Natural Environment Study prepared by UltraSystems Environmental in August 2011.

2.12 Wetlands

2.12.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purpose of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) utilizes a three-parameter approach that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program prohibits the discharge of dredged or fill material to the Waters of the United States if a practicable alternative is available that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is administered by the (USACE) with oversight by the United States Environmental Protection Agency (U.S. 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 U.S. 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 the U.S. 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 which 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.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. This executive order states that a federal agency, such as the Federal Highway Administration (FHWA) and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that 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 Board (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or 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, a Lake or Streambed Alteration Agreement will be required. 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 the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCBs also issue water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

2.12.2 Affected Environment

The viaduct complex spans the Los Angeles River in the Los Angeles Narrows area. The Los Angeles River is a navigable waterway and is considered a Water of the U.S. as defined by USACE. The River is also considered jurisdictional by CDFG under Section 1600 of the Fish and Game Code.

Although the Los Angeles River is unlined both upstream and downstream of the viaduct complex, the river bottom in the immediate vicinity of the viaduct complex crossing is lined with concrete. The concrete bottom extends upstream approximately 50 feet northwest of the southbound Glendale Boulevard Bridge and downstream approximately 120 feet southeast of the concrete hydraulic control structures and abandoned piers for the former Red Car line (Figure 2-16).

Further upstream and downstream the river bottom is comprised of cobbles, which allows rising groundwater to enter the river. Along these unlined areas of the Los Angeles River, patches of riparian and wetland plant communities have established, specifically riparian forest, riparian scrub, and emergent freshwater marsh communities.

2.12.2.1 Riparian Forest

The study area contains stands of mature cottonwood and willow species with a developed understory of mulefat and other riparian shrubs. Based on species composition, the community most closely resembles Southern Cottonwood/Willow Riparian Forest intermixed with the Mulefat Scrub (Holland 1986). The vegetation is dominated by Fremont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), and Goodding's willow (*Salix gooddingii*). The overstory canopy occurs in isolated dense patches, with a dense shrub layer consisting of willow saplings (*Salix spp*.), mulefat (*Baccharis salicifolia*), and other shrubs and sub-shrubs. These forests also contain a number of exotic species including arundo (*Arundo donax*), cocklebur (*Xanthium strumarium*), and lady's thumb (*Polygonum persicaria*).

2.12.2.2 Riparian Scrub

As described above, the understory of the Riparian Forest contains mostly mulefat scrub and southern willow scrub species. Characterized more generally as riparian scrub, this community is dominated by shrubby willow species (*Salix spp.*) and mulefat (*Baccharis salicifolia*). Occasionally, patches of vegetation within the river contain riparian scrub species only. Density

and maturity of the vegetation varies both laterally and horizontally within the channel. This variation may be due to a number of factors. In portions of the channel subjected to significant flood scour, vegetation is naturally thinned; or it may be absent altogether.

2.12.2.3 Freshwater Emergent Marsh

Emergent marsh habitats occur within the channel along slow-moving portions of the river that have unobstructed soil surfaces. Holland (1986) has classified these areas as Coastal and Valley Freshwater marsh. Common plant species in this community include bulrush (*Scirpus sp.*), cattail (*Typha latifolia*), sedge (*Carex sp.*), flatsedge (*Cyperus sp.*) and marsh purslane (*Ludwigia peploides*). Several exotic species have successfully invaded the freshwater marsh adjacent to the project area, including arundo (*Arundo donax*), cocklebur (*Xanthium strumarium*), lady's thumb (*Polypogonum persicaria*), and castor bean (*Ricinus communis*).

Fresh water emergent marsh is the closest natural plant community to the proposed project area. Sizable stands of freshwater marsh begin within approximately 50 feet upstream and 120 feet downstream of the proposed project area. Some cattail and marsh purslane also occur sporadically at the base of the bridge piers (abutments) located on the downstream side of the concrete channel.



Figure 2-16: Biological Study Area Map

2.12.3 Environmental Consequences

2.12.3.1 Temporary Impacts

No temporary impacts to riparian forest or riparian scrub would be expected with implementation of the avoidance and minimization measures described below. Although riparian vegetation exists upstream and downstream from the proposed project area, construction equipment would be restricted to the existing concrete foundation and access routes. No heavy equipment, including cranes and drill rigs, would be permitted to encroach into the unlined portion of the river.

Equipment may be tracked or wheeled into the channel from several access points. The river channel can be accessed from the existing bike path entrance off of southbound Glendale Boulevard and from the path at Ferncroft Road near the landscaped median separating northbound Glendale Boulevard traffic from two-directional traffic on the frontage road. Another access point is located off Fletcher Drive approximately 0.75 miles downstream from the viaduct complex.

Currently, the water within the Los Angeles River flows as sheet-flow over the entire width of the concrete pad at the viaduct complex crossing. Placement and operation of construction equipment in the channel would therefore require the diversion of surface waters by coffer dams or other approved flow diverters. The coffer dam would be erected on the existing concrete channel as not to displace any riparian or wetland habitat upstream and downstream from the bridge.

Although all bridge foundations and pier abutments are concrete lined, some sparse freshwater emergent plants have established along the base of these structures, primarily cattails and marsh purslane. This vegetation would have to be removed to accommodate the proposed retrofits. An estimated 2,000 square feet of native vegetation would need to be removed. It is likely this vegetation is dynamic; colonizing around support structures in the spring, growing and flowering over the summer, and then becoming dislodged in the winter from large flood events. Therefore, the presence and extent of this vegetation during the start of project construction may change. Furthermore, vegetation would be permitted to recolonize these areas once project construction was completed.

These stands could support nesting birds (e.g. red-winged blackbirds) during the breading season (February through August). Therefore, vegetation removal should occur only after pre-construction bird surveys have been performed or outside of the nesting season (see mitigation measures B-4 and B-5 in section 2.14.3.4 for guidance concerning nesting bird surveys).

To avoid impacts to vegetation downstream of the viaduct complex, diverted water should be restored to the full width of the Los Angeles River prior to intercepting any vegetation (see mitigation measure B-2). Because the length of the concrete pad extending from the end of the hydraulic control channels is relatively short (approximately 35 feet), flow diversion structures should be designed to spread flow across the entire concrete pad before entering the unlined portions of the river. If not, some wetland vegetation immediate downstream may receive less water than they are acclimated to, and could be temporarily impacted.

2.12.3.2 Permanent Impacts

The proposed project would include the widening of both the southbound and northbound Glendale Boulevard bridges over the Los Angeles River. The widening would require that the

foundation footings and piers within the river channel be extended by approximately eight feet to support the widened superstructures. The areas within the Los Angeles River where the piers and foundations would be extended are within the concrete lined portions of the river and as described, contain sparse emergent vegetation. The nearest wetland community upstream subsisting on soil substrate is located at least 50 feet from the existing piers and the nearest wetland community downstream is located about 120 feet from the existing piers. Because none of the pier extensions or foundations would encroach into any unlined portion of the Los Angeles River, no permanent adverse impacts to wetlands would occur.

2.12.3.3 Cumulative impacts

The proposed project would not permanently affect wetlands in the Los Angeles River. According to the CEQAnet Database (2011), there are no other current or planned projects whose construction could adversely affect wetlands in the Los Angeles River. Therefore, no cumulative impacts would occur to wetlands in the river. This determination, however, is based on adherence to the following avoidance and minimization measures.

2.12.3.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid potential impacts to wetlands in the Los Angeles River downstream from the viaduct complex, the following measure would be implemented:

B-1: Coffer dams or other approved flow diversions should be erected in the existing concrete channel during project construction to minimize pollution of river water as part of a Storm Water Protection Plan (SWPPP). To optimize pollution capture and stream flow during project implementation, flow should be diverted from one or two of the four channels at any given time.

B-2: Restore diverted flow within the Los Angeles River to the full width of the river channel upstream from the locations of the riparian/wetland islands. This would ensure that the wetlands immediately downstream of the concrete pad would not be deprived of water that they would otherwise receive.

2.12.4 No Build Alternative Impacts

The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and as such, would not result in any impacts to wetlands.

2.13 Plant Species

2.13.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special status plant species. Special status is a general term for species that are afforded varying levels of regulatory protection because they are rare and/or subject to population and habitat declines. The highest level of protection is given to threatened and endangered (T&E) 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). Please see the Threatened and Endangered Species Section (2.15) in this document for detailed information regarding T&E species.

This section of the document discusses all the other, non-T&E special status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed plants in the California Native Plant Society (CNPS) Rarity Ranking System database.

The regulatory requirements for FESA can be found at United States Code 16 (USC), 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 the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Invasive plant (and animal) species are now well recognized as major threats to native ecosystems. Executive Order 13112 tasked Federal Agencies in 1999 to (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. The Executive Order also established a National Invasive Species Council to oversee the implementation of these task orders.

Other applicable Federal legislation aimed at controlling exotic species include the Noxious Weed Control Act of 2004, which creates a national funding program for weed management entities and the National Aquatic Invasive Species Act of 2005 (HR 1591) that updated national policy on ballast water and other aquatic invasive species.

To comply with Executive Order 13112, the project proponent shall consult the California Invasive Plant Council's (Cal-IPC) weed management guidelines. While weed management strategies are often species specific, hand weeding and mowing is appropriate for relatively small areas.

2.13.2 Affected Environment

A search of the California Natural Diversity Database was conducted to identify special status species in the project area. In addition, field surveys were conducted in the project area and along the Los Angeles River on August 12, 2011.

According the CNDDB (2011) search, three non-T&E special status plant species have the potential to occur within the riparian and wetland islands in the Los Angeles River: Davidson's bush mallow (*Malacothamnus davidsonii*), Parish's gooseberry (*Ribes divaricatum var. parishii*), and San Bernardino aster (*Symphyotrichum defoliatum*). Although these species are not listed as endangered or threatened at a federal or state level, the California Native Plant Society considered them to be rare, threatened, or endangered in California and elsewhere. These species were not observed during recent field surveys of the project area (in 2008 or 2011). However, field surveys were not exhaustive and the presence or absence of these three plant species cannot be certain.

2.13.3 Environmental Consequences

2.13.3.1 Temporary Impacts

As discussed above, construction of the pier extensions for the viaduct complex would require the temporary diversion of flow in the Los Angeles River. If water flowing out of flow diversion structures do not fully spread across the entire river channel bottom before encountering wetland vegetation, it is possible that some individuals of Davidson's bush mallow, Parish's gooseberry, and San Bernardino aster could be adversely affected from reduced water availability. Flow diversion structures should be installed to avoid this issue.

2.13.3.2 Permanent Impacts

As discussed above, the proposed project requires extending the viaduct complex piers within the river channel by approximately eight feet to support widened superstructures. The areas within the Los Angeles River where the piers and foundations would be extended are within the concrete lined portions of the river where only minimal colonization of common wetland species was observed. Therefore, removal of this vegetation would be unlikely to impact a special status species. If special status species in these locations are observed during pre-construction surveys, CDFG should be immediately notified and consulted for potential plant relocation.

Otherwise, the nearest wetland communities are located at least 50 feet upstream and 120 feet downstream from the existing piers. Because none of the pier extensions or foundations would encroach into any unlined portion of the Los Angeles River, no adverse impacts to Davidson's bush mallow, Parish's gooseberry, or San Bernardino aster would be expected**.**

2.13.3.3 Cumulative impacts

As discussed above, the proposed project would not be expected to negatively impact Davidson's bush mallow, Parish's gooseberry, or San Bernardino aster present in the Los Angeles River. Similarly, there are no other known related projects that could affect these species in the river. As a consequence, the proposed project would not result in cumulative impacts to these special status plant species.

2.13.3.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to Davidson's bush mallow, Parish's gooseberry, San Bernardino aster that may be present in the Los Angeles River downstream from the viaduct complex, mitigation measure **B-1 through B-3** described above should be implemented.

2.13.4 No Build Alternative Impacts

The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and therefore would not result in any impacts to Davidson's bush mallow, Parish's gooseberry, or San Bernardino aster.

2.14 Animal Species

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (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 federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.15 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 candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State Laws and regulations pertaining to wildlife include the following

- California Environmental Quality Act
- Sections 1600-1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

2.14.1 Regulatory Setting

2.14.1.1 Migratory Bird Treaty Act

The original Migratory Bird Treaty Act (MBTA) of 1918 implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Specific provisions of the statute include the establishment of a federal prohibition, unless permitted, to:

> *…pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of the Convention … for the protection of migratory birds … or any part, nest, or egg of any such bird.*

Birds species protected under the provisions of the MBTA are identified by the List of Migratory Birds (50 CFR, § 10.13, as updated by the 1983 American Ornithologists Union Checklist and published supplements through 1995, USFWS).

2.14.1.2 Fish and Wildlife Coordination Act

The original Fish and Wildlife Coordination Act (FWCA) of 1934 authorized the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with Federal and State agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. Amendments to the FWCA require consultation with the Fish and Wildlife Service and the fish and wildlife agencies of States where the "waters of any stream or other body of water

are proposed or authorized, permitted or licensed to be impounded, diverted…or otherwise controlled or modified" *by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources*."

2.14.1.3 Federal Fisheries and Essential Fish Habitat Consultation Summary

The National Oceanic and Atmospheric Administration (NOAA) works with federal agencies to conserve and enhance essential fish habitat (EFH). Consultation is required when a federal agency authorizes, funds, or undertakes an action that may adversely affect EFH. In 2004, the FHWA authorized Caltrans as a non-federal representative to consult with NOAA regarding the management and protection of EFH (50 CFR 600.920(c)). The Proposed project carried out with the proposed avoidance measures, however, is not expected to "adversely affect" EFH. Therefore consultation with NOAA is not required. An adverse effect is defined as any impact that reduces quality and/or quantity of EFH. This includes direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to species and their habitat, and other ecosystem components, or reduction of the quality and/or quantity of EFH.

2.14.1.4 California Fish and Game Code, Section 1600

Section 1600 of the Fish and Game Code regulates the alternation of the bed, bank, or channel of a stream, river, or lake, including dry washes. Generally, CDFG asserts jurisdiction up to the top of significant bank cuts, or to the outside of any riparian vegetation associated with a water course. Activities that have the potential to affect jurisdictional areas can be authorized through the issuance of a Streambed Alteration Agreement (SAA). The SAA specifies conditions and mitigation measures that would minimize impacts to riparian resources from proposed actions.

The CDFG maintains the responsibility of the state under CEQA and through the USACE 404 process to comment on potential impacts to special status species. They are also responsible for project compliance with the California Endangered Species Act (described in Section 2.16) and must be consulted if impacts to state-listed species are likely to occur.

2.14.2 Affected Environment

Several non-T&E special-status animal species have the potential to occur within the riparian and wetland habitats near the proposed project site. These species include the peregrine falcon (*Falco peregrinus anatum*), western mastiff bat (*Eumops perotis californicus*), hoary bat (*Lasiurus cinereus*), western yellow bat (*Lasiurus xanthinus*) and the big free-tailed bat (*Nyctinomops macrotis*) which are all species of concern at the state level. The southwestern willow flycatcher is discussed below in Section 2.15.

A number of special status species that were identified in the 2001 CNDDB search were not identified in 2011. These included the Least bell's vireo (*Vireo bellii pusillus*), yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens*), Santa Ana speckled dace (*Rhinichthys osculus*), arroyo chub (*Gila orcutti*), Santa Ana sucker (*Catostomus santaanae*), and unarmored three-spine stickleback (*Gasterosteus aculeatus williamsoni*). These species historically occurred in the region but are unlikely to inhabit the project area currently because of past habitat modification (i.e. urban development) and isolation from suitable habitat. The arroyo chub was last known to occur in the vicinity of the site, in the Sepulveda basin, in 1993. There are no recorded occurrences in the CNDDB of the arroyo chub within the project vicinity. Similarly, it is possible all three bird species could fly through and temporarily inhabit in the project area in route to more suitable habitat.

2.14.3 Environmental Consequences

2.14.3.1 Temporary Impacts

As discussed above, construction of the pier extensions for the viaduct complex would require the temporary in-channel diversion of flow in the Los Angeles River. However, the work area would be confined to the concrete pad in the river channel, and equipment entering and leaving the construction site would not directly damage or affect riparian habitat upstream or downstream from the concrete pad. Therefore, riparian habitat used by these special status species would not be affected.

Peregrine Falcon

The peregrine falcon (*Falco peregrinus anatum*) was not observed during the field survey. However, given their tolerance of urban environments and the presence of large perch trees and edifices on the project area, its occurrence on site is possible. Breeding habitat for these species may also be present. As a result, project construction would likely result in the temporary displacement of the Peregrine falcon from the project site. Avoidance measures should be implemented to avoid and/or minimize impacts to the Peregrine falcon.

Western Mastiff Bat, Hoary Bat, Western Yellow Bat, and Big Free Tailed Bat

Although no bats were observed during the field survey, all four sensitive bat species identified above could inhabit the project area. Like the Peregrine falcon, marginal yet potentially suitable roosting and foraging habitat exists on the project site. For instance, potential roost sites may exist beneath bridge supported structures not readily visible from streets or sidewalks. Therefore, project construction could result in the temporary displacement of these bat species from the project site. Several avoidance measures should be implemented to avoid and/or minimize impacts to bats.

Other Special Status Species

As discussed above, a number of special status species identified in the 2001 CNDDB search were not identified in 2011. To address these unlikely, albeit potential occurrences, avoidance measures are recommended to reduce potential project impacts. To avoid impacts to arroyo chub from water diversion under the bridge, preconstruction surveys for the species should be conducted. If the species is detected in the river channel, seine netting should be installed to capture individuals of this species and captured individuals are to be released at appropriate locations downstream. In addition, diversion structures should be constructed to minimize debris, soil and silt releases to the river. Influxes of excavated soil could temporarily increase turbidity downstream that might affect the arroyo chub, if present.

Construction noise may have some effect on migratory/transitory birds using these riparian and wetland areas. However, substantial background noise is already present on the site from the adjacent roads and freeway, so birds using the sites are expected to be acclimated to noise disturbance. Therefore, this impact is expected to be minimal. If transitory birds do vacate the area from noise disturbance, there are adjacent riparian/wetland areas available. No permanent or long-term impacts to the species would therefore be anticipated.

2.14.3.2 Permanent Impacts

As discussed above, the proposed project requires extending the viaduct complex piers within the river channel by approximately eight feet to support widened superstructures. The areas within the Los Angeles River where the piers and foundations would be extended are within the

concrete lined portions of the river where only minimal wetland vegetation exists. Therefore, removal of this vegetation would be unlikely to impact a special status animal species. Otherwise, the nearest wetland communities are located at least 50 feet upstream and 120 feet downstream from the existing piers. Because none of the pier extensions or foundations would encroach into any unlined portion of the Los Angeles River, no adverse impacts to special status animal species would be expected.

2.14.3.3 Cumulative impacts

The proposed project would not permanently affect special status animal species that may be present in the Los Angeles River or that utilize riparian habitat in the river. As a consequence, the proposed project would not result in cumulative impacts to these animal species.

Although construction of pier extensions in the Los Angeles River channel could result in temporary impacts to the Peregrine falcon, the Western mastiff bat, the hoary bat, the Western yellow bat, and the big free tailed bat, avoidance measures would be implemented to avoid potential adverse impacts. As a consequence, the proposed project would not contribute to or result in significant cumulative impacts to these animal species.

2.14.3.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid potential impacts to riparian habitat in the Los Angeles River downstream from the viaduct complex, measure B-1 (coffer dam for pollution control) and B-2 (restore flow to downstream vegetation) described above would be implemented.

In order to broadly avoid impacts to special-status species the following avoidance measure would be implemented:

B-3: A Worker Environmental Awareness Program (WEAP) would be prepared and all construction crews and contractors would be required to participate in WEAP training prior to starting work on the project. The WEAP training would include a review of the special-status species that could exist in the Project area, the locations of the special-status biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained would be maintained. (This measure was not featured in the NES prior to its approval)

To avoid the potential disruptions from construction noise to the breeding activities of Peregrine falcon, bats species, and migratory birds:

B-4: Conduct pre-construction nest surveys of the riparian habitat within 500 feet of the work area (in the Los Angeles River channel) to identify nest sites for special-status bird species. The surveys should be conducted prior to the onset of breeding season before construction is scheduled to begin. If nest structures or sites are identified, they should be excluded to ensure that no nesting of these species occurs within 500 feet of construction activities.

B-5: A qualified biological monitor shall be present throughout the duration of construction activities over the course of nesting bird season (February 15th to August 31st) to monitor the activity of nests occupied by Migratory Bird Treaty Act-protected birds. (This measure was added after the NES was approved and is not featured within it.).

To avoid impacts to arroyo chubs, the following avoidance measure will be implemented:

B-6: A qualified biologist shall conduct a pre-construction survey for arroyo chub (*Gila orcutti)* immediately below the viaduct complex. If the species is observed, then the qualified biologist should install seine netting prior to construction in order to capture individuals of arroyo chub in the work zone. Captured individuals would be released at appropriate locations downstream of project site. This capture and release regime would occur at all significant phases of in-channel diversions, including the initial placement of diversions.

To avoid potential turbidity increases to the Los Angeles River that could adversely affect the arroyo chub, the following avoidance measure would be implemented:

B-7: Turbidity curtains shall be installed at the downstream end of the construction work zone in the river channel for the duration of in-channel construction. Turbidity curtains shall be inspected weekly and prior to and following storm events. If repair is necessary maintenance shall occur immediately (within 48 hours) to ensure pollutants do not disperse throughout the river.

To avoid impacts to special status bats species that may be present beneath the viaduct complex, the following avoidance measure would be implemented:

B-8: Within 30 days of bridge construction or tree removal, a qualified biologist shall conduct a pre-construction survey for the presence of roosting bats. If active nursery roosts are found (typically between April 15 and August 1) a work exclusion area of 500 feet will be cordoned off, and construction activities will be re-scheduled to occur after juvenile bats are able to forage independently. If sensitive bat species are present but there is not an active roost, the client will enter into a Memorandum of Understanding (MOU) with CDFG. Alternate habitat shall be provided if bats are to be excluded from maternity roosts. A qualified biologist with a scientific collecting permit will implement bat exclusion measures. A roost with comparable spatial and thermal characteristics shall be constructed as directed by a qualified biologist. In the event that adult bats need to be handled and relocated, a qualified biologist shall prepare and implement a relocation plan subject to approval by CDFG that includes relocating all bats found on-site to an alternate suitable habitat.

If bat roosts are found outside the breading season, openings to these roosts should be blocked after the bats have emerged for their night-time feeding to prevent the bats from re-entering. The bats will be temporarily forced to find other roosting areas and other structures in the area.

While a visual assessment of bat roost habitat does not require a permit, handling of bats for removal requires two permits from CDFG; a Scientific Collecting Permit (SCP) and a MOU. The MOU describes the type of surveys, methods, and species proposed, and purpose of bat captures. Applicants must show that they possess experience with trapping and handling bats before they are issued an MOU. Such experience is usually accumulated by working with a licensed bat worker under their permits, and demonstrating the necessary skills and abilities to DFG (Johnson et al., 2004).

Prior to initiation of construction, a qualified biologist shall be designated to monitor construction activities and advise construction personnel of the potential biological issues associated with development of the site. The biological monitor shall attend weekly construction meeting and provide onsite direction for addressing habitat- or species-specific issues as they are encountered during construction. If as a result of pre-construction surveys the biologist establishes exclusion zones around trees or buildings to protect nesting birds or roosting bats, the biological monitor should advise the construction crews of those areas and of the importance of respecting and maintaining those zones.

Due to local and California Health Department restrictions, no direct contact by workers with any bat species is allowed. The Project Biologist/Biological Monitor shall be contacted immediately should any bats be identified within the project's limits of construction, who will oversee exclusion or removal efforts, as necessary. If construction is to occur in phases or over an extended period of time, multiple pre-construction surveys may be required to address seasonal bat migrants and the potential influx of new arrivals.

Because bats are nocturnal, work activities are not to occur within 100 feet of the bridge between sunset and sunrise. Airspace access to and from the bridge is to remain approximately the same. Bird-exclusion netting must not be used. No clearing and grubbing is to occur adjacent to the structure. Lighting is not to be used near the structure where it would shine on the structure. Combustion equipment, such as generators, pumps, and vehicles are not to be parked, nor operated, under or adjacent to the structure. Personnel are not to be present under the bridge during the evening or at night.

2.14.4 No Build Alternative Impacts

The No Build Alternative would not provide seismic or other improvements to the viaduct complex, and as such, would not result in any impacts to special status animal species that may occur in the project vicinity.

2.15 Threatened and Endangered Species

2.15.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC), 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 the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (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 statement. 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." CESA allows for takes incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by CDFG. For species listed under both FESA and CESA 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.

2.15.2 Affected Environment

Two federal endangered species, the southwestern willow flycatcher (*Empidonax traillii extimus*) and Gambel's water cress (*Nasturtium gambelli*), have the potential to occur within the riparian and wetland habitat near the proposed project site. Neither species was observed during the reconnaissance-level field survey; however this does not indicate the species are necessarily absent from the proposed project area. While the habitat appears too degraded, open, and fragmented to support breeding activity by southwestern willow flycatcher, early seral stage

willows and mulefat near the project area could support transitory visits by the species. Habitat suitability for Gambel's water cress is low and the species has not been recorded in the project vicinity for over a century. Only three to four known populations exist in Los Angeles County amounting to fewer than 300 individuals.

2.15.3 Environmental Consequences

2.15.3.1 Temporary Impacts

Construction of the pier extensions for the viaduct complex would require the temporary in-channel diversion of flow in the Los Angeles River. However, the work area would be confined to the concrete pad in the river channel, and equipment entering and leaving the construction site would not directly damage or affect riparian habitat upstream or downstream from the concrete pad. As a consequence, the proposed project would not adversely affect habitat used by either species.

The southwestern willow flycatcher is considered a potential transitory user of the riparian habitat in the project area. Degradation of riparian habitat therefore could negatively impact individuals inhabiting the site. In addition, heightened noise from construction may impact their behavior and their ability to communicate with one another. However, substantial background noise is already present on the site from the adjacent roads and freeway, so birds using the sites are expected to be acclimated to noise disturbance. Therefore, this impact is expected to be minimal. If transitory birds do vacate the area from noise disturbance, there are adjacent riparian/wetland areas available.

Given the overall rarity of Gambel's water cress and the lack of recent nearby records, it is very unlikely the plant exists in any wetland vegetation near the project site. Nonetheless, adherence to mitigation measures **B-1** through **B-3** will ensure adequate precautions are taken to avoid any potential impacts to the species.

2.15.3.2 Permanent Impacts

No permanent impacts to the southwestern willow flycatcher or Gambel's water cress are anticipated. As discussed above, the areas within the Los Angeles River where the piers and foundations would be extended are within the concrete-lined portions of the river where no riparian vegetation is located. Because none of the pier extensions or foundations would encroach into any unlined portion of the Los Angeles River, no adverse impacts to habitat used by the southwestern willow flycatcher would therefore be expected.

2.15.3.3 Cumulative impacts

No cumulative impacts to the southwestern willow flycatcher or Gambel's water cress would occur from this project. No permanent impacts to existing, marginal habitat is expected and foreseeable temporary impacts to habitat can be avoided by adhering to the following avoidance measures.

2.15.3.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to riparian habitat located downstream from the viaduct complex which could be used by the southwestern willow flycatcher, measure **B-1 through B-3** described above would be implemented. To avoid impacts to Gambel's water cress, adherence to mitigation measures **B-1** through **B-3** should be implemented.

Chapter 3 California Environmental Quality Act Evaluation

3.1 Introduction

This chapter analyzes the environmental impacts of the proposed project pursuant to CEQA. The analysis is conducted following the City of Los Angeles Environmental Quality Act Guidelines (adopted July 31, 2002), which incorporate all of the State CEQA Guidelines.

The proposed project is subject to federal, as well as state environmental review requirements because the City of Los Angeles proposes the use of federal funds and/or the project requires federal approval actions. Proposed Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. The City of Los Angeles is the project proponent and the lead agency under 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, or has been, carried out by the 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 significance is determined. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, should be prepared. An EIS is required under NEPA 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.

On the other hand, CEQA requires lead agencies to identify each "significant effect on the environment" resulting from the proposed project and ways to mitigate such effects. If the proposed project may have a significant effect on any environmental resource, then an EIR must be prepared. Each significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the *CEQA Guidelines* list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this proposed project and CEQA significance.

The determination of whether a proposed project requires the preparation of an EIR is generally based on the results of an Initial Study. For this project, an initial study checklist (Appendix A) did indicate the potential for significant impacts. Thus, the public was informed that an EIR would be prepared. However, the detailed analyses prepared for this joint CEQA/NEPA

document found that most potential impacts were not significant and that all potentially significant impacts could be reduced to an insignificant level through the implementation of recommended mitigation measures. Therefore, a Mitigated Negative Declaration (MND) is proposed to be adopted by the City. If the City adopts the MND and approves the project, it will also adopt a mitigation program to ensure implementation of the mitigation measures.

3.2 Discussion of Environmental Effects

3.2.1 Less than Significant Effects

Refer to the introduction of Chapter 2 of this document, which identifies environmental issues considered, but for which no adverse impacts were identified. Consequently, there is no further discussion regarding those issues in this document.

As described in Chapter 2, the proposed project is expected to result in less than significant impacts in the following areas below:

- Land Use, Planning, and Growth (Section 2.1)
- Utilities/Emergency Services (Section 2.3)
- Visual/Aesthetics (Section 2.5)
- Hydrology and Water Quality (Section 2.8)
- Hazards and Hazardous Materials (Section 2.9)
- Air Quality (Section 2.10)
- Noise (Section 2.11)

Please refer to the above-referenced sections for a detailed analysis for each subject area.

3.2.2 Significant Environmental Effects

As discussed in Chapter 2, the proposed project may result in significant impacts that may be reduced to less than significant with mitigation in the following areas:

- Community Character and Cohesion (Section 2.2.1-included under Community Impacts)
- Traffic and Transportation/Pedestrian and Bicycle Facilities (Section 2.4)
- Cultural Resources (Section 2.6 – 2.7)
- Biological Resources (Section 2.12 – 2.15)

Please refer to the above-referenced sections for a detailed analysis for each subject area.

3.3 Mitigation Measures for Significant Impacts under CEQA

Table 3-1 summarizes mitigation measures recommended to minimize impacts of the Proposed Project to affected environmental resource areas under CEQA. This list includes minimization measures for impacts that are less than significant, but that can be further miminized by the implementation of such measures.

Table 3-1: Mitigation Measures for Significant Impacts under CEQA and minimization measures for less-than-significant impacts

Resource Area		Mitigation Measures
Biological Resources	**B-1:**	Coffer dams or other approved flow diversions should be erected in the existing concrete channel during project construction to minimize pollution of river water as part of a Storm Water Pollution Prevention Plan (SWPPP). To optimize pollution capture and stream flow during project implementation, flow should be diverted from one or two of the four channels at any given time.
	B-2:	Restore diverted flow within the Los Angeles River to the full width of the river channel upstream from the locations of the riparian/wetland islands. This would ensure that the wetlands immediately downstream of the concrete pad would not be deprived of water that they would otherwise receive.
	B-3:	Conduct a Worker Environmental Awareness Program (WEAP). All construction crews and contractors should be required to participate in WEAP training prior to starting work on the project. The WEAP training will include a review of the special-status species and other sensitive resources that could exist in the Project area, the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained should be maintained.
	B-4:	Conduct pre-construction nest surveys of the riparian habitat within 500 feet of the work area (in the Los Angeles River channel) to identify nest sites for special-status bird species. The surveys should be conducted prior to the onset of breeding season before construction is scheduled to begin. If nest structures or sites are identified, they should be excluded to ensure that no nesting of these species occurs within 500 feet of construction activities.
	B-5:	A qualified biological monitor should monitor construction activities over the course of nesting bird season (February 15th to August 31st) for the presence of nests occupied by Migratory Bird Treaty Act-protected birds.
	B-6:	Conduct a pre-construction survey for arroyo chub (*Gila orcutti)* immediately below the viaduct complex. If any arroyo chub are found, the qualified biologist should install seine netting prior to construction in order to capture individuals of arroyo chub in the work zone. Captured individuals would be released at appropriate locations downstream of project site. This capture and release regime would occur at all significant phases of in-channel diversions, including the initial placement of diversions.
	B-7:	Install turbidity curtains at the downstream end of the construction work zone in the river channel for the duration of in-channel construction. Turbidity curtains should be inspected weekly and prior to and following storm events. If repair is necessary, maintenance should occur immediately (within 48 hours) to ensure pollutants do not disperse throughout the river.
	B-8:	Within 30 days before bridge construction or tree removal, a qualified biologist should conduct a pre-construction survey for the presence of roosting bats. If

Table 3-1: Mitigation Measures for Significant Impacts under CEQA and minimization measures for less-than-significant impacts

Resource Area	Mitigation Measures
	sensitive bat species are found, the following measures should be implemented: If active nursery roosts are found (typically between April 15 and August 1) a work exclusion area of 500 feet should be cordoned off, and construction activities should be re-scheduled to occur after juvenile bats are able to forage independently. If sensitive bat species are present but there is not an active roost, the client should enter into a Memorandum of Understanding (MOU) with CDFG. Alternate habitat should be provided if bats are to be excluded from maternity roosts. A qualified biologist with a scientific collecting permit should implement bat exclusion measures. A roost with comparable spatial and thermal characteristics should be constructed as directed by the biologist. In the event that adult bats need to be handled and relocated, the biologist should prepare and implement a relocation plan subject to approval by CDFG that includes relocating all bats found on-site to an alternate suitable habitat.
Historic Resources	**H-1:** Recordation to Historic American Engineering Record Specifications: Prior to the start of any work that could adversely affect characteristics that qualify the Glendale-Hyperion Viaduct Complex as a historic property, contact the National Park Service Pacific West Region Office (NPS), to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, Glendale-Hyperion Viaduct, HAER No. CA-272," 2000-2001. NPS should respond to the additional recordation request within 30 days. If additional documentation is required, it should be completed and accepted by the NPS before the viaduct is altered. Prepare draft and final reports. **H-2:** HABS/HAER Dissemination: Upon completion of the documentation prescribed in Mitigation Measure **H-1**, documentation meeting current archival quality standards established by the NPS' Heritage Documentation Program to District 7 and the Caltrans Transportation History Library in Sacramento shall be provided. Archive quality documentation shall also be provided to NPS, if NPS requests it. Copies of the documentation shall be offered to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, and the California Office of Historic Preservation. **H-3:** Online Publication: Work with the Los Angeles Public Library to place the historical information from the HAER report, prescribed in Mitigation Measure **H-1**, on a City website with a link to a public library website, such as the Los Angeles Public Library website, available to the public for a minimum period of three years. The information link shall also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website. **H-4:** Video Documentary: 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. **H-5:** Informational Booklet: 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 the California Department of Transportation (1991) and shall

Table 3-1: Mitigation Measures for Significant Impacts under CEQA and minimization measures for less-than-significant impacts

Resource Area	Mitigation Measures
	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. Ensure that an electronic version of the booklet is posted on City of Los Angeles website 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. Ensure that the camera-ready master booklet is maintained and produce additional copies if there is demand. **H-6:** Design Plans and Specifications Reviews: Ensure that a Caltrans Professionally Qualified Staff Principal Architectural Historian reviews the 65% and 95% design plans and specifications for the Glendale-Hyperion Viaduct Complex are in conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (SOI Standards), and that SHPO is afforded the opportunity to review the same design plans and specifications. Failure of the SHPO to respond within thirty (30) calendar days after receipt of the plans shall not preclude Caltrans from proceeding with the undertaking. Should the SHPO or the Council object within thirty (30) calendar days to any plans and specifications submitted for review, then Caltrans shall consult with the objecting party, for a period not to exceed ten (10) calendar days, to resolve the objection. If the objection cannot be resolved within this time period, the FHWA shall request the Council review the Finding in accordance with 36 CFR 800.5(c)(3). **H-7:** Construction Monitoring Plan: Prepare construction monitoring plan and conduct periodic monitoring of construction activities to ensure the project is conducted in a manner that meets the SOI Standards. Provide Caltrans a draft construction monitoring plan, in which Caltrans shall have thirty (30) calendar days after receipt of the document to review and comment, and prepare a final construction monitoring plan. The plan shall include description of the project, description of the historic property's character-defining features, discussion of the monitoring's purpose, and construction activities to be monitored, as well as methods, schedule, and procedures for monitoring and reporting. Caltrans shall ensure that the construction monitoring plan is implemented. Monitoring reports shall include photographs indicating that the activities are in compliance with the SOI Standards. The monitor shall meet the Secretary of the Interior's Professional Qualifications Standards for Architectural Historian or Historic Architect pursuant to CFR 36 CFR Part 61, Appendix A (PQS Standards).
Archaeological Resources	Although the Proposed Project is not expected to affect archaeological resources, as requested by the Chairman of the Gabrielino/Tongva Tribal Council, the following measure should be implemented: **A-1:** A professional archaeologist should monitor all ground disturbing activities during construction and should act according to the Special Order and Caltrans policies if archaeological resources are discovered. In addition, if buried cultural materials are encountered during construction, work in the area of the resource should be halted and applicable actions under City of Los Angeles and Caltrans policy should be implemented.
Hazards and Hazardous Materials	**Note:** HZ-1 through HZ-4 are legal requirements, and are included here for informational purposes only. **HZ-1:** Contaminated Ground Water. Conduct groundwater sampling and testing during the design phase to determine the level of groundwater contamination and the depths. Require the selected contractor to prepare and implement a management plan in the event that hazardous wastes, petroleum hydrocarbons, and/or contaminated

Table 3-1: Mitigation Measures for Significant Impacts under CEQA and minimization measures for less-than-significant impacts

Resource Area	Mitigation Measures
	groundwater are encountered during construction. Implementation could require the contractor to utilize a photo-ionization detector (PID) or other organic vapor detector during all pile drilling/boring activities and to employ appropriate worker protection measures should detected levels exceed Cal-OSHA standards. Groundwater that seeps into the drilled hole for pile installations would be pumped out of the pile hole as or before it is filled with concrete. The contaminated water would be temporarily storage, and the water removed (vacuum truck) or treated and discharged under permit from the City or LARWQCB, depending on the discharge outlet. All contaminated groundwater, contaminated soil, and hazardous wastes and debris encountered or generated during construction would be properly excavated, stored, tested, treated and/or disposed in accordance with all federal, state, and local laws and regulations. **HZ-2:** Lead Chromate Traffic Paint. Perform representative sampling and testing of yellow traffic paint along the viaduct complex that could be affected by construction prior to removal. If lead, lead chromate, or other hazardous materials in the paint exceed standards, abate the traffic paint (prohibit its removal by sand-blasting or grinding methods) and properly dispose of the material prior to construction. **HZ-3:** Aerially Deposited Lead. During design of the northbound I-5 off-ramp reconfiguration to Glendale Boulevard, perform representative sampling and testing of the area ramp alignment area for the presence of ADL. If ADL is present above action levels, abate the ADL-contaminated soil, in accordance with all applicable laws and regulations, prior to construction of the reconfigured ramp. A Health and Safety Plan by Contractor would be required pursuant to Contract General Conditions/General requirements (GC/GR). **HZ-4:** Asbestos-Containing Materials or Lead-Based Paint. Perform a survey (during the design phase or prior to construction) of the bridge joints that could be disturbed from demolition or construction activity to determine if they contain asbestos. In addition, conduct a survey for the presence of LBP in areas of the viaduct complex to be removed or physically affected. If present, remove the ACM and/or LBP prior to or as part of the demolition process, in accordance with all applicable laws, regulations, and rules. A Health and Safety Plan by Contractor would be required pursuant to GC/GR requirements.
Traffic	**T-1:** The signalization for the realigned off-ramp intersection will include traffic control for southbound Glendale Boulevard traffic, north of the Hyperion Bridge overcrossing. Traffic control will include, but not limited to, signalization to allow traffic to stop north of Hyperion Bridge overcrossing rather than at the new realigned off-ramp intersection. The design, placement, and operation of the device would meet LADOT and Caltrans requirements. **T-2**: Construct an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers (downstream of the viaduct complex) to connect the bike path along the southwest side of the Los Angeles River with Glendale Boulevard on the northeast side of the river. The pedestrian crossing, in conjunction with the new access to the LA River bikeway from northbound Glendale Boulevard, would provide a detour route around the Glendale Boulevard Bridges during construction. In order for this measure to serve as an effective detour for pedestrians, the pedestrian crossing and the new access to the bike path would have to be fully constructed and operational before commencing the widening of Glendale Boulevard Bridges.

3.4 Monitoring Program for CEQA Mitigation

A Mitigation Monitoring and Reporting Program (MMRP) for adopted mitigation measures (under CEQA) would be implemented by the City's Bureau of Engineering and/or the Bureau of Contract Administration. Measures that require specifications in contract documents would be implemented by the Bureau of Engineering. Measures that require implementation during construction will be enforced by the Bureau of Contract Administration. Compliance monitoring for the mitigation measures would be the responsibility of the Bureau of Engineering.

3.5 Growth

The Proposed Project is a bridge improvement and safety project that would not add new travel lanes or increase travel capacity of the existing viaduct complex. Because of this, the Proposed Project would not result in land use, population, or traffic growth inducement.

3.6 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gases (GHGs), particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization's in 1988, has led to increased efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

Two terms are typically used when discussing the impacts of climate change. "Greenhouse Gas (GHG) Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).[1]

Transportation sources (passenger cars, light duty trucks, other trucks, buses and motorcycles) in the state of California make up the largest source (second to electricity generation) of greenhouse gas emitting sources. Conversely, the main source of GHG emissions in the United States is electricity generation followed by transportation. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

1 American Association of State Highway and Transportation Officials (AASHTO). "GHG Mitigation." Internet URL: http://climatechange.transportation.org/ghg_mitigation/. Last accessed April 12, 2012.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improve system and operation efficiencies, 2) reduce growth of vehicle miles traveled (VMT) 3) transition to lower GHG fuels and 4) improve vehicle technologies. To be most effective all four should be pursued collectively. The following regulatory setting section outlines state, federal, and local (City of Los Angeles) efforts to comprehensively reduce GHG emissions from transportation sources, among other sources.

3.6.1 Regulatory Setting

3.6.1.1 State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the United States Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order S-3-05: (signed on June 1, 2005, by Governor Arnold Schwarzenegger) the goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

AB32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order 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 ten percent by 2020.

Senate Bill 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. The Amendments became effective on March 18, 2010.

3.6.1.2 City of Los Angeles

The City of Los Angeles released its climate action plan, "Green LA: An Action Plan to Lead the Nation in Fighting Global Warming", in May 2007. The plan sets forth a goal of reducing the

City's greenhouse gas emissions to 35 percent below 1990 levels by the year 2030, one of the most aggressive goals of any big city in the United States. This voluntary plan identifies over 50 action items, grouped into focus areas, to reduce emissions. While the emphasis is first on municipal facilities and operations, several measures address programs to reduce emissions in the community.

The cornerstone of the plan is the increased use of clean, renewable energy by the Los Angeles Department of Water and Power (LADWP). Many actions address City operations and facilities, while others describe services provided by the City to the community (*e.g.* LADWP's energy efficiency rebates and the Bureau of Sanitation's curbside recycling program). The City also attempts to influence policies not within its direct control that can aid in emissions reduction, such as through its membership on the board of Los Angeles County Metropolitan Transportation Authority.

The current focus of the plan is to reduce CO_2 emissions generated through the course of providing municipal services to residents of Los Angeles. Reductions in CO_2, when taken in aggregate with reductions by other jurisdictions and industries, will help slow the pace of global warming and reduce the impact on the environment. Whenever possible, the benefits (tons of GHG emissions reduced or avoided) of each of the City's GHG reductions actions will be calculated.

Between 1990 and 2004, the City reduced its CO_2 emissions by 4.5 percent, despite an approximate 12.5 percent increase in population. Two of the primary reasons for the decrease are the City's generation of cleaner electrical power (through the expansion of renewable energy sources) and the conservation of energy used in City buildings.

3.6.2 Project Analysis

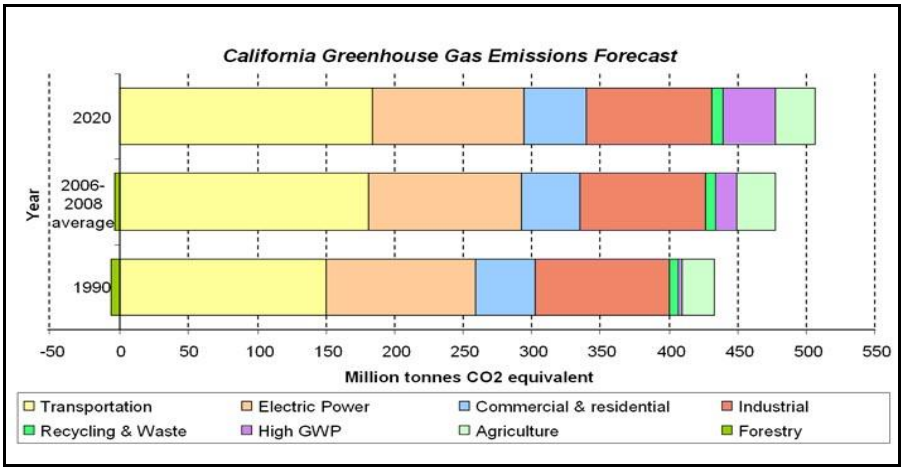
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.[2] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(h)(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 in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, CARB released the GHG inventory for California (Forecast last updated: 28 October 2010). The forecast (Figure 3-1) is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included

2 This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the SCAQMD (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 3-1: CALIFORNIA GREENHOUSE GAS FORECAST



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans (December 2006).

3.6.2.1 Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. Construction emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

3.6.2.2 Operational Emissions

Although short-term construction GHG emissions are unavoidable, there will likely be long-term GHG benefits as a result of the realignment and signalization of the northbound I-5 off-ramp to

Glendale Boulevard. As discussed in Section 2.10.3.2, the proposed project is not a capacity or volume increasing project; instead, it is a bridge seismic retrofit project with recirculation improvements like the realignment of the off-ramp. The signalization of the off-ramp will improve traffic flow as seen in the reduction of the existing LOS C (2011) to LOS B (2036). Additionally, the operation of the project will save VMT from shortening the path travelled for southbound vehicles exiting the I-5 from onto northbound Glendale Boulevard. Table 2.10-6 shows the resulting peak hour CO_2 emission savings from the lowered VMT. Therefore, the project will result in low- to no-potential for increase in GHG emissions.

3.6.3 CEQA Conclusion

Because of the long-term nature of climate change, and the short-term nature of the construction (2.5 years), the project's construction does not hinder, nor help the City's climate action plan. Additionally, the operation of the project does not increase the volume of traffic; instead, the northbound I-5 off-ramp realignment and signalization would save VMT and GHG emissions compared to the existing configuration. Therefore, the GHG impacts from the project are less than significant.

Chapter 4 Comments and Coordination

4.1 Introduction

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development briefings and team meetings, community meetings, and notifications required as part of the Section 106 process. This chapter summarizes the results of the City of Los Angeles' efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

4.2 Community Meetings

Several community meetings were held in the early part of the project development process to obtain feedback on the project as it was initially proposed. These community meetings were held as follows:

- October 22, 2002,
- November 11, 2002,
- January 9, 2003,
- January 16, 2003, and
- June 18, 2003.

Summaries of these meetings are provided below.

4.2.1 October 22, 2002: Friends of Atwater Community Meeting

On the evening of Tuesday, October 22, 2002, the Friends of Atwater Village sponsored a Community Meeting to address public questions and concerns about the Glendale-Hyperion Bridge Rehabilitation Project. Representatives from the Project Team were invited to provide information about the Project. Approximately 30 to 40 community members attended, as well as representatives of Councilmember Tom LaBonge's office and Councilmember Eric Garcetti's office.

The then-proposed retrofitting and widening of Glendale-Hyperion Bridge was described, and characterized as necessary in order to meet current federal standards. Construction was to be accomplished in three phases, over a period of 18+ months. Sidewalks were to increase from 5 feet to 10 feet, and only 3 feet would have been added on both sides of the road (for a total of 16 feet). The median of the street was not to change in size.

The feedback received at the meeting included the following:

a. *Safety*: the Viaduct is currently unsafe for pedestrians and drivers

b. *Sidewalks*: wider sidewalks would not provide many benefits.

c. *Traffic*: vehicle speeds too high.

d. *Lighting*: current lighting is inadequate.

e. *Widening*: the community preferred no widening or taking of the greenspace at the north end of the viaduct complex.

4.2.2 November 11, 2002: Friends of Atwater Village Bridge Walk

4.2.3 January 9, 2003: Atwater Village Neighborhood Council Meeting

At the invitation of the Atwater Village Neighborhood Council (AVNC), members of the Glendale-Hyperion Bridge Project Team attended AVNC's monthly meeting on January 9, 2003, to provide an update of changes that have been made to the plans to retrofit and widen the Bridge. The changes particularly reflect the community input gathered by the Project Team at the Friends of Atwater Village Bridge Walk, which was held on November 11, 2002.

The feedback received at the meeting included the following:

a. *I-5 Glendale Boulevard Off-ramp*: the community asked if the project addresses the need to reconfigure the I-5 Glendale Boulevard off-ramp to accommodate travelers who want to travel south on Glendale Boulevard, instead of proceeding north and then having to make a U-turn at the traffic signal.

b. *Safety*: the community expressed concerns about personal safety beneath the Viaduct.

c. *Widening*: the community questioned the need to widen the bridge and taking of greenspace. The community also felt that the Viaduct widening and straightening would allow traffic to flow more quickly, which would not lead to greater pedestrian safety.

4.2.4 January 16, 2003: Atwater Village Residents Association Town Hall Meeting

On January 16, 2003, members of the Project Team attended the Town Hall Meeting that was organized by the Atwater Village Residents Association. Approximately 25 to 30 community members attended.

The discussion at the townhall meeting centered on clarifying the need for widening the Glendale-Hyperion Viaduct. During the meeting, four or five community members forcefully expressed their opposition particularly to the widening and to the seismic retrofit as well. They expressed the opinion that neither improvement was needed because "the Bridge has held up" during several earthquakes in the past and it would continue to do so; they also expressed the view that "few pedestrians use the Bridge."

Opposition to the widening appeared to focus on the following key themes:

a. Traffic speed would increase: drivers would gain the ability to drive faster on the Bridge (thereby making it even more hazardous for pedestrians).

b. Potential loss of the grass knoll (or any portion of it) on Glendale Boulevard and Ferncroft to accommodate the widening was unacceptable.

4.2.5 June 18, 2003: Summary of a General Community Meeting

On the evening of Wednesday, June 18, 2003, the City of Los Angeles sponsored a Community Meeting at Silver Lake Community Church to provide up-to-date information about the plans to retrofit and rehabilitate the Glendale-Hyperion Bridge, including a revised project description developed based on prior community input. Approximately 20 community members were present, including a representative from Councilmember Eric Garcetti's office.

The feedback received at the meeting included the following:

a. *Approval of New Concept*: Several participants expressed approval of the concept because of the reduced widening of northbound and southbound Glendale Boulevard that spans the Bridge, and the preservation of existing green space. Gratitude for the willingness of City staff and the Project Team to address community concerns was expressed by several participants.

b. *Pedestrian Walkway*: the community felt that it might be difficult to keep all pedestrians on the west side of the Bridge and that crossing from the Atwater side to the sidewalk/crosswalk on the east side may be difficult.

c. *Los Angeles River*: the community asked it diverting pedestrians (providing places to cross) to other places along the Los Angeles River is a possibility.

4.3 Scoping Process

4.3.1 Notices and Scoping Meetings

The CEQ NEPA Regulations (40 CFR Part 1500 *et seq*.) and the *CEQA Guidelines* (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 submit suggestion regarding alternatives and the types of impacts to be evaluated.

The City of Los Angeles prepared and circulated a Notice of Preparation of an Environmental Impact Report on January 25, 2007 (CLA, 2007). During the review and comment periods, the City of Los Angeles held two Community "Scoping" Meetings for the proposed improvements to the Glendale Hyperion Viaduct. The first meeting was held on Thursday, February 8, 2007 at Glenfeliz Boulevard Elementary School, and the second meeting was held on Thursday, February 15, 2007 at Silver Lake Community Church. The two meetings were identical in purpose, format and content.

A newspaper advertisement announcing the NOP was published on January 25, 2007 in the Los Angeles Times. The notice was also posted on the City website[1].

1 http://eng.lacity.org/techdocs/emg/GlendaleHyperionViaductBridges_NOP.pdf

The purpose was to illustrate and describe the improvements in detail, and to solicit and capture community comments regarding the project and content of the environmental document. Appendix E contains a copy of the NOP and its distribution list.

The meeting was structured to facilitate dialogue between City staff, consultant team members, and the community, beginning with a brief "Open House" session during which community members could view plans displayed on easels as well as "before and after" images of the existing and proposed conditions. They could also talk informally with City staff and consultant team members and ask questions about the improvements. That session was followed by a brief PowerPoint presentation provided jointly by City staff and consultants, which illustrated the proposed improvements, along with the project's environmental review process, community involvement opportunities, and the proposed schedule. Community members were then encouraged to ask questions and offer their comments, which were recorded graphically by a project team member on large sheets of paper and viewed throughout the meeting. It was emphasized that these comments would be considered during the environmental review process. Meeting participants were also asked to provide written comments, either during the meeting, or at a later more convenient time, if they wished.

Approximately 25 community members attended the February 8, 2007 meeting, including a representative of Council President Eric Garcetti. Approximately 55 community members attended the February 15, 2007 meeting, including Councilmember Tom LaBonge and his representatives, as well as a representative of Council President Eric Garcetti.

4.3.2 Summary of Comments Received during the Scoping Process

Comments received at the scoping meetings and in response to the Notice of Preparation included the following issues (CLA, 2007):

- Construction Concerns
  - Traffic congestion, phasing, and access.
  - Concurrent construction of other projects.
  - Lighting and noise.
  - Put a left turn in immediately at the I-5 off-ramp (onto Glendale Boulevard). It will help mitigate traffic impacts during construction.
- Physical Changes to the Viaduct Complex
  - Visual changes to the Viaduct Complex.
  - Concrete barriers may hide the replica balustrades.
  - Add ramps on the stairways to facilitate bike movements.
- Pedestrian and Vehicular Safety
  - Install a smart crosswalk at the northern pedestrian crossing.
  - Slow down traffic on the viaduct complex.
  - Options for the median on Hyperion Avenue

- Los Angeles River
  - Add a pedestrian walkway over the Los Angeles River using the old Red Car piers.
- Traffic Impacts
  - Related to the I-5 off-ramp reconfiguration.
  - Center barrier may cause more accidents.

Various alternatives were suggested by members of the public or other agencies to improve the proposed project. Many of these suggestions have been incorporated into the proposed project.

4.3.3 Suggestions Received During the Scoping Process

4.3.3.1 Salvage and Reuse Existing Lights

The careful salvage, restoration, and reuse of the existing light poles and globes appear viable and have been incorporated into the proposed project.

4.3.3.2 Improve the Pedestrian Crosswalk Proposal

The City's Department of Transportation (LADOT) is evaluating different options for the pedestrian cross walk proposed across southbound Glendale Boulevard from Hyperion Avenue at the north end of the viaduct complex. Options under consideration include, but are not limited to, a painted designated crosswalk, a designated crosswalk that is also supplemented with traffic warning lights that are initiated by pedestrians, and a controlled crosswalk such as a smart crosswalk that is linked to the signal at Glenfeliz Boulevard. The specific option has not yet been determined; however, none of these options is expected to result in physical changes that could significantly affect the environment. LADOT will make a determination during the design process, if the project is approved.

4.3.3.3 Reuse and Restore the Existing Balustrades

Many of the complex's original balustrade railings were covered with concrete in 1962 as part of a rail repair project. Discussions with City engineering staff knowledgeable of the rail repair project have indicated that poor construction quality of the original balustrades necessitated the covering of the rails. Balustrade quality problems often occurred when concrete was not adequately vibrated during casting, thereby allowing the elements to cause deterioration of the concrete. The rail covering repair project was intended to protect the balustrades from the elements to stop further deterioration (such as spalling and cracking exacerbated by water exposure). In addition, as part of the 1962 rail repair project, the inner and outer edges of the top rail were chipped away to accommodate the concrete covering.

The removal of the concrete covering from the railings and the rehabilitation of the existing balustrades are not considered viable due to past deterioration and the currently damaged condition beneath the rail coverings.

The proposed replica replacement balustrades would be constructed using state-of-the-art concrete casting methods, including methods to ensure proper concrete densities. In addition,

the City would specify the use of concrete meeting quality and strength standards suitable for balustrade railings.

4.3.3.4 Revisit the Need to Widen the Glendale Boulevard Bridges

The suggestion to revisit the need to widen the Glendale Boulevard bridges was considered but withdrawn because this alternative fails to meet project purpose and need.

4.3.3.5 Complete the I-5 Off-ramp Reconfiguration in Phase I

The suggestion to complete the reconfiguration of the I-5 off-ramp to Glendale Boulevard before the construction of the main improvements to the viaduct complex would have the effect of reducing the amount of traffic on northbound Glendale Boulevard (north of the off-ramp) and southbound Glendale Boulevard (south of Glenfeliz Boulevard) during construction. Because of this, the construction staging plans have been modified to perform this reconfiguration in the first construction phase.

4.3.3.6 Eliminate Proposed Center Median

The original proposal to provide a one-foot-high median separating opposing traffic along Hyperion Avenue was discussed at both scoping meetings and amongst City staff (Department of Transportation and Bureau of Engineering). These discussions initially led to a decision to eliminate the median barrier entirely because it was felt that a one-foot median would not provide a reliable physical barrier between opposing traffic, and could cause traffic problems if vehicles cross over such a low median. Because of this concern, and the occurrence of a recent fatal accident on Hyperion Avenue in which a vehicle crossed over the existing striped median and became engaged in a head-on collision, a standard barrier similar to Type 60S or Type 60SC of the Caltrans Standard Plan is now being proposed. Such median barrier would facilitate the safety improvement associated with the modification of the roadway cross-section from crown to super-elevation.

4.3.3.7 Eliminate the Proposed Crash Barrier in front of the Balustrades

The suggestion to eliminate the proposed crash barrier along the replica balustrades was considered but withdrawn because without crash-rated barriers to protect the proposed decorative railing, the project would not qualify for federal funding assistance. Caltrans requires minimal crash standards for bridges over freeways and neither the existing nor proposed replica balustrades meet the Caltrans crash standards. It should be noted that the major view of the replica balustrade would be from the outside of the bridge and the crash barrier only partially obstructs the drive-through view. The proposed barrier in conjunction with the replicated balustrades will represent an improvement over existing conditions, which are fully covered railings along both sides of Hyperion Avenue.

4.3.3.8 Add Lights near the Viaduct Stairs

The City has considered the recommendation to add lighting near the stairs that connect Glendale Boulevard to Hyperion Avenue. Because the staircase landing is set back from the street, the addition of lighting around the landing has been added to the project.

4.3.3.9 Crossing over the Los Angeles River on the Red Car Piers

During one of the several community scoping meetings conducted following release of the NOP for this document, a suggestion was received that a crossing over the Los Angeles River utilizing the existing Red Car piers be included in the proposed project. City staff reviewed this recommendation and determined that such a river crossing would provide pedestrian and bicycle access benefits to the local residents, pedestrians, students, and bicyclists that use the viaduct complex and the Los Angeles River bike path. City staff also determined that such a crossing could help offset potential access impacts during construction of improvements to the Glendale Boulevard bridges over the Los Angeles River. As a consequence, a crossing over the Los Angeles River along the Red Car piers has been applied to the proposed project as mitigation.

4.3.3.10 Improve Bicycle Access to the Bike Path

The proposed project includes a new access ramp to the Los Angeles River bike path from northbound Glendale Boulevard. A direct bike ramp from the viaduct complex to the Los Angeles River bike path was considered, but withdrawn due to the potential for impacts and constructability issues. Given the historic nature of the bridge, building a ramp to connect from the Hyperion Bridge to the river is likely to require substantial modifications to the bridge and could significantly affect its historic status. Such an alternative would also pose constructability difficulties given the proximity of the Los Angeles River, I-5, the off-ramp, and viaduct structures, as well as the height differences between the Hyperion viaduct structure and the bike path.

4.3.3.11 Eliminate Right Turns to Ettrick Street (from Hyperion Avenue)

The City's Department of Transportation will consider eliminating right turns from southbound Hyperion Avenue onto Ettrick Avenue during peak hours.

4.3.3.12 Correct Roadway Banking along Hyperion Avenue

The proposed project would include improvements to Hyperion Avenue, including roadway banking (superelevation, or cross-slope) along the curve over I-5 and beneath the Waverly Drive Bridge.

4.3.3.13 Reduce Speeding on Hyperion Avenue

The City's Department of Transportation is considering measures that can be implemented to reduce excessive speeding along Hyperion Avenue on the viaduct complex.

4.3.3.14 Sidewalk on the East Side of Hyperion Avenue

The placement of a sidewalk along the east side of the Hyperion Avenue structure instead of the west side was considered but withdrawn because it would result in the elimination of pedestrian access to Hyperion Avenue via staircases from Riverside Drive and Glendale Boulevard, as the existing staircases currently connect with only the sidewalk along the west side of the Hyperion Avenue structure. In addition, it is not possible to place a sidewalk along both sides of the Hyperion Avenue structure due to the limited width of Hyperion Avenue, which is dictated by the retaining walls and the Waverly Drive Bridge at this location. For these reasons, this sidewalk along the east side of Hyperion Avenue has been eliminated from further consideration.

Through this coordination, city staff was also able to incorporate design features desired by members of the community, as indicated below in Table 4-1.

Table 4-1: Alternatives or Enhancements Recommended by the Public

Alternative/Enhancement		Action
1.	Refurbish, improve, and reuse the existing light poles and globes	Incorporated into the Proposed Project
2.	Improve the proposed pedestrian crossing at the north end of the viaduct to increase safety for pedestrians.	Incorporated into the Proposed Project
3.	Reuse and restore the existing balustrades instead of replicating them.	Withdrawn from further consideration
4.	Revisit the need to widen the Glendale Boulevard bridges over the Los Angeles River.	Withdrawn from further consideration
5.	Complete the I-5 off-ramp reconfiguration before constructing other elements of the viaduct improvement to minimize traffic impacts during construction.	Incorporated into the Proposed Project
6.	Eliminate the proposed center barrier median (as described in the NOP).	Withdrawn from further consideration
7.	Eliminate the barrier in front of the balustrades to avoid blocking the view to the balustrades.	Withdrawn from further consideration
8.	Add lighting near the stairs that provide pedestrian access to Hyperion Avenue from southbound Glendale Boulevard.	Incorporated into the Proposed Project
9.	Incorporate a crossing over the Los Angeles River utilizing the existing Red Car piers.	Required as mitigation
10.	Look at ways to improve use of the bike path, including access improvements.	Incorporated into the Proposed Project
11.	Consider eliminating right turns on to Ettrick Street (from southbound Hyperion Avenue to eliminate cut-through traffic.	Under consideration by LADOT
12.	Correct bank issues along Hyperion Avenue.	Incorporated into the Proposed Project
13.	Address speeding problem on Hyperion Avenue.	Under consideration by LADOT
14.	Put the sidewalk on Hyperion Avenue on the south (east) side of the bridge.	Withdrawn from further consideration

Source: Community Scoping Meetings of February 8, 2007 and February 15, 2007. (CLA, 2007)

4.4 Section 106 Coordination

As part of the Section 106 compliance documentation, coordination with various organizations that may have an interest in historic nature of the viaduct complex was initiated (JRP, 2006). This coordination included solicitation of comments from the following individuals and organizations:

- Linda Dishman, Los Angeles Conservancy
- Isabel Rosas, Los Angeles Cultural Heritage Commission
- Eddy Feldman, Los Angeles City Historical Society
- Denise S. Spooner, Historical Society of Southern California

In addition, the City sent a solicitation letter to Joe Linton, Friends of the Los Angeles River, due to the project's proximity to the Los Angeles River.

The City also hosted a briefing with representatives of the Los Angeles Conservancy on April 13, 2006 to provide an overview of several bridge projects, including the proposed Project. To date, no formal comments have been received from the above organizations.

The viaduct complex is eligible for listing in the National Register of Historic places, and is a City monument. In order to minimize potential impacts to the viaduct complex, City and consulting design staff, and staff of JRP Historical Consulting, LLC have been coordinating on design features that can be included in the project designs. In addition, the City has actively sought public comments on the project design and other areas of community interest, and has incorporated those comments into the current design proposal. Through this coordination, the project design has evolved to become as consistent as possible with the Secretary of Interior's Standards for Rehabilitation, including replacement railings (with replicas of the original balustrade design), the careful removal and reuse of the abutment pylons along northbound and southbound Glendale Boulevard viaducts (over the Los Angeles River), and the reuse of lights standards.

Furthermore, in accordance with Section 106 of the NHPA, a request was made to the Native American Heritage Commission (NAHC) on May 3, 2004 for a review of the *Sacred Lands File*, to determine if any known cultural properties are present within or adjacent to the Project APE. The NAHC responded on May 18, 2004 stating that no Native American resources are known to exist within or adjacent to the Project APE; however, the NAHC requested that 11 Native American individuals and organizations be contacted to solicit any information or concerns regarding cultural resources issues related to the Project. These 11 individuals and organizations were contacted on May 20, 2004. On May 25, 2004, Mr. Anthony Morales, Chairman of the Gabrielino/Tongva Tribal Council contacted Applied EarthWorks by phone stating that he had concerns regarding the proposed Project due its proximity to the Los Angeles River where Native peoples often located their villages and cemeteries. Mr. Morales requested that a professional archaeologist be present during any Project-related ground disturbing activities. As well, Mr. Morales wishes to be informed if any prehistoric cultural materials or human remains were inadvertently discovered during Project-related construction. As of June 10, 2004, no other comments have been received from the Native American organizations and individuals contacted.

4.5 Site Visits: August – September 2002

Door-to-door visits to residents along Hyperion Avenue and Waverly Drive and to businesses along Riverside Drive in the project vicinity were undertaken by City representatives in August and September 2002. Concerns expressed by residents and businesses included:

- Construction impacts (noise, dust, access, etc.)
- Personal safety issues related to crime in the area
- Impacts related to widening of Hyperion Avenue
- Loss of on-street parking
- Disruptions to a business that has warehousing and storage operations beneath the bridge.
- Impacts related to the historic status of the viaduct complex.

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Chapter 7 Distribution List

7.1 IS/EA

The IS/EA was made available for review by the general public, government agencies, and other interested parties. The public notification process announcing availability of the IS/EA is summarized below.

7.1.1 Locations Where IS/EA Can Be Viewed

Copies of the IS/EA are available for viewing at the following locations:

- Bureau of Engineering, Bridge Improvement Division
  1149 S. Broadway, Suite 750
  Los Angeles, CA 90015

- Caltrans District 7
  100 S. Main Street
  Los Angeles, CA 90012

- Atwater Village Branch Library
  3379 Glendale Boulevard
  Los Angeles, CA 90039

- Elendale Branch Library
  2011 West Sunset Boulevard
  Los Angeles, CA 90026

- Los Feliz Branch Library
  1874 Hillhurst Avenue
  Los Angeles, CA 90027

- Silver Lake Branch Library
  2411 Glendale Blvd
  Los Angeles, CA 90039

- Silver Lake Recreation Center
  1850 West Silver Lake Drive
  Los Angeles, CA 90026

- The City of Los Angeles website: http://eng.lacity.org/techdocs/emg
- Caltrans website: http://www.dot.ca.gov/dist07/resources/envdocs/

7.1.2 IS/EA 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.

7.1.2.1 Elected Officials

Federal
Congressman Adam Schiff , District 28
Senator Barbara Boxer
Senator Diane Feinstein

State
State Senator Carol Liu, District 25
State Senator Kevin de Leon, District 22
State Assembly Member Mike Gatto, District 43

Local
Los Angeles County Supervisor Zev Yaroslavsky, District 3

City of Los Angeles
Councilman Tom LaBonge, Council District 4
Councilman Mitch O'Farrell, Council District 13
Mayor Eric Garcetti

City of Glendale
Council Member Laura Friedman
Council Member Ara Najarian
Council Member Zareh Sinanyan
Council Member Frank Quintero
Mayor Dave Weaver

7.1.2.2 Governmental Agencies

Federal
Advisory Council on Historic Preservation
Native American Tribal Councils
U.S. Army Corps of Engineers – Los Angeles District
U.S. Department of Housing and Urban Development (HUD), Office of Sustainable Housing and Communities
U.S. Department of the Interior
U.S. Department of Transportation, Federal Highway Administration

U.S. Environmental Protection Agency Region 9
U.S. Federal Emergency Management Agency
U.S. Fish & Wildlife Service – Carlsbad Office

State
California Air Resource Board
California Department of Fish and Wildlife – South Coast Region (5)
California Highway Patrol
California Native American Heritage Commission
California Regional Water Quality Control Board – Los Angeles Region (4)
California Transportation Commission
Office of Planning and Research, State Clearinghouse

Regional
Southern California Association of Governments
South Coast Air Quality Management District

Los Angeles County
County of Los Angeles Metropolitan Transportation Authority
County of Los Angeles Department of Public Works/ Los Angeles River Cooperation Committee

City of Glendale
City of Glendale Department of Public Works

7.1.2.3 Local

Other Interested and Potentially Affected Parties
Archstone Los Feliz Apartment
Atwater Village Chamber of Commerce
Atwater Village Neighborhood Council
County of Los Angeles Bicycle Coalition
Echo Park Improvement Association
Elysian Valley Riverside Neighborhood Council
Franklin Hills Residents Association
Friends of Atwater Village
Friends of Griffith Park
Friends of the Los Angeles River
Greater Echo Park Elysian Neighborhood Council
Griffith Park Neighborhood Council
Historical Society of Southern California
Los Angeles River Kayak Safari
Los Angeles City Historical Society
Los Angeles Conservancy
Los Angeles Griffith Park Ranger
Los Angeles River Center and Gardens

Los Angeles River Cooperation Committee
Los Feliz Estates Owners Association
Los Feliz Improvement Association
Los Feliz Square Neighborhood Association
Los Angeles Conservation Corps
Los Angeles Riverfront Collaborative
Los Angeles River Revitalization Corporation
Northeast Trees
Northeast Los Angeles Riverfront Collaborative (NELA RC)
Riverglen Apartments
Silver Lake Chamber of Commerce
Silver Lake Improvement Association
Silver Lake Neighborhood Council, Mr. Rusty Miller
Silver Lake Neighborhood Council, Mr. Scott Crawford
Silver Lake Neighborhood Council, Ms. Courtney Blackburn
Silver Lake Neighborhood Council/Echo Park, Mr. Peter Lassen
Silver Lake Recreation Center
Silver Lake Reservoirs Conservancy
Silver Lake Residents Association
Silver View II Homeowners Association
The Committee to Save Silver Lake Reservoir
The River Project

Recreation, Senior, and Youth Centers
Chevy Chase Recreation Center
Glassell Park Recreation Center
Glassell Park Youth Center
Glassell Senior Citizen Center
Griffith Park Adult Community Center

Libraries
Atwater Village Branch Library
Echo Park Branch Library
Edendale Branch Library
Los Feliz Branch Library
Silver Lake Branch Library

Schools
Allesandro Elementary School
Atwater Avenue Elementary School
Bellevue Primary school
Cliffford Street Elementary School
Franklin Avenue Elelmentary School

Glenfeliz Boulevard Elementary School
Holy Trinity Prep School
Holy Trinity Academy
Immaculate Heart High School
Ivanhoe Elementary School
John Marshall High School
Kids' World School
LACCD Van De Kamp Innovation Center
Los Feliz Elementary School
Lycee International De Los Angeles
Mayberry Street Elementary School
Micheltorena Street Elementary School
Our Mother of Good Counsel School
St. Teresa of Avila School
St. Francis of Assisi Elementary School
Thomas Starr King Middle School
Washington Irving Middle School

7.1.2.4 Businesses and Residents

Adjacent Parcels

Assessor's Parcel No.	*Property Address*
5434022900	2947 North Hyperion Avenue, Los Angeles, CA 90027
5437037901	Not available
5434023028	3019 Hyperion Avenue, Los Angeles, CA 90027
5434023029	3015 Hyperion Avenue, Los Angeles, CA 90027
5437021003	2992 Glendale Boulevard, Los Angeles, CA 90039
5435027020	3111 Glendale Boulevard, Los Angeles, CA 90039
5437018002	3040 Glendale Boulevard, Los Angeles, CA 90039
5434023032	3001 Hyperion Avenue, Los Angeles, CA 90027
5437021023	2974 Glendale Boulevard, Los Angeles, CA 90039
5435028008	3003 Glendale Boulevard, Los Angeles, CA 90039
5434026046	2998 Hyperion Avenue, Los Angeles, CA 90027
5437018001	3540 Hollydale Drive, Los Angeles, CA 90039
5435028028	2973 North Glendale Boulevard, Los Angeles, CA 90039
5434024017	Not available
5434024018	3041 Waverly Drive, Los Angeles, CA 90039
5435028026	2977 North Glendale Boulevard, Los Angeles, CA 90039
5437021022	2978 North Glendale Boulevard, Los Angeles, CA90039
5434023027	3023 Hyperion Avenue, Los Angeles, CA 90027
5434026013	3040 Waverly Drive, Los Angeles, CA 90039
5435028037	3047 Glendale Boulevard, Los Angeles, CA 90039
5437018032	3036 Glendale Boulevard, Los Angeles, CA 90039

Assessor's Parcel No.	*Property Address*
5434024901	Not available
5434026045	2996 Hyperion Avenue, Los Angeles, CA 90027
5434023026	3100 Waverly Drive, Los Angeles, CA 90027
5437018031	3010 Glendale Boulevard, Los Angeles, CA 90039
5434023030	3009 Hyperion Avenue, Los Angeles, CA 90027
5435028017	2985 Glendale Boulevard, Los Angeles, CA 90039
5434017022	3101 Waverly Drive, Los Angeles, CA 90027
5435028030	2965 Glendale Boulevard, Los Angeles, CA 90039
5434026042	3004 Hyperion Avenue, Los Angeles, CA 90027
5437021026	2992 Glendale Boulevard, Los Angeles, CA 90039
5435028027	2975 North Glendale Boulevard, Los Angeles, CA 90039
5435028010	3015 Glendale Boulevard, Los Angeles, CA 90039
5437017025	3068 Glendale Boulevard, Los Angeles, CA 90039
5435028024	2983 North Glendale Boulevard, Los Angeles, CA 90039
5434024026	3044 Riverside Drive, Los Angeles, CA 90039
5434026005	2962 Hyperion Avenue, Los Angeles, CA 90027
5437036902	Not available
5437022021	2960 Glendale Boulevard, Los Angeles, CA 90039
5437017026	3056 Glendale Boulevard, Los Angeles, CA 90039
5434026006	2966 Hyperion Avenue, Los Angeles, CA 90027
5434026047	3000 Hyperion Avenue, Los Angeles, CA 90027
5437021021	2980 Glendale Boulevard, Los Angeles, CA 90039
5435039006	Not available
5437018034	3028 Glendale Boulevard, Los Angeles, CA 90039
5434023031	3005 Hyperion Avenue, Los Angeles, CA 90027
5435028036	2953 Glendale Boulevard, Los Angeles, CA 90039
5435028011	3031 Glendale Boulevard, Los Angeles, CA 90039
5434017029	3100 Riverside Drive, Los Angeles, CA 90027
5434026044	2994 Hyperion Avenue, Los Angeles, CA 90027
5435028029	2973 Glendale Boulevard, Los Angeles, CA 90039
5435027011	3609 Glenfeliz Boulevard, Los Angeles, CA 90039
5435039003	2960 Glenmanor Place, Los Angeles, CA 90039
5437017020	3060 Glendale Boulevard, Los Angeles, CA 90039
5435028025	2979 North Glendale Boulevard, Los Angeles, CA 90039
5437021004	2982 Glendale Boulevard, Los Angeles, CA 90039
5434040014	3061 Riverside Drive, Los Angeles, CA 90039
5435028031	2961 Glendale Boulevard, Los Angeles, CA 90039
5435028009	3007 North Glendale Boulevard, Los Angeles, CA 90039
5434026043	3006 Hyperion Avenue, Los Angeles, CA 90027
5435039903	Not available
5437021024	2972 Glendale Boulevard, Los Angeles, CA 90039

Assessor's Parcel No.	*Property Address*
5434026026	3012 Hyperion Avenue, Los Angeles, CA 90027
5437018005	3032 Glendale Boulevard, Los Angeles, CA 90039
5437022022	Not available
5437018028	3020 Glendale Boulevard, Los Angeles, CA 90039
5437008025	3140 Glendale Boulevard, Los Angeles, CA 90039
5437018033	3028 Glendale Boulevard, Los Angeles, CA 90039
5434026041	3002 Hyperion Avenue, Los Angeles, CA 90027
5437021025	3531 Ferncroft Road, Los Angeles, CA 90039

Chapter 8 Revisions to the Proposed Project

8.1 Introduction

As a result of comments received during the review period for the Initial Study/Mitigated Negative Declaration, the Bureau of Engineering is proposing minor revisions to the proposed project. These revisions are limited to the Hyperion Avenue portion of the project and will not result in any new avoidable significant effects. The revisions to this part of the project are referred to as the "Recommended Option."

8.2 Recommended Option: Revisions to the Project Segment on Hyperion Avenue from South of Waverly Drive to Glendale Boulevard

The Recommended Option includes the following revisions to the Hyperion Avenue portion of the project:

- A northbound and a southbound bike lane have been added.
- Sidewalks and vehicle travel lanes have been narrowed to accommodate bike lanes.
- Continuous concrete median barriers have been eliminated.

No other revisions to the project as described in the Draft IS/MND are proposed.

Modifications to this section of the viaduct complex would occur to the three Hyperion Avenue Bridges (53C-1881, 53C-1882, and 53C-1069); the revisions to the proposed project are described below.

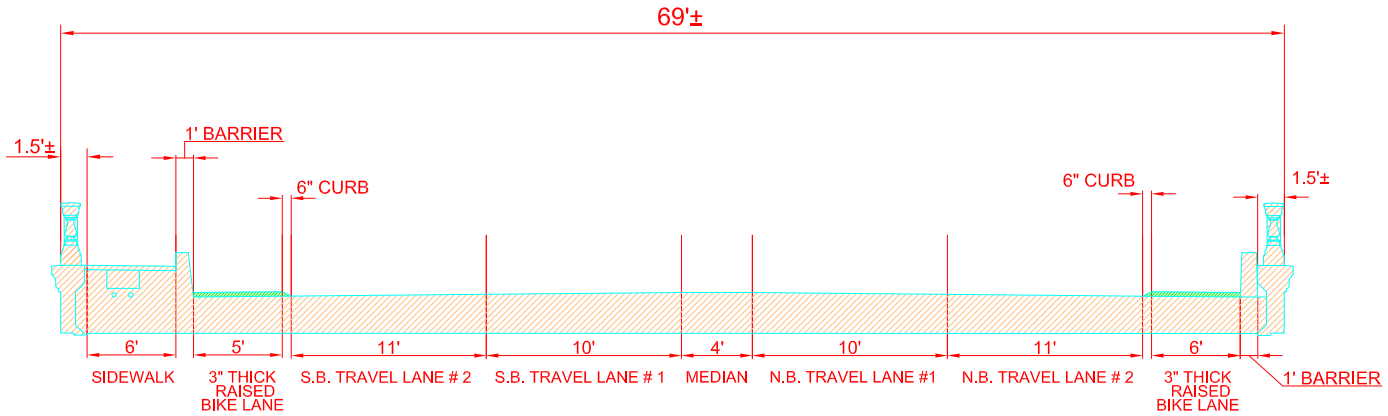
Hyperion Avenue Bridge Over I-5, Riverside Drive and LA River

North of the Waverly Drive Bridge, Hyperion Avenue is 69 feet wide. The existing 5-foot-wide sidewalk along the east side of Hyperion Avenue north of the Waverly Drive Bridge retaining wall would be removed and a 5-foot-wide bike lane would be constructed for northbound cyclists. A 1-foot-wide concrete barrier would separate the bike lane from the historic railing. The existing 5-foot-wide sidewalk along the west side of Hyperion Avenue would be removed and replaced with a 5-foot-wide sidewalk and a 5-foot-wide bike lane for southbound cyclists. The bike lanes would consist of a 3-inch-thick raised surface. Traffic lanes would be restriped to provide two 11-foot-wide southbound traffic lanes, a 4-foot-wide median, and two 11-foot-wide northbound traffic lanes. See Figure 8-1 (top).

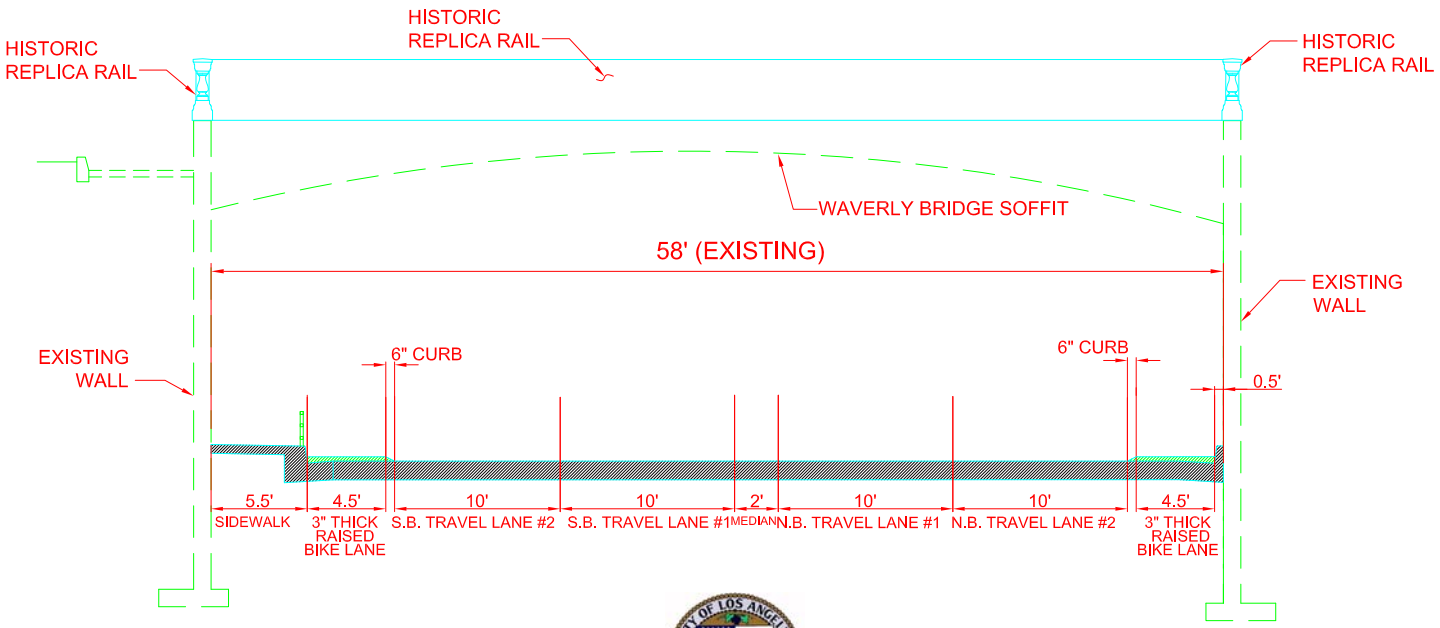
Figure 8-1

RECOMMENDED OPTION

HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)



ENGINEERING
CITY OF LOS ANGELES
CITY ENGINEER: GARY LEE MOORE, PE, ENV SP

MARCH 2015

LADOT
GENERAL MANAGER: SELETA REYNOLDS

Hyperion Avenue At Waverly Drive

Hyperion Avenue is 58-feet-wide as it passes under the Waverly Drive Bridge. The existing 2-foot curb along the east side of Hyperion Avenue (adjacent to the retaining wall beneath the Waverly Drive Bridge) would be removed and replaced with a 1-foot-high and 0.5-foot-wide curb. The existing 2-foot-wide curb adjacent to the retaining wall on the west side of Hyperion Avenue would be removed and a 4-foot-wide sidewalk would be constructed next to the retaining wall. A railing would be placed along the curb between the sidewalk and the bike lane. Vehicle traffic lanes would be restriped to provide a 4-foot-wide southbound bike lane along the west shoulder of the roadway, one 10.5-foot-wide and one 10-foot-wide southbound vehicle travel lanes, a 2-foot-wide median, one 10.5-foot-wide and one 10-foot-wide northbound vehicle travel lanes, and a 4-foot-wide northbound bike lane on the east shoulder of the roadway. See Figure 8-1 (bottom).

8.3 Rationale for Revisions to the Project

The Bureau of Engineering (BOE) retained a qualified consulting engineer to conduct a series of traffic studies (See Appendix F). The six traffic studies were based on the vehicle, bicycle, and pedestrian counts obtained in February 2014, and assessed the traffic operation as affected by the speed limit, median barrier, signalization, and roadway configurations. The Los Angeles Department of Transportation (LADOT) reviewed the traffic studies and concurred with their conclusions. The revisions have been presented to the Citizens Advisory Committee (CAC) that was established after circulation of the IS/MND. The majority of CAC members favored a revised configuration that would reduce on northbound traffic lane and constructing sidewalks on both sides of the viaduct. However, pedestrian counts have shown that the number of pedestrians crossing the Hyperion Avenue Viaduct does not warrant sidewalks on both sides at this time. The revisions being proposed maintain the 4-lane configuration which offers flexibility of converting to other roadway options if warranted by future conditions.

The California median barrier guidelines do not require that a concrete median barrier be installed on multi-lane conventional highways such as Hyperion Avenue. The use of concrete median barriers raises issues relating to sight distance, emergency vehicle access, and the need for crash attenuators at barrier end points.

8.4 The Revisions to the Project Do Not Require Recirculation of IS/MND

Section 15073.5(a) of CEQA requires that a lead agency recirculate a MND if the document must be “substantially revised” after the public comment period. Section 15073.5(b) specifies that a “substantial revision” occurs when:

1. A new avoidable, significant impact is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or
2. The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required.

The proposed revisions to the project do not constitute a substantial revision since the revisions will not result in any new, avoidable significant effects that require mitigation. The proposed revisions will not reduce the effectiveness of any mitigation measure and will not themselves require any mitigation.

The addition of bike lanes to the roadway of the Hyperion Avenue Viaduct (comprising three structures: Caltrans bridge numbers 53C-1882, 53-1069, and 53C-1881). The addition of bike lanes is consistent with the Bicycle Plan adopted by the City Council in 2011 (Chapter 9 of the Transportation Element of the General Plan). The addition of bicycle lanes will not reduce the number of traffic lanes and will not involve any change to any of the historic features of the viaduct nor affect those features in any way. The viaduct will not be widened. The approaches will not be widened. The space for the bike lanes will be accommodated by adjusting the width of the traffic lanes.

Since the Recommended Option does not include concrete median barriers, there would be no change from current conditions, and therefore no impacts in this area from the Recommended Option.

Section 15073.5(c) of CEQA specifies that recirculation is not required when "new project revisions are added in response to written or verbal comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects." As discussed immediately above, the proposed revisions will not create any new avoidable significant effects.

8.5 Summary of the Proposed Project

The project consists of the proposed project described in Chapter 1 as modified by the revisions included in the Recommended Option as described in Section 4.2 above.

The components of the project which have not been revised and which remain as a part of the proposed project are:

- Widening of Glendale Boulevard bridges: The northbound and southbound Glendale Boulevard bridges would each be widened by eight feet to provide room for shoulders and wider sidewalks while retaining the two existing travel lanes. The shoulders would

facilitate the implementation of bicycle routes in the future as designated in the 2010 Bicycle Plan.

- Seismic design strengthening of all but the Waverly Drive Bridge: This would primarily involve strengthening of the substructure elements: abutment transverse wall shear friction retrofit, spandrel column ductility retrofit, interior spandrel wall strengthening, and pier wall channel lining retrofit.

- Realignment of the northbound I-5 off-ramp to allow left turns at a new, signalized intersection at Glendale Boulevard.

- New bike path access: The realignment of the I-5 off-ramp would make room to add a new access ramp to the LA River Bike Path from northbound Glendale Boulevard. This ramp would also provide access to a new pedestrian bridge to be constructed over the river.

- New pedestrian bridge across the river on the old Red Car piers: This would connect to a new path to Glendale Boulevard on the north side and to the LA River Bike Path on the south side, providing a pedestrian detour around project construction and then remaining as a permanent improvement.

- At the north end of the complex, a signalized pedestrian crosswalk from the west side of Hyperion Avenue to the west side of Glendale Boulevard (across southbound traffic on Glendale Boulevard) would be installed.

- Historic restoration: The original balustrades were covered with gunite in 1962 and now appear as solid walls. These would be replaced on all bridges of the complex with balustrades that replicate the original 1929 design. Additionally, the original light poles would be restored.

- Infiltration/Detention Basin: To improve water quality of the LA River, an infiltration/detention basin would be constructed to provide pretreatment of runoff from the bridge complex prior to its discharge to the river. The basin would be located in a section of Sunnynook Park reserved for this purpose.

APPENDIX A: CEQA Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures under the appropriate topic headings in Chapter 2.

CITY OF LOS ANGELES
CALIFORNIA ENVIRONMENTAL QUALITY ACT

INITIAL STUDY

(Article I – City CEQA Guidelines)

Council District: 4 &13 Date: January 2007

Lead City Agency: Department of Public Works, Bureau of Engineering

Project Title: Glendale Boulevard-Hyperion Avenue Viaduct Improvement Project

I. PROJECT DESCRIPTION

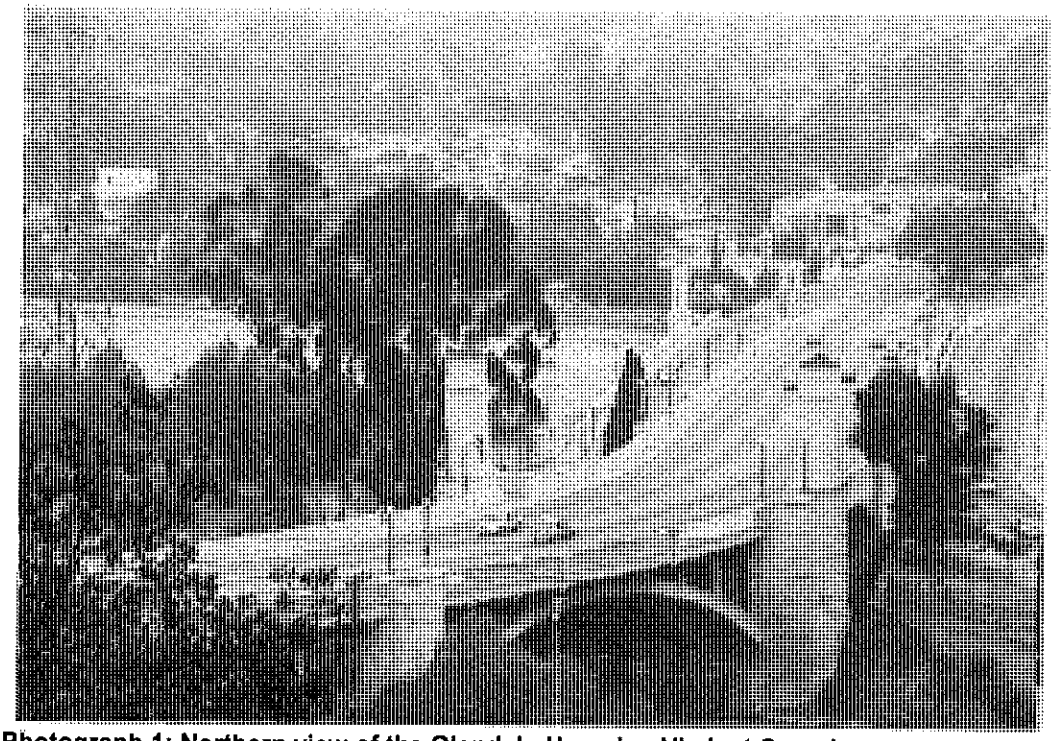
A. Location

The proposed project would be located between Atwater Village in the Northeast Los Angeles Community and the Hollywood community planning area of the City of Los Angeles. Figure 1 shows the overall project vicinity. The Glendale-Hyperion Viaduct complex, built in 1929, spans the Los Angeles River, Interstate 5 (I-5), and Riverside Drive. This viaduct complex connects Hyperion Avenue in the Griffith Park area of the Hollywood community with Glendale Boulevard in the Atwater area of the Northeast Los Angeles community. Figure 2 shows the project location and depicts the Hyperion Viaduct complex and the immediate area.

The Glendale-Hyperion Viaduct complex consists of the following structures:

- Hyperion Avenue viaduct over the Los Angeles River (53C-1881)
- Hyperion Avenue Bridge over Riverside Drive (53C-1882)
- Hyperion Avenue Bridge over I-5 (53-1069)
- Southbound Glendale Boulevard Bridge over the Los Angeles River (53C-1883)
- Northbound Glendale Boulevard Bridge over the Los Angeles River (53C-1884)
- Waverly Drive Bridge (Bridge Number 53C-1179)

The Viaduct complex is generally aligned along a southwest-northeast axis and is, bounded by Ettrick Street and Glenhurst Avenue, respectively. The photograph below shows a northern view of the complex as seen from the bluff to the southeast. The Hyperion Avenue Viaduct (53C-1069) spans I-5 and is under the jurisdiction of the California Department of Transportation (Caltrans) and, of the five structures comprising the Complex, is the only component that is part of the State Highway System (see project footprint in Figure 3).



Photograph 1: Northern view of the Glendale-Hyperion Viaduct Complex

Figure 3A and Figure 3B present a schematic overview of the proposed project's major components and identify the reaches of each of the complex components listed above. Glendale Boulevard provides both access to and egress from the I-5 freeway, which passes beneath the complex.

The Glendale Boulevard exit from northbound I-5 connects with north Glendale Boulevard, and cars exiting I-5 at this ramp currently can only continue north on Glendale Boulevard. Access to northbound I-5 is provided from southbound Glendale Boulevard. As Hyperion Avenue merges with Glendale Boulevard, it separates Glendale Boulevard into two roadways (one northbound and the other southbound). Sidewalks on either side of Hyperion Avenue terminate at the northern extent of the viaduct complex, with no established pedestrian crosswalks across northbound Glendale Boulevard or southbound Glendale Boulevard.

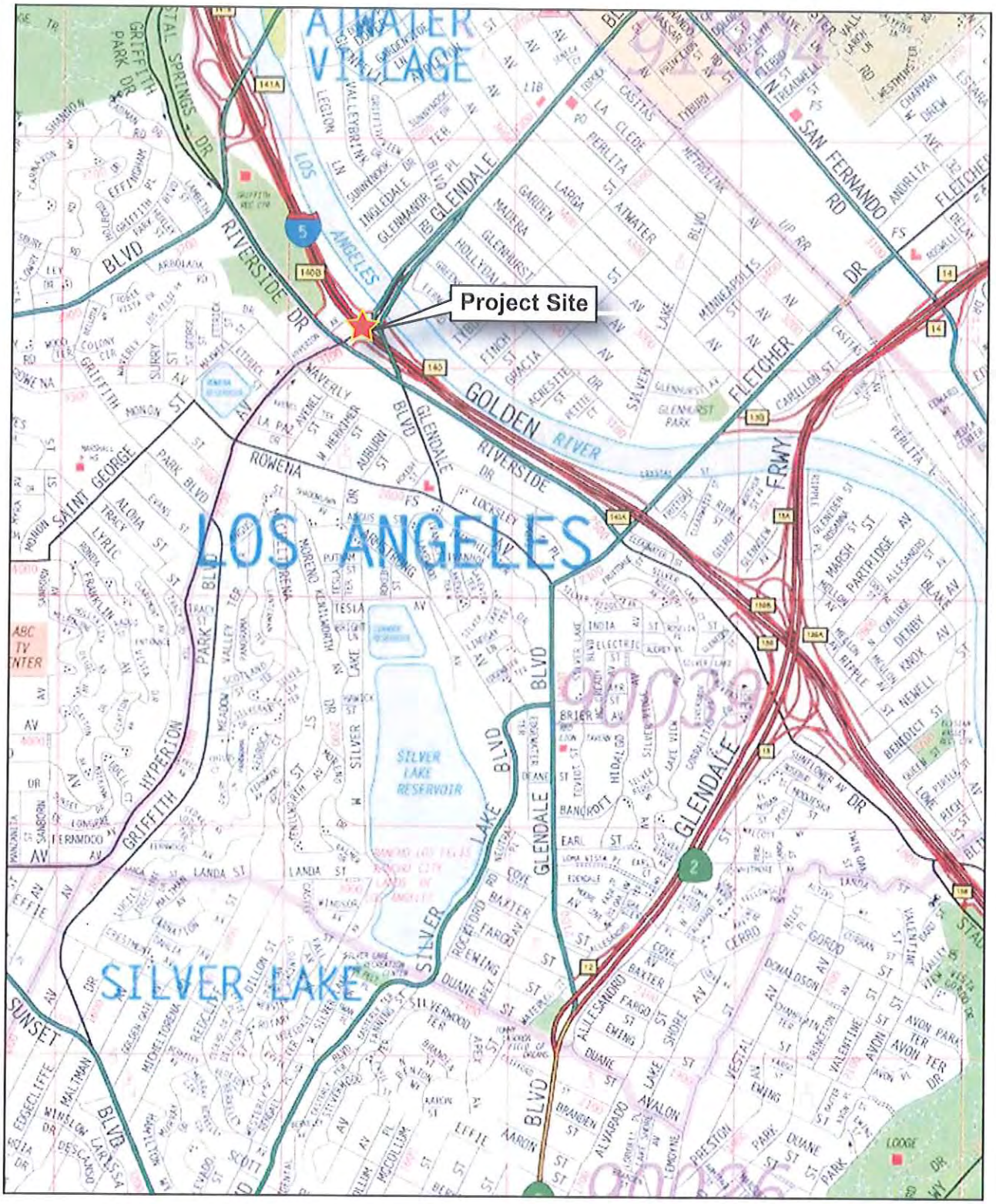


Figure 1
Project Vicinity Map
Glendale-Hyperion Structures (53C-1881, 53C-1883, and 53C-1884)
Rehabilitation and Seismic Retrofit Design

Source: Thomas Guide, Page 594, LA and Orange Counties, 2003

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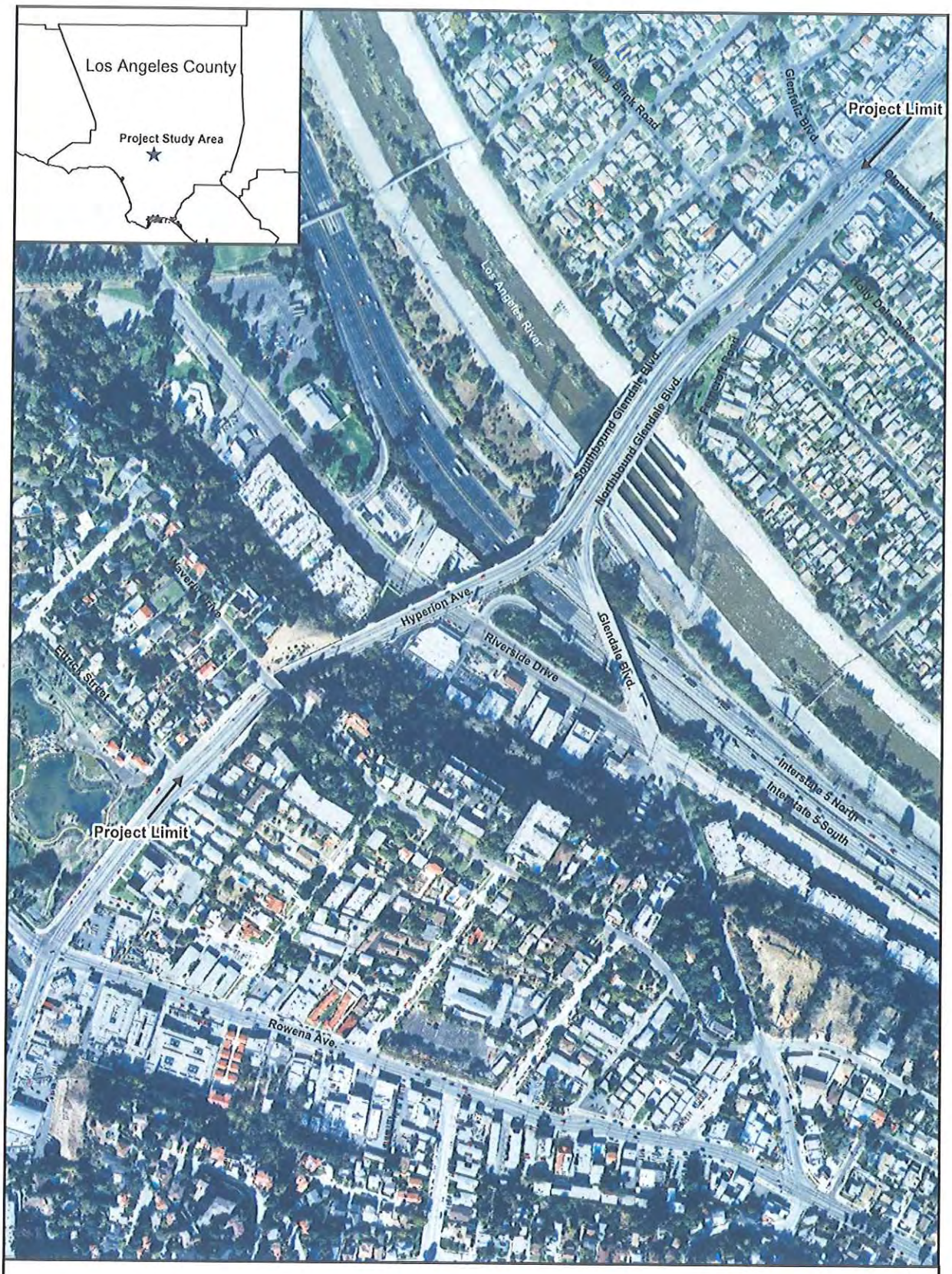


Figure 2
Project Location Map
Glendale - Hyperion Structures
(53C-1881, 53C-1883,
and 53C-1884)
Rehabilitation and Seismic
Retrofit Design

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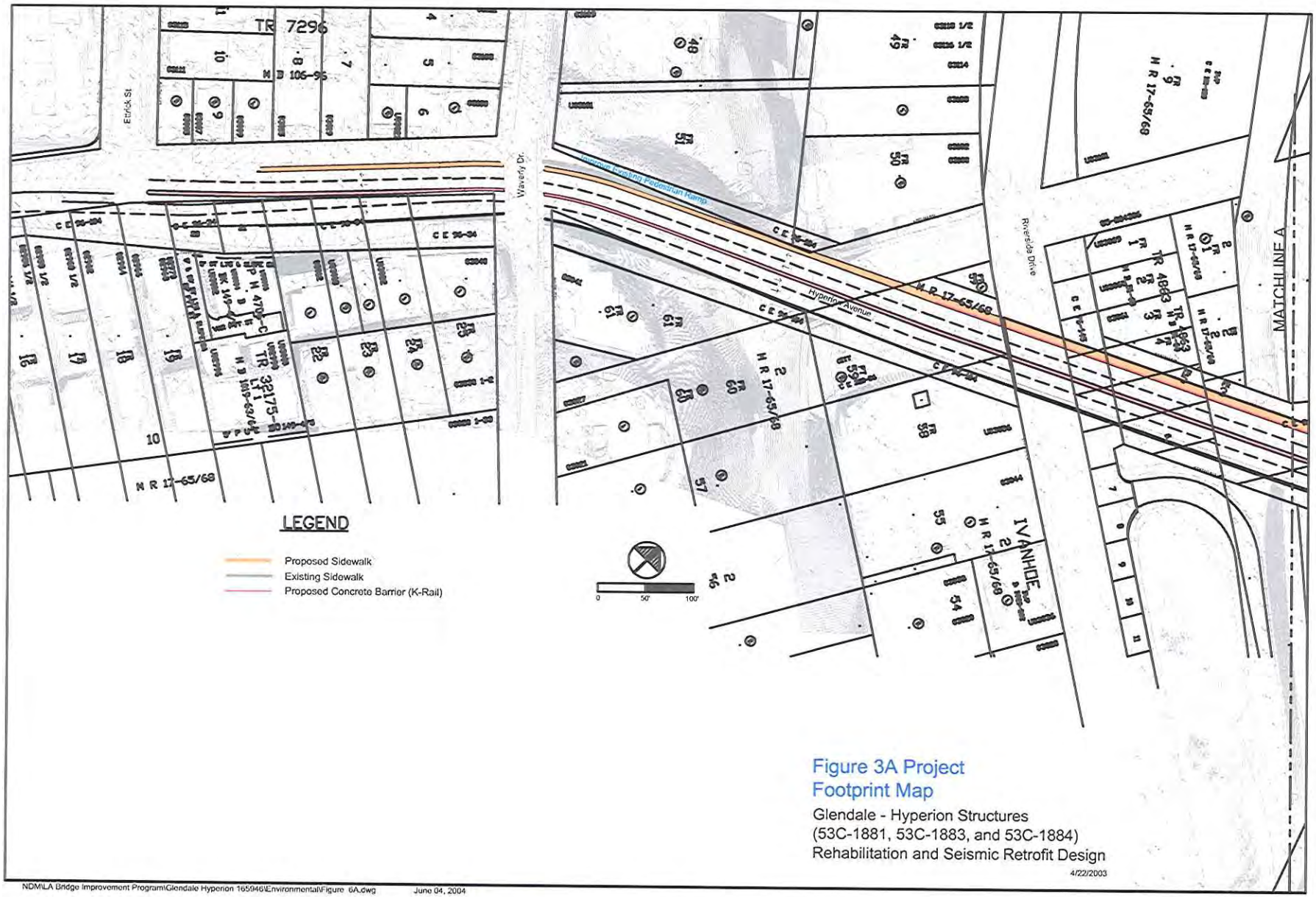


Figure 3A Project Footprint Map

Glendale - Hyperion Structures
(53C-1881, 53C-1883, and 53C-1884)
Rehabilitation and Seismic Retrofit Design

4/22/2003

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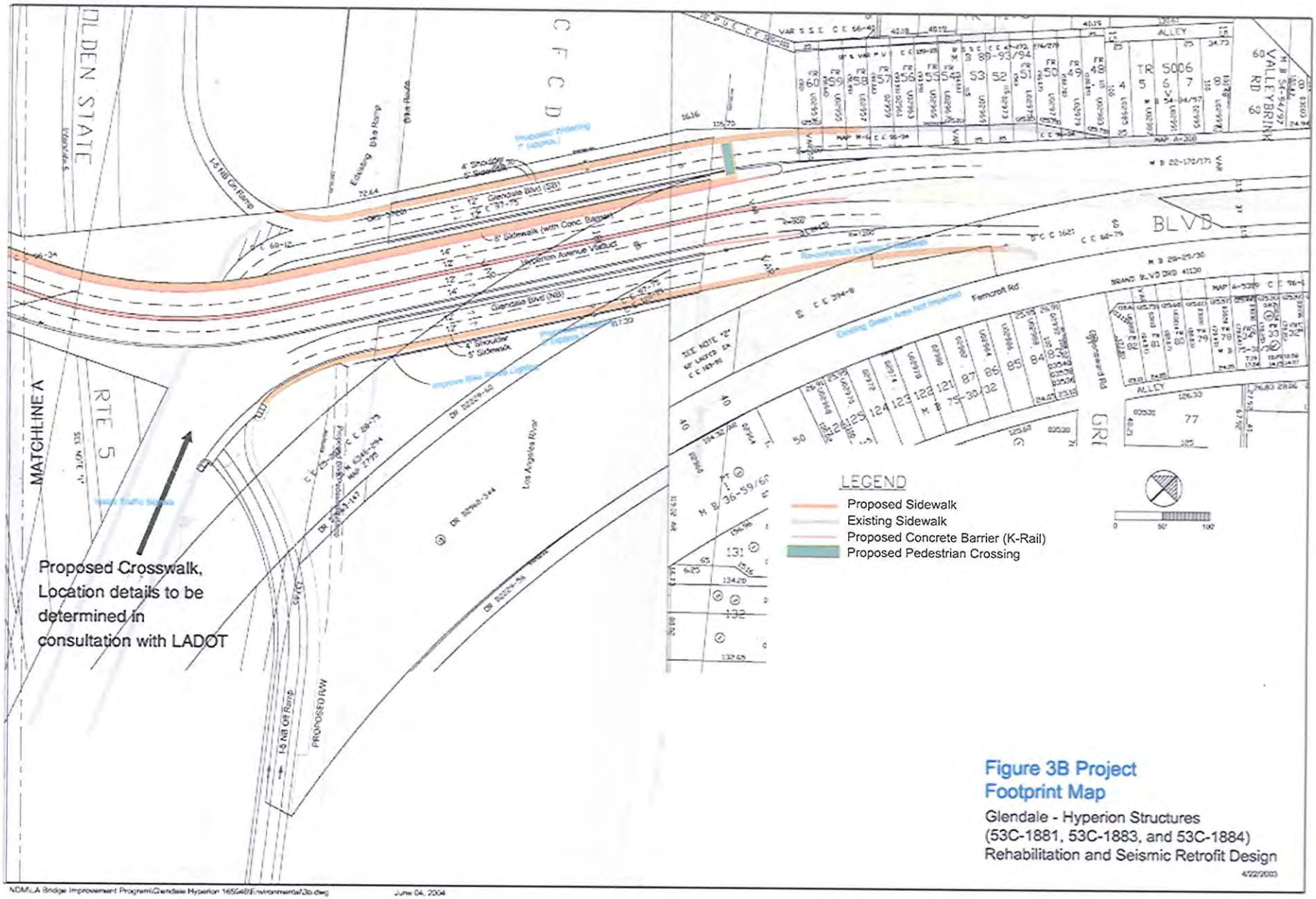


Figure 3B Project Footprint Map

Glendale - Hyperion Structures
(53C-1881, 53C-1883, and 53C-1884)
Rehabilitation and Seismic Retrofit Design

4/22/2003

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B. Purpose

The purpose of the Glendale Boulevard-Hyperion Avenue Viaduct Project is to remove the complex from the Highway Bridge Program('s) (HBP) Eligible Bridge List (EBL) by improving operational safety for vehicular and pedestrian traffic and by updating the complex to meet seismic safety standards under current Maximum Credible Event (MCE) expectation.

Each of the structures comprising the viaduct complex, except the Waverly Bridge, requires seismic retrofitting to meet current Caltrans design standards, which is based upon a MCE assumption of a magnitude 7.5 event. The existing viaduct was not designed to withstand such earthquake magnitudes and is therefore seismically deficient. Thus, there is a need to seismically strengthen the viaduct complex to minimize associated risks to public safety.

The existing geometric configuration and physical condition of several complex components fail to meet current design standards for operational safety. In most cases, these deficiencies are related to inadequate lane widths, horizontal and vertical clearance restrictions, and pedestrian safety, which include:

- Inadequate curb-to-curb width to meet major highway design standards
- Inadequate lateral clearance beneath the Hyperion Bridge.
- Inadequate lateral and vertical clearance for the u-turn lane beneath the Bridge.
- Absence of shoulders (on either structure).
- Deteriorated railings.
- Missing or inadequate sidewalks.

Moreover, the existing, stop sign controlled, northbound approach exit from I-5 to northbound Glendale Boulevard terminates in a semi-blind curve where only a right-turn movement is permitted. This maneuver presents a safety hazard to motorists due to the limited sight distances caused by the existing curve.

Finally, pedestrians attempting to traverse the complex using Hyperion Avenue face several safety hazards. Currently, sub-standard narrow sidewalks are extended along both (east and west) sides of the viaduct structure. These sidewalks terminate near the northern end of the complex where Hyperion Avenue merges between the northbound and southbound Glendale Boulevard viaducts, and pedestrians are left in the middle of the roadway where they are exposed to significant hazards as they cross to adjacent Glendale Boulevard sidewalks. In addition, the sub-standard Hyperion Avenue sidewalks narrow even further at the south end near the Waverly Avenue over crossing, and east side sidewalk abruptly ends and pedestrians unfamiliar with this unusual configuration are exposed to significant risk of harm from northbound vehicles.

C. Description

The proposed Project would modify the existing Glendale-Hyperion Viaduct complex to address existing safety and operational deficiencies, improve pedestrian linkage with the surrounding system, and to meet current seismic performance standards. The following descriptions of proposed project modifications are organized by Viaduct components.

Hyperion Avenue from south of Waverly Drive to Glendale Boulevard (Includes Hyperion Avenue Bridges 53C-1881, 53C-1882, & 53C-1069)

Modifications to this section of the Hyperion Bridge Complex would include the following:

Curb Replacement – East Side. The existing 2-foot curb along the east side of Hyperion Avenue (along the bridge beneath Waverly Drive) and the 4-foot curb along the east side of Hyperion Avenue (north of Waverly Drive) would be replaced with a concrete rail barrier. Figure 4 shows a typical cross-section this portion of Hyperion Avenue.

Curb Widening – West Side. The existing 5-foot wide sidewalk along the west side of the Hyperion Bridge (approximately 2-feet wide beneath the Waverly Bridge) would be widened to 8 feet, tapering to 4 feet beneath the Waverly Drive Bridge. A concrete barrier would be constructed between the widened sidewalk and the southbound traffic lanes for pedestrian safety (see Figure 4 for the cross sectional drawing).

Pedestrian Features. A pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge would be added for safety (see Figure 3B above).

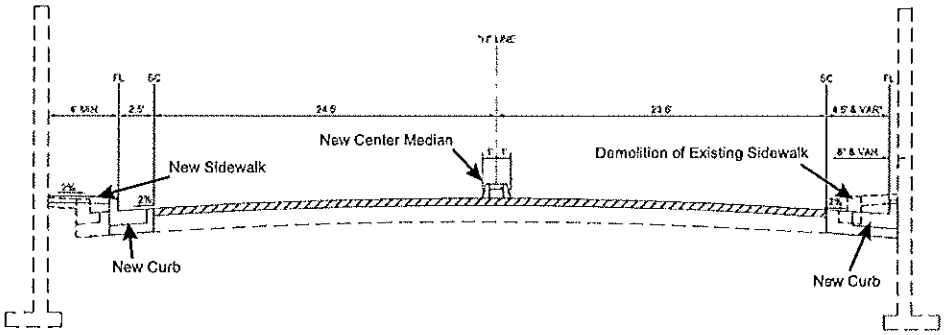
Center Median. A 2-foot (1.2 m) wide and 1-foot (30 cm) high concrete center median would be installed along Hyperion Avenue to improve motorist safety. The centerline of the roadway over the Hyperion structure would be shifted slightly to the south to accommodate the sidewalk widening on north side of the structure and the elimination of the walkway on the south side of the structure (see Figure 4).

Traffic Lane Restriping. The existing four travel lanes would be restriped to provide new lane widths (12-foot (3.7 m)-wide inner lanes and 14-foot-(4.3 m) wide curb lanes) along northbound and southbound Hyperion Avenue.

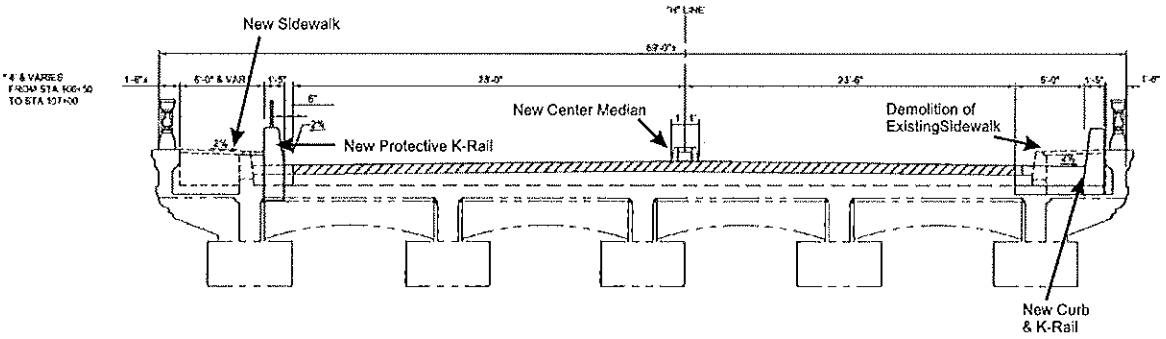
Bridge Rail Replacement. The existing, non-original railings along Hyperion Avenue (visible in Photograph 1 above and Photograph 2 below) would be replaced with new railings that more closely follow the original design (Photograph 3).

Waverly Drive Bridge (Bridge Number 53C-1179)

Bridge Rail Replacement. The existing, non-original railings along the Waverly bridge over Hyperion Avenue would be replaced with new railings that more closely follow the original design (Photograph 3).



HYPERION AVENUE



HYPERION AVENUE

Glendale Boulevard - Hyperion Avenue Viaduct Improvement Project

Source: CH2MHILL, 65% design plans, Sheet X-1.

Figure 4
Hyperion Avenue
Cross Sections

EnviCraft LLC

Northbound Glendale Boulevard Bridge over the Los Angeles River (53C-1884)

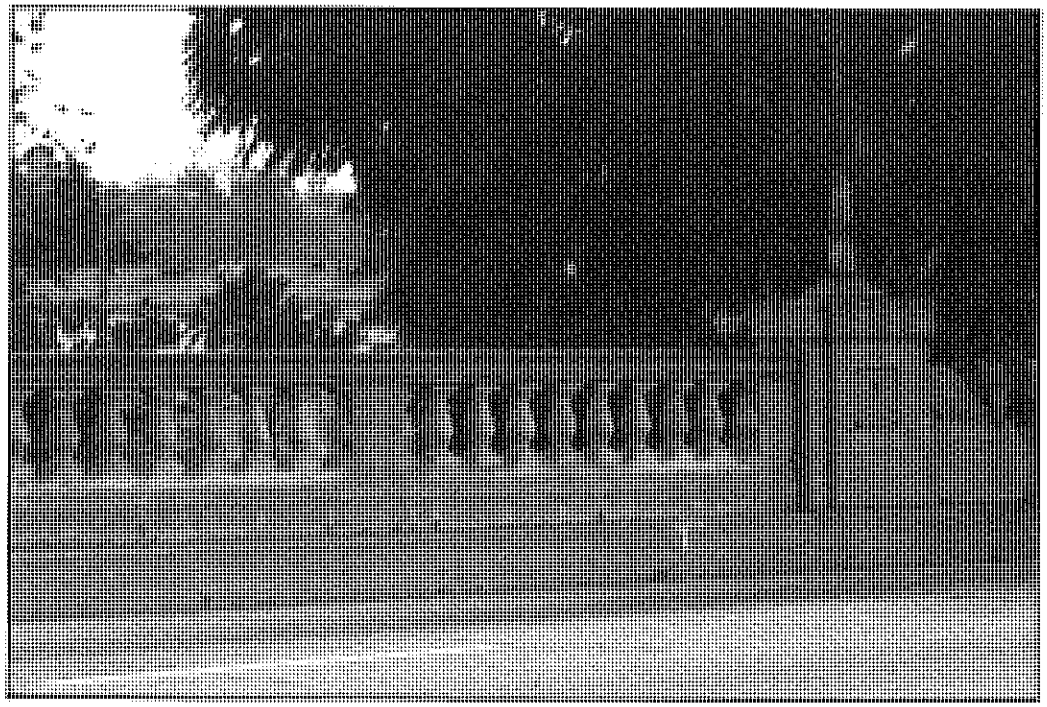
Bridge Widening. The Northbound Glendale Boulevard Bridge over the Los Angeles River would be widened by eight feet to the east. The existing piers would be extended eastward to support the widened deck. Existing abutment edges would be removed and reconstructed approximately eight feet to the east. Photograph 2 below shows the existing piers and abutments. No additional travel lanes would be added; rather, the structure's widening would permit reconfiguration of the road to meet City standards, including the provision of a road shoulder.



Photograph 2: Northbound Glendale Boulevard over the Los Angeles River

Bridge Rail Replacement. The existing, non-original railings along the northbound Glendale Boulevard (see Photograph 2) would be replaced with new railings that more closely follow the original design (see Photograph 3 below).

I-5 Off-Ramp Reconfiguration. The existing I-5 northbound off-ramp to Glendale Boulevard would be realigned southward to connect with northbound Glendale Boulevard south of the current exit (see Figure 3B). This improvement would improve sight lines and operational safety for motorists exiting northbound I-5 at this location. In addition, the realigned off-ramp would be signalized and permit northbound motorists exiting the I-5 to enter southbound Glendale Avenue via a controlled intersection. The exact signal configuration has not been determined but would be designed and implemented in accordance with LADOT requirements. After the ramp reconfiguration, the former ramp area would be landscaped.



Photograph 3: Original railing to be replicated along the Glendale Boulevard viaducts.

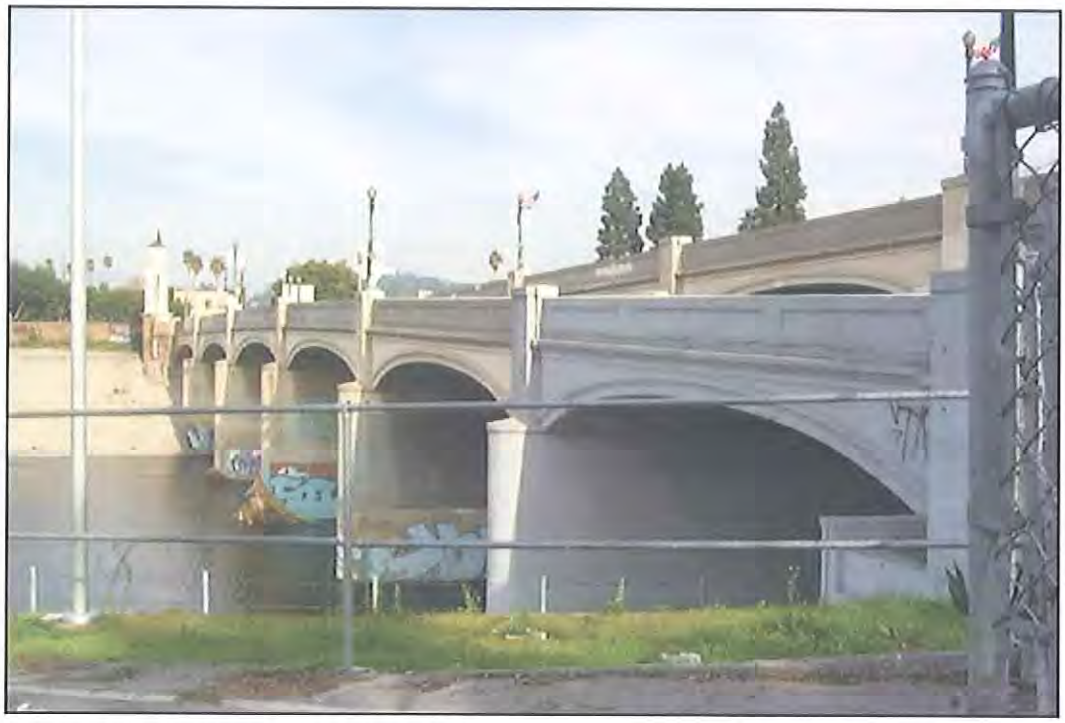
Bicycle and Pedestrian Ramp. A bicycle and pedestrian ramp would be constructed to connect northbound Glendale Boulevard with the existing bike and pedestrian path along the Los Angeles River (see Figure 3B). In addition, a Los Angeles River overlook would be constructed from the bike path south of the viaduct and would utilize an existing abandoned railroad abutment for support. Figure 5 shows a photo-simulation of the proposed overlook.

Traffic Lane Restriping. The travel lanes would be restriped to provide new lane widths (12-foot wide) and curbs and shoulders.

Southbound Glendale Boulevard Bridge over the Los Angeles River (53C-1883)

Bridge Widening. The southbound Glendale Boulevard Bridge over the Los Angeles River would be widened by eight feet to the west. Figure 6 shows a cross section of this portion of the viaduct. The existing piers would be extended westward to support the widened deck. Existing abutment edges would be removed and reconstructed approximately eight feet to the east. Photograph 4 below shows the existing piers and abutments. No additional travel lanes would be added; rather, the widening would permit stripping for wider travel lanes and the addition of shoulders to meet current City standards.

Bridge Rail Replacement. The existing, non-original railings along the southbound Glendale Boulevard Bridge (see Photograph 4) would be replaced with new railings that more closely follow the original design (see Photograph 3 above).



Photograph 4: Southbound Glendale Boulevard over the Los Angeles River

Southbound to Northbound Turn-Around. The turn-around lane beneath the Hyperion Bridge that allows cars traveling southbound on Glendale Boulevard to turn around and travel northbound on Glendale Boulevard would either be eliminated for safety reasons (the far left side of Photograph 5 below shows part of the existing turn-around) or restrictions on the vehicle types that could utilize the turn-around would be implemented to address existing horizontal and vertical clearance deficiencies.

Traffic Lane Restriping. The travel lanes would be restriped to provide new lane widths (12-foot-wide) and curbs and shoulders.

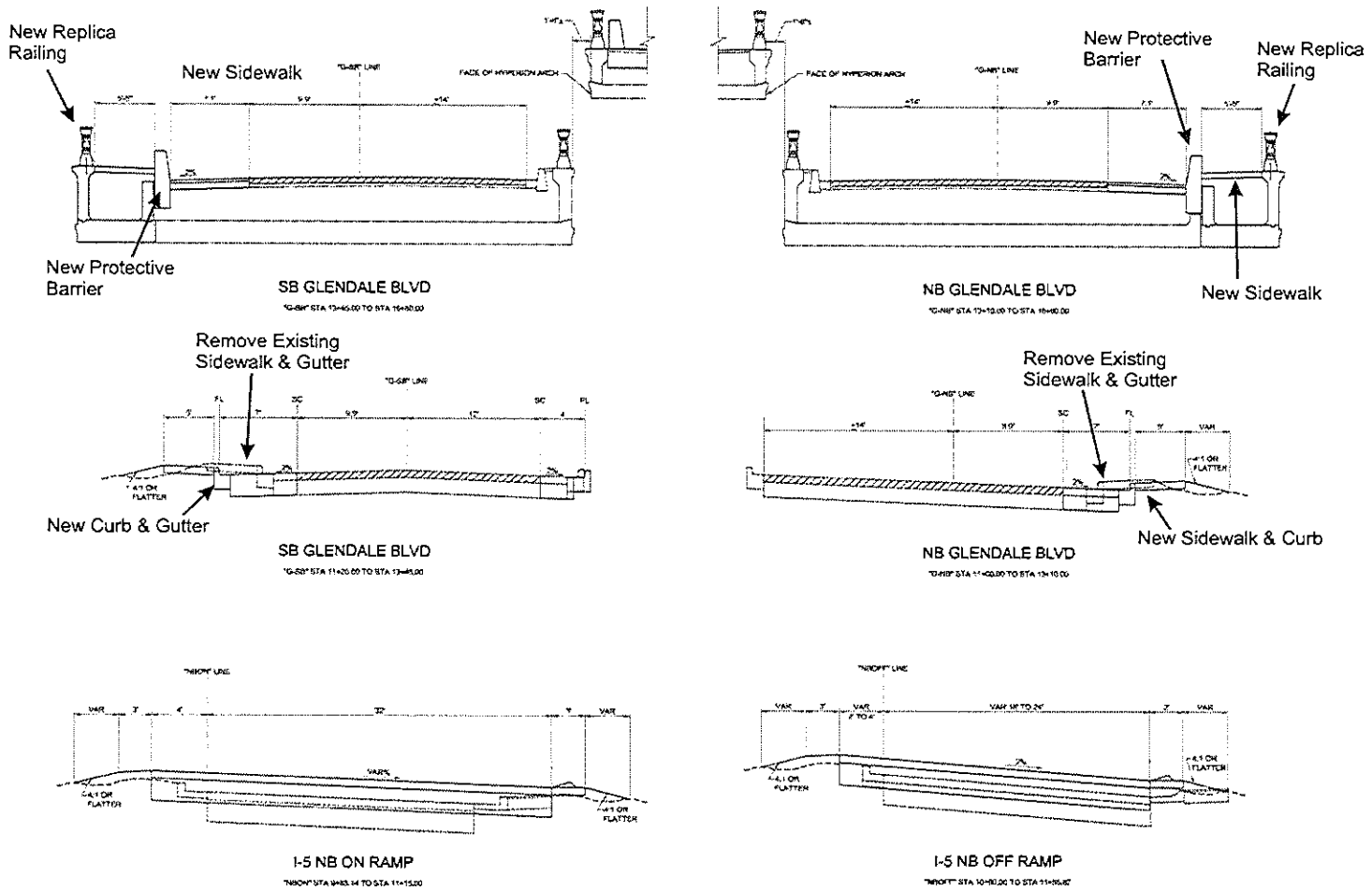


Glendale Boulevard - Hyperion Avenue Viaduct
Improvement Project

Source: CH2MHILL, 2006.

Figure 5
Simulation of Reconfigured Off-Ramp,
New Bike Path Entrance, and Overlook.

EnviCraft LLC



Glendale Boulevard - Hyperion Avenue Viaduct Improvement Project

Source: CH2MHILL, 2006.

Figure 6
Glendale Boulevard Cross Sections

EnviCraft LLC

I-5 On-Ramp Modifications. The existing northbound on-ramp approach to the I-5 from southbound Glendale Boulevard would be slightly realigned southward (see Figure 3B). Photograph 5 below shows the existing on-ramp.



Photograph 5: Southbound Glendale Boulevard at the Turn-Around (left) and Northbound I-5 on-ramp

Seismic Improvements

Seismic improvements would primarily involve substructure elements of the Glendale-Hyperion complex (Figure 7 illustrates the proposed seismic retrofit plan) and would include:

Abutment Transverse Wall Shear Friction Retrofit - This work would involve the addition of concrete bolsters between the abutment walls and abutment footing. This retrofit would require excavation around the abutment to provide access to the footing. Once the concrete bolsters are constructed, the excavation would be filled and the retrofit would be entirely buried.

Spandrel Column Ductility Retrofit - This work would involve wrapping the existing spandrel columns with a carbon-epoxy fiber wrap. Once the columns have been wrapped, a layer of concrete, similar in texture and color would be applied the columns.

Interior Spandrel Wall Strengthening - This work involves the addition of concrete bolsters on top of the arches to strengthen the connection between each arch and the wall that rests on top of it. The bolsters would be constructed only on the interior faces of the walls so they would be mostly hidden from view.

Pier Wall Channel Lining Retrofit - This work would involve cutting the existing channel lining so that it would be free to move out of the way during an earthquake. An inclined saw cut would be placed parallel to the pier wall so that when the pier wall moves back and forth the channel lining would not restrict the movement.

Construction Activities

Construction of the proposed Project would occur in a phased manner in order to maintain traffic and pedestrian flow. While the railing replacement and the sidewalk work are occurring along Hyperion Avenue, temporary pedestrian detours around work zones would be established. In addition, a center work zone would be established for median construction in Hyperion Avenue. At least one travel lane in each direction would be maintained at all times. K-rails would be utilized to protect the temporary pedestrian walkways.

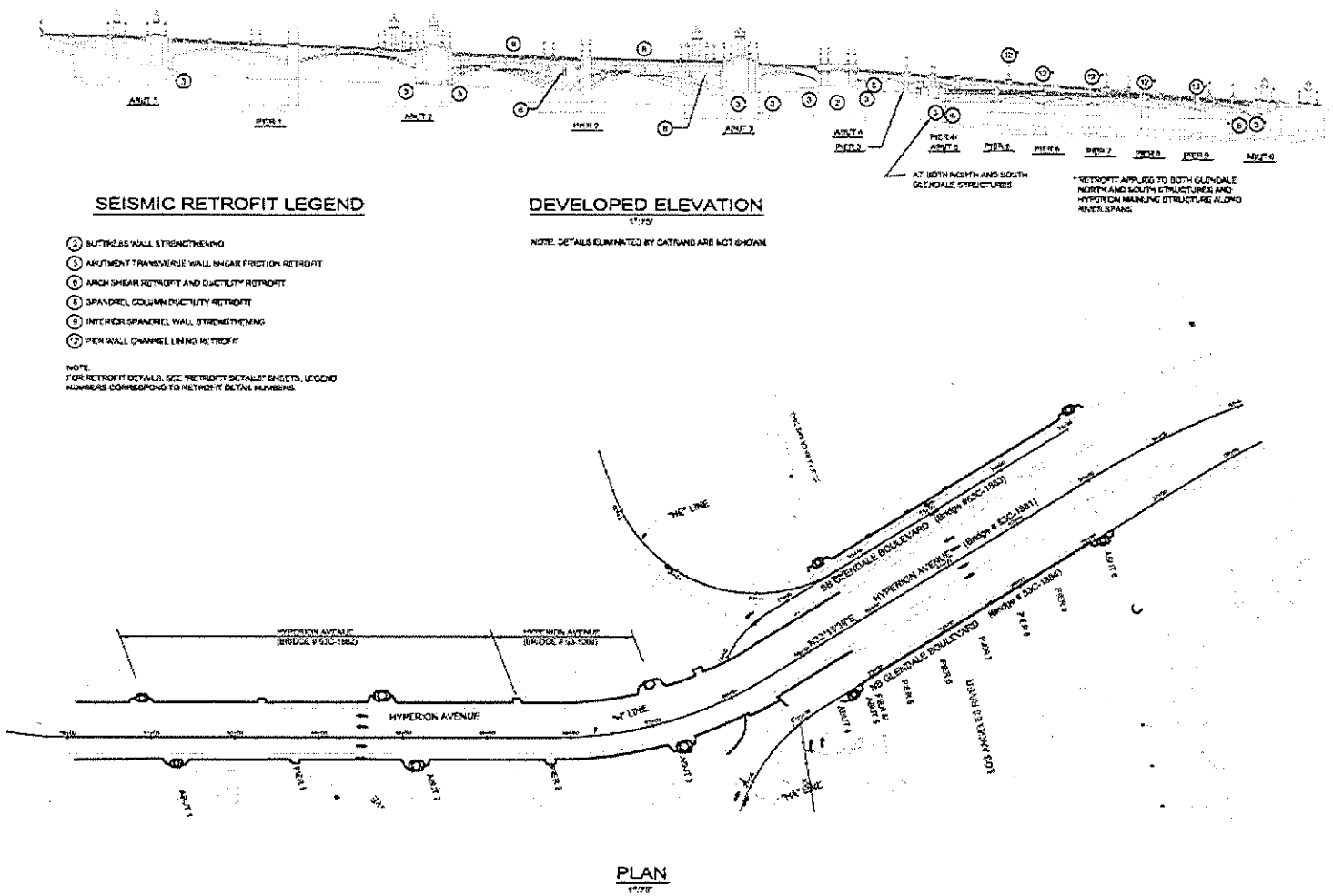
During widening of the Northbound and Southbound Glendale Boulevard Viaducts, one of the two travel lanes on each structure (adjacent to the Los Angeles River) would be converted to work zones, which would be physically separated from the remaining travel lane (most likely with K-rails). At least one travel lane would be maintained at all times. During pier and abutment construction, a work zone would also be established in the river in the immediate area of the piers. This section of the river is concrete lined. Piles would be installed by augering the holes, inserting a support sleeve, and filling the void with concrete. Appropriate BMPs would be utilized. The work in the river would be confined to the dry season, which extends from April to October.

During construction of the realigned northbound I-5 off-ramp approach at Glendale Boulevard, the existing off-ramp would be kept operational. The realigned portion of the off-ramp approach would first be constructed and then connected to the existing off-ramp during off-peak hours. A short-term temporary ramp closure may be required during the connection process. Realigning of the I-5 off-ramp would be coordinated and phased with the widening of the Northbound Glendale Boulevard Viaduct. Following completion of the realigned off-ramp, access to the Los Angeles River bike path from northbound Glendale Boulevard, landscaping of the former off-ramp area, and construction of the river overlook would occur.

Seismic retrofit work along the bridge abutments, columns, and piers would also occur in a staged manner within established work zones to ensure that vehicular traffic (i.e. along Riverside Drive and I-5), pedestrian traffic, and bikeway traffic (along the Los Angeles River) would be safely maintained.

Construction of accessory facilities and project components would similarly occur throughout all phases of the work, and accomplished in a manner that maintains some level of vehicular and pedestrian traffic on Hyperion Avenue and Glendale Boulevard (northbound and southbound) at all times.

The Contractor would be required to comply with all applicable rules, regulations, and Standard Specifications. Requirements would include the preparation of Worker Protection Plan if hazardous materials are expected to be encountered. Imported fill would not be required.



Glendale Boulevard - Hyperion Avenue Viaduct Improvement Project

Source: CH2MHILL, 65% Design Plans.

Figure 7
Proposed Seismic Retrofit Plan

EnviCraft LLC

Compliance with Existing Law

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*). 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)).

II. EXISTING ENVIRONMENT

The Glendale-Hyperion Viaduct, built in 1929, is one of the historic bridges over the Los Angeles River determined to be eligible for the National Register of Historic Places (NRHP). In October 1976, it was also designated by the City of Los Angeles as Historic-Cultural Monument No. 164.

This viaduct complex traverses Riverside Drive, I-5, and the Los Angeles River. The Los Angeles River in the immediate vicinity of the viaduct complex contains a concrete sill, which extends from approximately 50 to 80 feet west of the southbound Glendale Boulevard bridge. West of the concrete sill, the Los Angeles River is unlined.

III. ENVIRONMENTAL IMPACT EVALUATION

A brief explanation is presented for all answers except "No Impact" answers for which the referenced sources show that the impact simply does not apply to projects like the one involved (*e.g.*, the project falls outside a fault rupture zone). A "No Impact" answer is explained where it is based on project-specific factors as well as general standards (*e.g.*, the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis). The location of references not otherwise indicated is the office of the Bridge Improvement Program, Bureau of Engineering, 221 N. Figueroa Street, Suite 350, Los Angeles. Please call Wally Stokes at (213) 202-5580 for an appointment.

Issues	Potentially Significant Impact	Less Than Significant With	Less Than Significant	No Impact
1. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
Reference: *Draft LA CEQA Thresholds Guide, 1998.* Thresholds L.1.1.2, Threshold L.2.2.				
Comment: The proposed Project would not result in the disturbance or elimination of open space area or remove an object of aesthetic value. The project would not result in long-term physical adverse changes to the height or bulk of structures or view blockages within the view shed of Glendale Boulevard. Thus, the project is not expected to adversely affect the valued views in the project area. Rather, the project is expected to provide aesthetic benefits though the provision of additional viewing opportunities via an overlook that extends over the abandoned railroad piers east of the bridge. The new views afforded by the proposed overlook would include the Los Angeles River, portions of the Glendale-Hyperion viaduct complex, and the Elysian Hills.				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
Reference: *Draft LA CEQA Thresholds Guide, 1998.* L1, L2;				
Comment: No designated scenic resources aside from the scenic highway are present in the project area. The City's Northeast Community Plan identifies Glendale Boulevard as a scenic major Highway. The proposed Project would seismically retrofit the Glendale - Hyperion Viaduct complex, but would not introduce features that would adversely affect the use of Glendale Boulevard as a scenic highway.				
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
Reference: *Draft LA CEQA Thresholds Guide, 1998.* L1, L3;				
Comment: The proposed project would not substantially change the appearance or massing of the Glendale-Hyperion viaduct complex. The widening of southbound and northbound Glendale Boulevard bridges over the Los Angeles River would be consistent with the existing architecture of the bridge. The proposed project would actually improve the existing aesthetic character of the bridge by installing new railings that replicate the original balustrade design replaced earlier.				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
Reference: *Draft LA CEQA Thresholds Guide, 1998.* L4;				

Comment: The nearest residential structure to the viaduct complex is an apartment building just northwest of the viaduct along Riverside Drive. The proposed Project would require replacement of the existing railing mounted street lighting on the outer sides of the main viaduct complex, including both Glendale Boulevard structures. The replacement lighting may have slightly higher lumen output in order to meet current foot-candle requirements of the Bureau of Street lighting; however, the new lighting is not expected to substantially intrude on nearby properties because it would be directed onto the roadway and the incidental spillover lighting increment would not exceed intensities of lighting common to representative residential areas throughout the City.

2. AGRICULTURE RESOURCES -- Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ☐ ☐ ☐ ☒
Reference: Field observations.
Comment: The proposed project would occur in a fully urbanized area of Los Angeles County where prime or unique farmlands do not exist.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? ☐ ☐ ☐ ☒
Reference: City of Los Angeles, Zimas
Comment: The proposed project would occur in a fully urbanized area of the City of Los Angeles that is devoid of agricultural zoning classifaction or Williamson Act lands.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? ☐ ☐ ☐ ☒
Reference: Field observations.
Comment: The proposed project occurs in a fully urbanized area of Los Angeles that is devoid of agricultural uses

3. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan? ☐ ☐ ☐ ☒
Reference: Southern California Association of Governments.
Comment: The proposed project would be partially funded with federal funds and is located in a non-attainment area for several air pollutants. The Clean Air Act requires that federally funded transportation plans, programs, and projects in non-attainment or maintenance areas be in "conformity" with the State Implementation Plans through the process described in the EPA's Transportation Conformity Rule. The proposed Project is included in TIP: 77-SCAG009, 10/05/1998; and conformity has been demonstrated. Consequently, the proposed Project would not conflict the Air Quality Management Plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ☒ ☐ ☐ ☐
Reference:

Comment: Construction of the proposed Project could result in construction emissions that exceed the South Coast Air Quality Management District's significance thresholds for criteria pollutants. No significant air quality impacts are anticipated because no increases in traffic lanes would be provided. In addition, the proposed Project would not introduce new sources of toxic air contaminants. The EIR will evaluate potential construction-related air quality impacts of the proposed Project.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ☐ ☐ ☒ ☐
Reference:
Comment: The proposed project is a non-capacity enhancing infrastructure project, designed to enhance public safety, which is not expected to contribute to cumulative local or regional adverse air quality effects. The EIR will evaluate potential cumulative impacts to air quality related to construction of the proposed Project.

d) Expose sensitive receptors to substantial pollutant concentrations? ☐ ☐ ☒ ☐
Reference:
Comment: The EIR will evaluate the potential for sensitive receptors to be exposed to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide, 1998.* E2;
Comment: Neither construction nor operation of the proposed Project would utilize materials generally known to cause objectionable odors. Construction of the proposed project would utilize standard construction equipment that is commonly used throughout the City. The project does not include elements that could produce significant objectionable odors.
.

4. BIOLOGICAL RESOURCES – Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ☒ ☐ ☐ ☐
Reference:
Comment: The EIR will evaluate the potential for the Project to affect sensitive or special status species.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? ☒ ☐ ☐ ☐
Reference: Preliminary Environmental Studies Form, April 2005.
Comment: The EIR will evaluate the potential for the Project to affect riparian or other sensitive natural habitat.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ☐ ☐ ☐ ☒
Reference: Preliminary Environmental Studies Form, April 2005.
Comment: The proposed project would not involve construction within a marsh, vernal pool, or coastal area defined as wetlands by Section 404 of the Clean Water Act.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide, 1998.*
Comment: The proposed project site is largely urbanized, paved, or otherwise disturbed, and there are no known migratory pathways that the project could affect.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ☐ ☐ ☒ ☐
Reference:
Comment: The proposed project would not affect protected trees and would comply with all applicable local policies and ordinances.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ☐ ☐ ☐ ☒
Reference: General Plan Conservation Element
Comment: There are no adopted Habitat Conservation Plans in the vicinity of the project.

5. CULTURAL RESOURCES – Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations Section 15064.5? ☒ ☐ ☐ ☐
Reference:
Comment: The Glendale Hyperion Viaduct complex is one of the historic bridges over the Los Angeles River determined to be eligible for listing within the National Register of Historic Places (NRHP). In October 1976, it was also designated by the City of Los Angeles as Historic-Cultural Monument No. 164. The proposed project would require the demolition and removal of some of the complex's fabric; particularly, along the outer portions of both Glendale Boulevard viaducts. Removal of fabric could threaten the structure's integrity and disqualify it for NRHP listing. The EIR will fully evaluate the proposed project's potential impacts on the historical character of the complex.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5? ☐ ☐ ☐ ☒
Reference: *Draft LA CEQA Thresholds Guide – M2*, Archaeological Survey Report, 2006

Comment: Work associated with the proposed project would occur in an area previously disturbed for the building of complex components that is not known to contain archaeological materials. Therefore, the proposed project is not expected to significantly or adversely affect archaeological resources because of the disturbed nature of the project site.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ☐ ☐ ☐ ☒

Reference:
Comment: Work associated with the proposed project would occur in an area previously disturbed for the building of complex components that is not known to contain paleontological materials. Therefore, the proposed project is not expected to encounter or significantly affect such resources because of the disturbed nature of the project site.

d) Disturb any human remains, including those interred outside of formal cemeteries? ☐ ☐ ☒ ☐

Reference: Archaeological Survey Report, 2006
Comment: The proposed project would not occur in an area known to be previously used to inter human remains. Please see also response to Issue 5 b) above.

6. GEOLOGY AND SOILS – Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? ☐ ☐ ☒ ☐

References: *Draft LA CEQA Thresholds Guide* C1, Navigate LA
Comment: The proposed project is situated in an area known to be seismically active and approximately 0.2 miles from the Malibu Coast-Santa Monica-Hollywood-Raymond Fault and is likely to be subjected to a 7.5 magnitude earthquake at some time during the facility's useful life. Such an event would expose persons and property to life-threatening and severe property loss scenarios. The proposed Project includes measures that would seismically strengthen the Glendale-Hyperion viaduct complex, which would lessen, but not totally eliminate, the potential for injury, death, or property loss as the result of the maximum credible event (MCE) seismic occurrence.

ii) Strong seismic ground shaking? ☐ ☐ ☒ ☐

Reference: Navigate LA
Comment: See response to Checklist Item 6.a)i) above.

iii) Seismic-related ground failure, including liquefaction? ☐ ☐ ☒ ☐

Reference: Navigate LA

Comment: The proposed Project would be located in an area subject to liquefaction as a result of energy release due to a seismic event. During the project design phase, geotechnical studies would be performed to understand the characteristics of the soil so that support considerations can be incorporated into the foundation designs. These design recommendations to avoid the effects of liquefaction, expansive soils, and other geotechnical considerations will be discussed within the EIR.

iv) Landslides? The proposed Project would not include features that could result in unstable geological conditions that could result in landslides. ☐ ☐ ☐ ☒
Reference: Navigate LA
Comment: The proposed project does not appear in an area subject to landslides. The project would not introduce any new facilities or activities likely to contribute to the development of landslides or unstable geologic conditions.

b) Result in substantial soil erosion or the loss of topsoil? ☐ ☒ ☐ ☐
Reference: *Draft LA CEQA Thresholds Guide* C2
Comment: The proposed Project would include reconfiguration of the existing off-ramp from northbound I-5 to Glendale Boulevard, which would temporarily expose soils to the erosive effects of wind and water during construction. Best management practices (BMPs) during construction would be employed to minimize soil erosion and landscaping would be promptly placed following construction to prevent erosion over the long term. The EIR will discuss BMPs and landscaping techniques to be employed.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide* C2; Navigate LA
Comment: The proposed project would be situated in an area known to be subject to liquefaction as the result of energy release associated with strong seismic events (see response to Item 6 a) iii) above). The proposed project is not known to be subject to or likely to contribute to other soil stability issues.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? ☐ ☐ ☒ ☐
Reference:
Comment: Please see response to Item 6 c) above.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed project would not involve the use of septic systems.

7. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ☐ ☐ ☐ ☒

Reference:
Comment: The proposed Project is an infrastructure improvement project that would not result in the routine use, transport, or disposal of hazardous materials.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ☐ ☒ ☐ ☐

Reference: Preliminary Environmental Studies Form, April 2005.
Comment: The proposed Project would require the use of petroleum fueled construction machinery which could occasion spills or leak product that could run off into surface waters, contaminate soils, or eventually contaminate local groundwater. Standard avoidance measures are available, which will be included in the EIR's evaluation of potential impacts related to the release of hazardous materials during construction. In addition, the proposed project would realign the I-5 northbound off-ramp at Glendale Boulevard. There is an unpaved area to the south of the off-ramp, which could be tainted with aerially deposited lead. In addition, groundwater in the Project area could be affected with volatile organic hydrocarbons from nearby potential sources of contamination. Proper management of hazardous materials encountered during construction is expected to keep potential impacts to below significance; however, the EIR will discuss the potential to encounter hazardous materials and the management measures that would be employed.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ☐ ☐ ☐ ☒

Reference: Navigate LA
Comment: The proposed Project is not a stationary source of air pollutants and would not result in the production of hazardous emissions or require the handling of hazardous or acutely hazardous materials. Health risk impacts to schools are not anticipated.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ☐ ☐ ☐ ☒

Reference: Environmental Data Resources, Inc. April 2004.
Los Angeles, CA. 90027
Comment: The project site does not include listed hazardous materials sites based on a search of the standard state and federal sources in accordance with ASTM standard practice. In addition, as discussed under Checklist Item 7b), hazardous materials impacts will be discussed in the EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒

Reference:

Comment: The proposed project is not located within an area either designated or planned for airport use.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒
Reference:
Comment: No private airstrips are located in the Project vicinity.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide* H1
Comment: Construction of the proposed project would be staged to maintain a minimum of one travel lane in each direction would be maintained at all times. Following completion of the improvements, a net benefit would accrue because seismic strengthening of the viaduct complex would increase the probability that the viaduct complex would remain functional following an earthquake to serve as an emergency response or evacuation route.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project is located in an urbanized area where neither wildlands nor the potential for wildland fires exist.

8. HYDROLOGY AND WATER QUALITY -- Would the project:

a) Violate any water quality standards or waste discharge requirements? ☐ ☒ ☐ ☐
Reference:
Comment: Construction of the proposed Project would include activities associated with seismic strengthening of the structure and placement of falsework to support widening of the Glendale Boulevard bridges, which have the potential to affect water quality in the Los Angeles River. Standard BMP's during construction would to be summarized in the EIR, would be employed to minimize this potential.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide* D3
Comment: The proposed Project would require the placement of piles in the River channel, which could, conceivably extend to groundwater; however, the placement location is concrete lined and neither this location nor other locations along the Los Angeles River channel are used for groundwater recharge. Moreover, the construction activities of the proposed Project are not expected to affect groundwater levels in the project area because the relative low number of piles to be constructed would not serve as a barrier to groundwater flow.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? Reference: *Draft LA CEQA Thresholds Guide* D1 Comment: The proposed project does not involve modification of a local drainage pattern or in altering the course of either a stream or river. The proposed project would not include components that would permanently contribute to either on- or off-site erosion or siltation. The potential for creating conditions for erosion and/or siltation would be limited to the active construction stage and BMP's would be employed to minimize this potential (see also response to Issue item 8 a)).	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? Reference: *Draft LA CEQA Thresholds Guide* D1 Comment: See Checklist item 8.c) above.	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? Reference: *Draft LA CEQA Thresholds Guide* D1 Comment: As described under Checklist item 8.c) above, the proposed Project would not result in substantial increases in surface runoff.	☐	☐	☒	☐
f) Otherwise substantially degrade water quality? Reference: *Draft LA CEQA Thresholds Guide* D2 Comment: The proposed project's potential to degrade water quality is limited to that described previously (see Checklist Item 8 a).	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? Reference: Comment: The proposed Project is an infrastructure project that would not include new housing.	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? Reference: *Draft LA CEQA Thresholds Guide* D1 Comment: See Checklist Item 8.c) above.	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? Reference: *Draft LA CEQA Thresholds Guide* D1 Comment: See Checklist Item 8.c) above.	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow? Reference:	☐	☐	☐	☒

Comment: The proposed Project is an inland infrastructure project that would occur in an urbanized river channel. Because the proposed Project is inland and not located in a confined water body, it would not cause inundation by seiche, tsunami, or mudflow.

9. LAND USE AND PLANNING -- Would the project:

a) Physically divide an established community? ☐ ☐ ☐ ☒

Reference: *Draft LA CEQA Thresholds Guide* A2
Comment:The proposed Project involves modification of an existing viaduct complex and would not introduce an aboveground feature that would physically divide an established community.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ☐ ☐ ☐ ☒
Reference: *Draft LA CEQA Thresholds Guide*; General Plan
Comment: The proposed Project is an infrastructure improvement project that is consistent with the City's General Plan, including its Northeast Community Plan, which supports the investment of public monies to improve transportation infrastructure.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? ☐ ☐ ☐ ☒
Reference: Conservation Element
Comment: There are no habitat conservation plans, currently in force, that cover the Project area.

10. MINERAL RESOURCES – Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ☐ ☐ ☐ ☒
Reference:
Comment: No known mineral resources are located in the Project vicinity.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ☐ ☐ ☐ ☒
Reference:
Comment: See Checklist item 10.a) above.

11. NOISE -- Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ☐ ☐ ☒ ☐
Reference:

Comment: Construction of the proposed project would involve roadway improvements along Hyperion Avenue through the entire length of the viaduct complex and both northbound and southbound Glendale Boulevard. Existing multi-family residential structures are situated (at varying distances) adjacent to each of the construction zones delineated above. The sensitivity of residents occupying each of these locations is dependent upon distance from the noise source (construction activity) and the activity of the residents. The proposed project would be accomplished within the limitations established by the City's Noise Ordinance and it does not appear, at this juncture, that additional mitigation measures would be required. However, this issue will be further reviewed by the proposed project's EIR.

The proposed project would slightly modify the existing centerlines along both the northbound and southbound Glendale Boulevard bridges and relocate the northbound I-5 off-ramp connection to Glendale Boulevard; however, it does not appear that this relocation would elevate detected noise levels at nearby receptor locations by 3 dBA (CNEL) or more. Because the proposed Project would not increase the number of travel lanes on the viaduct traffic volume and its concomitant noise by-product, is not expected to substantially increase noise levels. No further operational noise evaluation is recommended.

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels? ☐ ☐ ☒ ☐

Reference:
Comment: The seismic strengthening and other viaduct complex improvements would utilize standard construction equipment, which generally does not produce groundborne noise or vibrations that could be considered excessive. In addition, the installation of piles would be via drilled hole rather than pile driving or pile hammering. Consequently, significant vibration impacts are not anticipated.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☐ ☒

Reference:
Comment: As discussed in Checklist item 11.a) above, the proposed Project would not result in substantial permanent noise increases from project operation.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☒ ☐

Reference:
Comment: Temporary elevations of ambient noise levels are anticipated; however, the intensity levels resulting from construction are not expected to rise to the level of significance (see Checklist I11.a) above.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ☐ ☐ ☐ ☒

Reference:
Comment: No airports are located within 2 miles of the proposed Project.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? ☐ ☐ ☐ ☒
Reference:
Comment: There are no private air strips in the vicinity of the proposed project.

12. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ☐ ☐ ☐ ☒
Reference: *Draft LA CEQA Thresholds Guide* B1
Comment: The proposed project is an infrastructure improvement, which would occur within a fully developed urbanized setting and have no direct effect on either population growth or the development of new housing or business.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project would not require the acquisition of residences, the displacement of any persons, or the need to construct replacement housing elsewhere.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project would not involve the displacement of any persons.

13. PUBLIC SERVICES --

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i) Fire protection? ☐ ☐ ☒ ☐
Reference: Navigate LA
Comment: The proposed project would not necessitate the provision of new or physically altered fire protection facilities.

ii) Police protection? ☐ ☐ ☒ ☐
Reference: Navigate LA
Comment: The proposed project would not necessitate the provision of new or physically altered police protection facilities.

iii) Schools? ☐ ☐ ☐ ☒
Reference: Navigate LA

Comment: The proposed project would not necessitate the provision of new or physically altered public school facilities.

iv) Parks? ☐ ☐ ☐ ☒

Reference: Navigate LA
Comment: The proposed project would not necessitate the provision of new or physically altered park facilities.

v) Other public facilities? ☐ ☐ ☐ ☒

Reference: Navigate LA
Comment: The proposed project would not necessitate the provision of new or physically public facilities.

14. RECREATION --

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed project would not necessitate the provision of new or physically altered recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project includes the provision of expanded recreational (bicycling) opportunities. This project component is deemed to be beneficial and does not involve the generation of adverse physical effects to the environment. In addition, the section of the existing bike path beneath the viaduct complex would be relocated slightly to the south prior to construction to facilitate the seismic upgrades and other improvements. The bike path would remain operational during project construction.

15. TRANSPORTATION/TRAFFIC -- Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? ☐ ☐ ☒ ☐
Reference:
Comment: The proposed Project is not capacity enhancing. While a component of the proposed project would eliminate a semi-blind curve at the northbound I-5 off-ramp to Glendale Boulevard by reconfiguring the off-ramp to allow left turns onto southbound Glendale Boulevard, elimination of this safety hazard is not expected to lead to an appreciably increase in traffic operations.

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? ☐ ☐ ☐ ☒
Reference:

Comment: Because the proposed Project would not add new trip to the transportation system, it would individually or cumulatively adversely affect the level of service of a roadway on the congestion management plan.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project would not affect air travel.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ☐ ☐ ☒ ☐
Reference: *Draft LA CEQA Thresholds Guide* F5
Comment: The proposed Project would realign the northbound I-5 off ramp to Glendale Boulevard to the south and add a light-controlled intersection to the ramp terminus, resulting in an improvement to the current semi-blind turning conditions at this off-ramp.

e) Result in inadequate emergency access? ☐ ☐ ☒ ☐

Reference:
Comment: Construction of the proposed Project has the potential to marginally effect emergency traffic operations through active construction zones. However, construction would be staged in a manner that at least one travel lane in each direction would be maintained at all times. In addition, construction would be coordinated with emergency response providers to allow for the planning of alternative routes. Proper coordination would keep impacts to emergency access below a level of significance.

f) Result in inadequate parking capacity? ☐ ☐ ☒ ☐

Reference:
Comment: Construction of the proposed Project could require temporary on-street parking restrictions in the vicinity of construction work areas, such as along Riverside Drive or along short sections of Glendale Boulevard. However, parking restrictions would be temporary and are not expected to result in substantial on-street parking constraints.

16. UTILITIES AND SERVICE SYSTEMS – Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project would not generate wastewater.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☐ ☒
Reference:
Comment: The proposed Project would not generate wastewater or require new wastewater facilities to be constructed.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? Reference: Comment: The proposed Project would not substantially increase impermeable surface area and would therefore not generate demand for new storm water drainage facilities.	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? Reference: Comment: The proposed Project is an infrastructure improvement project that would not require potable water for operations.	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? Reference: Comment: See Checklist 16.d) above.	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Reference: Comment: Construction of the proposed Project would generate some construction debris that would likely be disposed of in a landfill. However, construction debris would be recycled or reused where feasible and economic. In addition, much of the construction debris would be inert material, which could be disposed of, in an inert landfill, thereby saving valuable landfill capacity in municipal landfills. Once construction in complete, the proposed Project would not generate solid waste.	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste? Reference: Comment: All City projects comply with applicable federal, state, and local laws and regulations.	☐	☐	☐	☒
17. MANDATORY FINDINGS OF SIGNIFICANCE -- a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? Reference:	☒	☐	☐	☐

Comment: The proposed project involves the demolition and removal of fabric that is now part of a structure deemed eligible for listing by the National Register of Historic Places and is a designated City of Los Angeles Landmark (#164). This action may constitute an adverse change in the significance of this resource and pursuant to Section 21084.1 of the California Environmental Quality Act and Section 15064.5 (a)(2), and Section 15064.5 (b)(1) of the Guidelines for the Implementation of CEQA requires a Mandatory Finding of Significance be determined and that and EIR be prepared.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ☐ ☐ ☒ ☐
Reference:
Comment: The proposed project does not include effects that could be deemed cumulatively significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ☐ ☐ ☒ ☐
Reference:
Comment: Construction of the proposed project has the potential to cause both direct and indirect adverse effect to human beings in the area of noise generation, air quality, the handling of hazardous materials, and accidental injury to workers. However, the proposed project would be constructed in compliance with all applicable laws, regulations, best construction practices, and worker safety measures and is not expected to result in substantial adverse effects to human beings, directly or indirectly.

IV. PREPARATION AND COORDINATION/CONSULTATION

This Initial Study was prepared in coordination with the following individuals:

Prepared by:
Louis Utsumi
Environmental Project Manager
EnviCraft LLC

Coordination/Consultation with:

Ejike Mbaruguru, P.E.
Project Manager
Bridge Improvement Program
Bureau of Engineering, Department of Public Works

Wallace E. Stokes, III
Environmental Coordinator
Environmental Management Group
Bureau of Engineering,
Department of Public Works

V. DETERMINATION - RECOMMENDED ENVIRONMENTAL DOCUMENT

Summary

The proposed project would modify the existing Glendale-Hyperion Viaduct complex to address existing safety and operational deficiencies, improve pedestrian linkage with the surrounding system, and strengthen the complex to meet current seismic performance standards. Construction would include:

- Modification to the Hyperion Avenue Viaduct to include removal of the existing eastside curb and sidewalk.
- Restriping to provide shoulders that could be also used by cyclists on each side and a center median.
- Installation of protective concrete rail barriers adjacent to the shoulder lanes on each side.
- Replace the existing 5-foot westside sidewalk with an 8-foot sidewalk.
- Installation of a pedestrian sidewalk across southbound Glendale Boulevard.
- Widening of both northbound and southbound Glendale Boulevard viaducts by approximately 8 feet in the outer direction to meet current design standards.
- Restriping of both northbound and southbound Glendale Boulevard bridges to provide wider traffic lanes and shoulders that could be used by bicyclists.
- Replacement of railings along both Glendale Boulevard viaducts, Hyperion Avenue, and the Waverly Bridge with replicas that more closely resemble the original railing systems.
- Reconfiguration of the northbound I-5 off ramp to northbound Glendale Boulevard.
- Construction of a bicycle and pedestrian ramp connecting northbound Glendale Boulevard with the existing bike and pedestrian path along the Los Angeles River.
- Construction of a viewing outlook that extends from the bike path along the Los Angeles River just east of the viaduct complex.

Recommended Environnemental Document

Potentially Significant Impacts, associated with the proposed project, are indicated by the checklist, which follows. Project related effects, for unmarked environmental factors of the checklist are deemed to be insignificant and, in accordance with Section 15128 of the CEQA Guidelines will not be discussed in detail by the Environmental Impact Report (EIR).

☐ Aesthetics	☐ Agriculture Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☒ Mandatory Findings of Significance	

INITIAL STUDY
PUBLIC WORKS – BUREAU OF ENGINEERING

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" on the environment and that an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Prepared By: _____ Date 1-18-07
Wallace E. Stokes III
Environmental Coordinator
City of Los Angeles

By: _____ Date 1/18/07
Ara Kasparian, Ph.D., Manager
Environmental Management Group

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APPENDIX B1: Programmatic Section 4(f) Evaluation

EA 23750
BHLS-5006 (181), BRLSZD-5006 (337), BHLS-5006 (186), BHLS-5006 (187)

Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project

PROGRAMMATIC SECTION 4(F) EVALUATION
Submitted Pursuant to: 49 U.S.C. 303

THE STATE OF CALIFORNIA

Department of Transportation as assigned

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

December 11, 2014
Date of Approval

Tami Podesta
Branch Chief

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 USC 327.

1.0 Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

In an effort to comply with the required regulations in determining Section 4(f) resources, documentation specific to the historic nature of the Glendale Boulevard-Hyperion Avenue Complex of Bridges structures was prepared to address potential impacts related to their rehabilitation and seismic retrofit. Applicable technical reports for this Section 4(f) evaluation include:

- JRP Historical Consulting, LLC (JRP). 2012. Draft Memorandum of Agreement between California Department of Transportation and the California State Historic Preservation Officer Regarding the Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project, October.

- ———. 2008. Finding of Effect Impact for Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project, October.

- ———. 2008. Historic Property Survey Report, Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project, October.

2.0 Description of Proposed Project and Alternatives

The City of Los Angeles, in conjunction with Caltrans (the California Department of Transportation) and FHWA (Federal Highway Administration), is proposing to modify the existing Glendale Boulevard-Hyperion Avenue Viaduct (Viaduct Complex) to correct existing safety and operational deficiencies, address pedestrian safety issues, meet current seismic performance standards, and to restore original design details to the railings. Project alternatives are the Proposed Action and the No-Build Alternative.

Proposed Action

A detailed description of the Proposed Project is included in **Section 1.3,** Project Description and Alternatives, of the Initial Study/Environmental Assessment (IS/EA).

In summary, the Proposed Action would accomplish the following:

- Seismically strengthen vulnerable Viaduct Complex structures.
- Improve the Hyperion Avenue viaduct roadway by adding a center median barrier to physically separate northbound and southbound traffic, consolidate the existing two sidewalks into a single sidewalk along the west side of the complex, add a pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge, and restripe the travel lanes to provide new lane widths (12-foot inner and 14-foot wide curb).
- Widen the northbound and southbound Glendale Boulevard viaducts over the Los Angeles River by approximately eight feet.
- Replace the existing covered railings along both Glendale Boulevard viaducts, along Hyperion Avenue, and along the Waverly Bridge with replica balustrades based on the original railing design.
- Realign the existing I-5 northbound off-ramp to Glendale Boulevard to connect with northbound Glendale Boulevard south of the current exit to allow left hand turns onto southbound Glendale Boulevard.
- Add an access ramp from northbound Glendale Boulevard to the bike path along the Los Angeles River.
- As a mitigation measure, construct a pedestrian crossing over Los Angeles River piers on the east side of the complex to connect with northbound Glendale Boulevard.

Design Options

In response to public comments received during the review period, the project has been revised to add bicycle lanes[1] to the roadway of the Hyperion Avenue Viaduct (comprising three structures: Caltrans bridge numbers 53C-1882, 53-1069, and 53C-1881) as a design option. The bike lanes would be created by means of striping and symbols painted on the paved roadway. The addition of bicycle lanes will not involve any change to any of the historic features of the viaduct nor affect those features in any way. The viaduct (aka "bridge") will not be widened. The approaches will not be widened. The space for the bike lanes will be accommodated by adjusting the width (or possibly the number) of the traffic lanes and/or adjusting the width of the median of the roadway. The environmental assessment (Sec. 1.3) describes the proposed roadway of the viaduct as having two 12-foot lanes, two 14-foot lanes, a 7-foot median and a 7-8-foot sidewalk along most of the viaduct length, all narrowing under the Waverly Drive Bridge (Caltrans bridge number 53C-1179). For the design option, various configurations are being considered; no decision has been made on which configuration to adopt. One preliminary, possible configuration could include 5-foot bike lanes, 11-foot traffic lanes, a 5-foot sidewalk and a 4-foot median for most of the bridge length, all narrowing under the Waverly Drive Bridge. Exhibits 1-3 below show three possible configurations under consideration; other configurations may also be considered.

While the exact configuration has not yet been decided (the City is collaborating with a citizens' advisory committee to develop the final configuration), the City has committed to including the

[1] Bicycle facilities are defined in the City's 2010 Bicycle Plan, a component of the Transportation Element of the General Plan. A "bicycle lane" (aka "bike lane") is defined as "a striped lane for one-way bicycle travel on a street or highway." Caltrans refers to this facility as a "Class II bikeway." Striping, other pavement markings, and signage on City bike lanes follow the Caltrans Manual on Uniform Traffic Control Devices.

bike lanes without any widening of the viaduct or changes to the design of the new barriers (aka "bridge railings"). No change to any historic features would be required under any configuration.

The inclusion of bike lanes will not affect the ability of Caltrans to comply with any of the stipulations agreed to by Caltrans and the SHPO in the executed memorandum of agreement (MOA), prepared in compliance with Section 106 of the National Historic Preservation Act, for this project.

The addition of bike lanes will not require widening or other structural changes to the viaduct or the approaches. The addition of the bike lanes will not require additional safety features that could affect the historic integrity or significance of the viaduct or the stipulations of the MOA.

No-Build Alternative

Under the No Build Alternative, no improvements to the Viaduct Complex, including seismic retrofit/rehabilitation, would be undertaken. Existing design deficiencies would remain, including inadequate curb-to-curb widths, inadequate travel lane widths, inadequate lateral clearances for vehicles passing on roadways beneath the structure, and inadequate pedestrian facilities.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

The following alternatives were considered but eliminated from further consideration.[1]

Build Alternative 1 - Seismic Retrofit Only

Build Alternative 1 would provide the seismic retrofit improvements associated with the Proposed Project, but would not provide replacement replica balustrades to the Viaduct Complex, would not improve sidewalks along Hyperion Avenue, would not reconfigure the northbound I-5 off-ramp to Glendale Boulevard, would not widen the Glendale Boulevard viaducts over the Los Angeles River, and would not construct an undercrossing along the Los Angeles River beneath the Viaduct Complex.

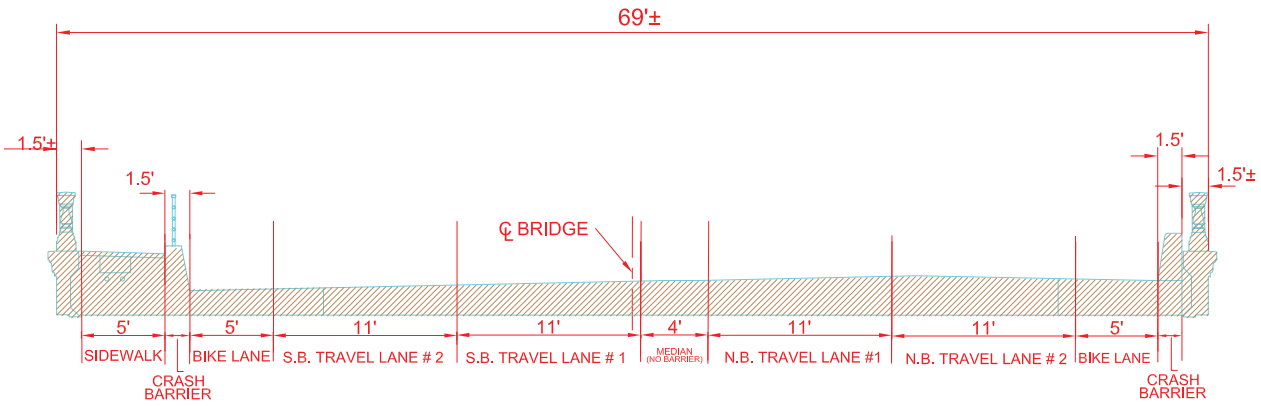
[1] The rationale for eliminating Build Alternatives 1 through 5 is presented in Section 1.3.3 of the environmental document.

EXHIBIT 1

HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

Caltrans Bridge Numbers 53-1069, 53C-1882, and 53C-1881)

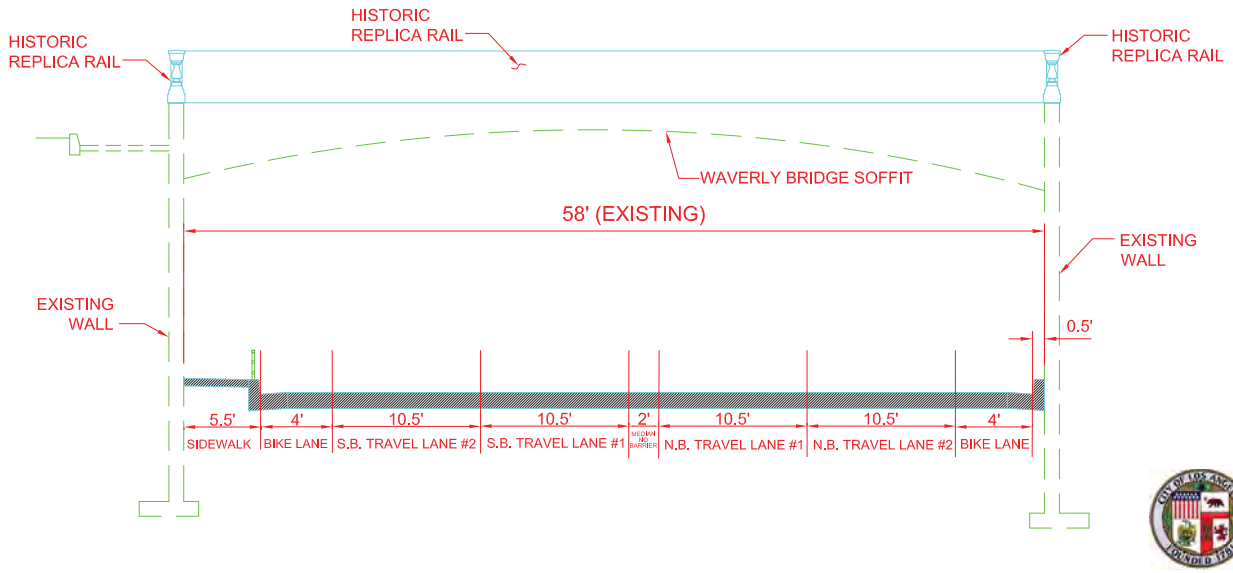
1) FOUR - 11 FT. LANES
2) SIDEWALK ON ONE SIDE
3) 4 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

Hyperion Avenue here is City street not on bridge; Waverly Bridge is 53C-1179

1) FOUR- 10.5 FT LANES
2) SIDEWALK ON ONE SIDE
3) 2 FT. MEDIAN (NO BARRIER)



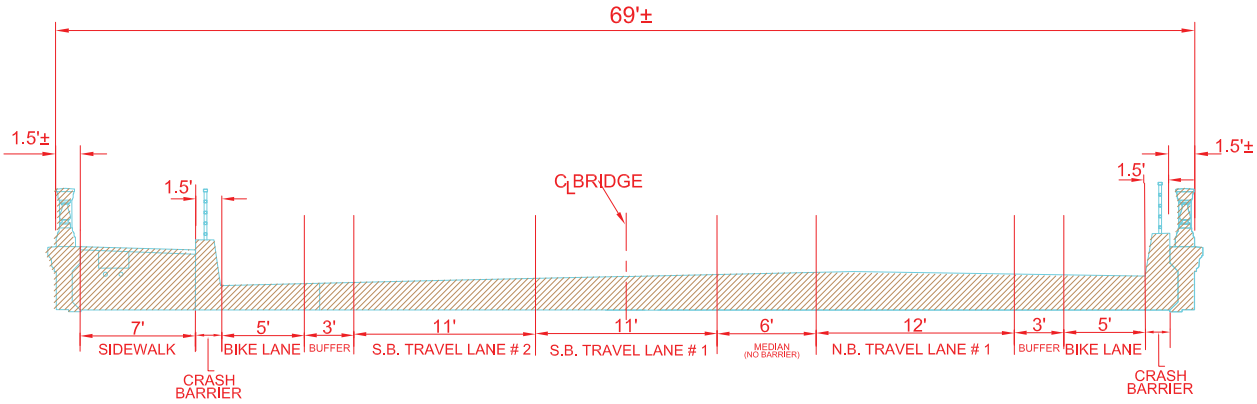
This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.

EXHIBIT 2

HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

Caltrans Bridge Numbers 53-1069, 53C-1882, and 53C-1881

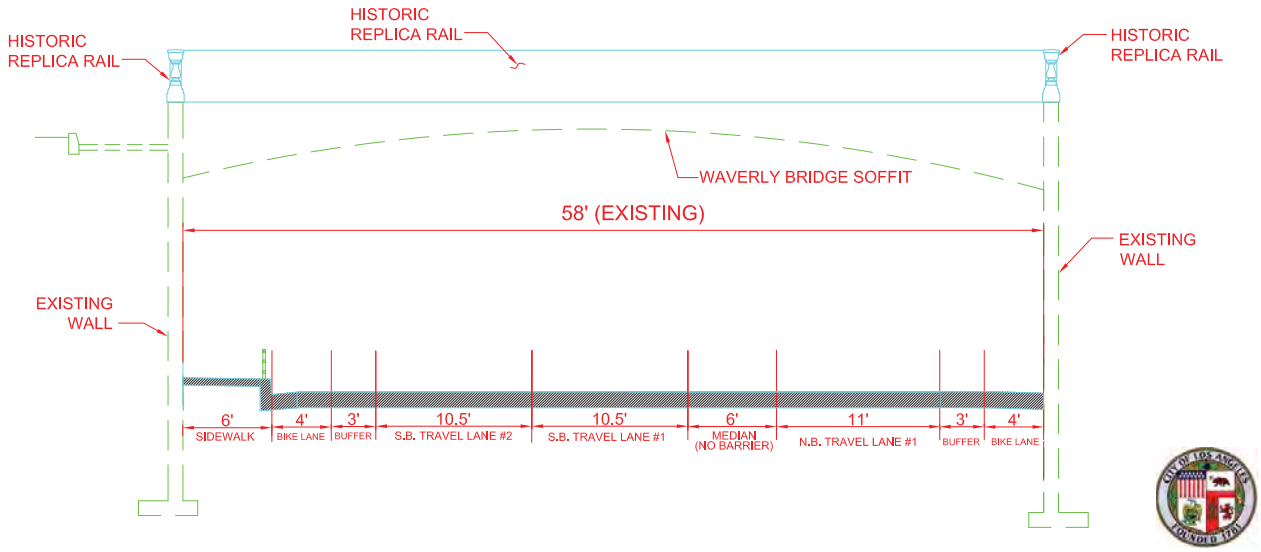
1) THREE LANES (ONE LANE DOWNHILL; TWO LANES UPHILL)
2) SIDEWALK ON ONE SIDE
3) 6 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

Hyperion Avenue here is City street not on bridge; Waverly Bridge is 53C-1179

1) THREE LANES (ONE LANE DOWNHILL ; TWO LANES UPHILL)
2) SIDEWALK ON ONE SIDE
3) 6 FT. MEDIAN (NO BARRIER)



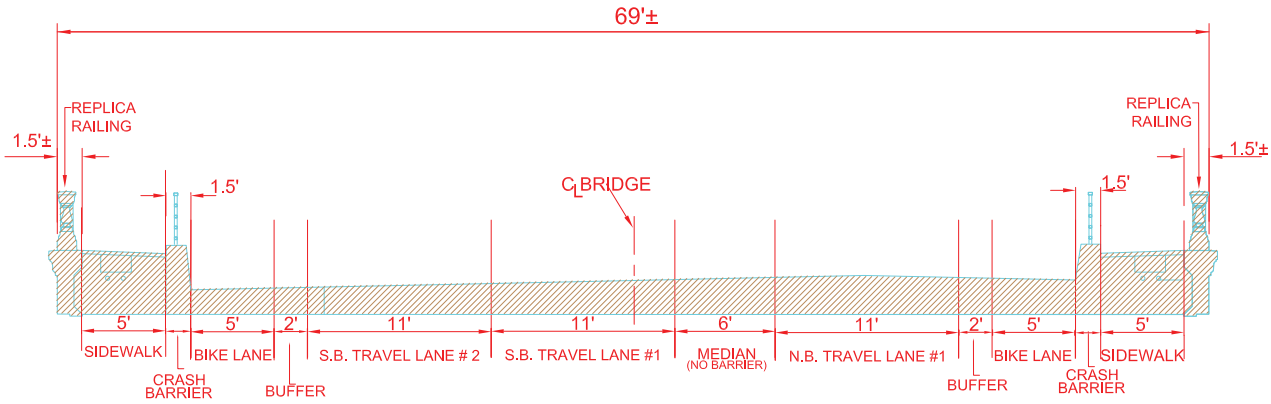
This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.

EXHIBIT 3

HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

Caltrans Bridge Numbers 53-1069, 53C-1882, and 53C-1881

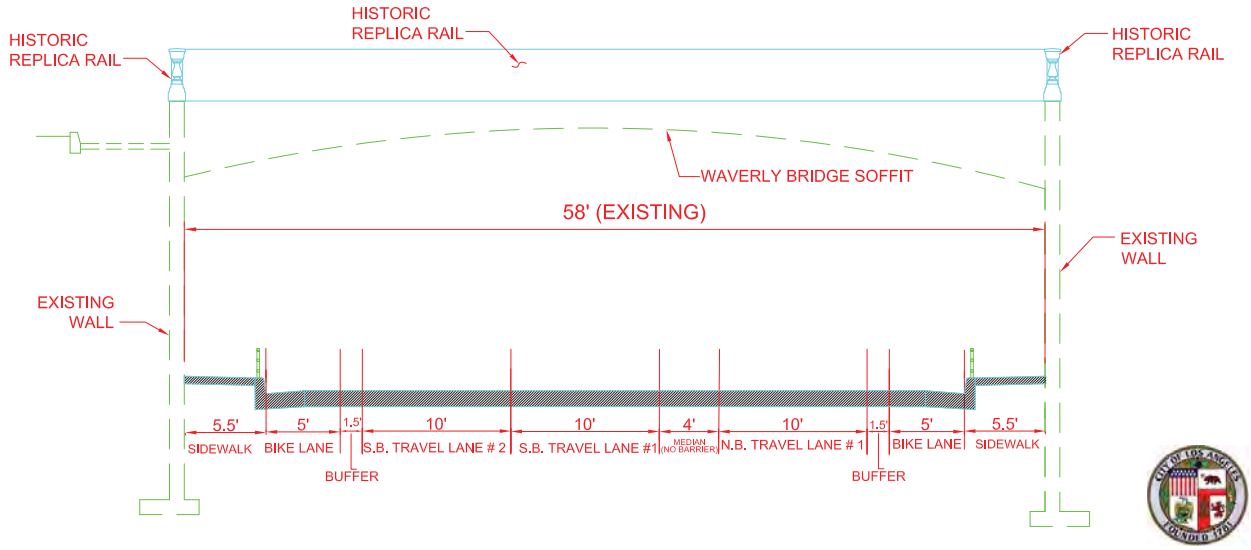
1) THREE-11 FT. LANES (ONE LANE DOWNHILL; TWO LANES UPHILL)
2) SIDEWALK AND BUFFER ON BOTH SIDES
3) 6 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

Hyperion Avenue here is City street not on bridge; Waverly Bridge is 53C-1179

1) THREE-10 FT. LANES (ONE LANE DOWNHILL ; TWO LANES UPHILL)
2) SIDEWALK AND BUFFER ON BOTH SIDES
3) 4 FT. MEDIAN (NO BARRIER)



This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.

Construction would take place over one year. The total cost for Build Alternative 1 is estimated to be approximately $5.5 million. The funding source for Build Alternative 1 would be State Seismic Retrofit funds.

Seismic Retrofit Only would sufficiently strengthen the existing Viaduct Complex to meet current seismic performance standards. This alternative would not remove the Viaduct Complex from the Highway Bridge Program (HBP) Eligibility Bridge List (EBL) but would only implement the seismic retrofit improvements previously described as part of the proposed project. Aside from seismic improvement, no other improvements would be provided. The seismically retrofitted bridge structures would retain their current geometric configuration. The improvements would not physically impact any portion of the Viaduct Complex. Therefore, Build Alternative 1 would not cause an adverse effect on the Viaduct Complex.

Build Alternative 2 – Widen Hyperion Avenue by 44 Feet and Glendale Boulevard Bridges by 24 Feet

Build Alternative 2 would widen the viaduct structures along Hyperion Avenue by 44 feet and the Glendale Boulevard bridges by 24 feet. This alternative would add four lanes to Hyperion Avenue (two lanes in each direction) and one additional lane each along the southbound Glendale Boulevard Bridge (over the Los Angeles River) and the northbound Glendale Boulevard Bridge.

While this build alternative would meet the project's purpose and need,[2] it would result in greater impacts on the 4(f) resource than the proposed project. This alternative would widen the bridge to meet current standards, but cause major community and commuter disruptions. It would also require moderate right-of-way acquisition and relocations. Therefore, this alternative is economically inferior and cause far greater impacts on the Viaduct Complex, and has been withdrawn from further consideration.

Build Alternative 3 – Widen Hyperion Avenue by 24 Feet and Glendale Boulevard Bridges by 16 Feet

Build Alternative 3 would widen the viaduct structures along Hyperion Avenue by 24 feet and the Glendale Boulevard bridges by 16 feet. This alternative would include full standard shoulders and full standard sidewalks on both sides, and full standard median in the center of the Hyperion Avenue structure. No lanes would be added as part of this alternative. Standard shoulders and sidewalk would also be added to both Glendale Boulevard Bridges.

While this build alternative would meet the project's purpose and need, it would result in greater impacts on the 4(f) resource than would the proposed project. This alternative would widen the bridge to meet current standards, but cause major community and commuter disruptions. It would also require low-moderate right-of-way acquisition and relocations. Therefore, this alternative is economically inferior and cause far greater impacts on the Viaduct Complex, and has been withdrawn from further consideration.

[2] The project's purpose and need is discussed in Section 2.3.

Build Alternative 4 – New Bridge at Existing Location

Build Alternative 4 would require complete demolition of the existing Viaduct Complex and construction of an entirely a new bridge at the same location. The new bridge provided by Build Alternative 4 would meet current standards for seismic performance and geometric design. Build Alternative 4 would result in construction-related impacts substantially greater than those of the other Build Alternatives because the Viaduct Complex is one of four key thoroughfares that cross the Los Angeles River in the extended project vicinity (the other three are Fletcher Avenue, SR-2—known as the Glendale Freeway—and Los Feliz Boulevard). This alternative would require the complete closure of the Viaduct Complex for an extended period of time, which would result in substantial impacts to commuters and the local circulation system during construction. In addition, this alternative would result in substantial economic impact to local businesses along Glendale Boulevard and Hyperion Avenue. Furthermore, Build Alternative 4 would result in the complete demolition of the historic Viaduct Complex, which is eligible for listing in the National Register of Historic Places (NRHP).

While this build alternative would meet the project's purpose and need, it would cause significant adverse impacts by completely demolishing the 4(f) resource. This alternative would cause major community and community disruptions and require some right-of-way acquisitions and relocations. This alternative and economically and environmentally inferior to the proposed project, and has been withdrawn from further consideration.

Build Alternative 5 – New Bridge at an Adjacent New Location

Build Alternative 5 would provide a replacement bridge, for the existing Viaduct Complex, on either side of the Complex. The existing Viaduct Complex would remain in place and retain its historic fabric, but would not be seismically improved. Moreover, Build Alternative 5 would not cure the design or seismic defects of the existing Complex.

This alternative was considered but withdrawn from further consideration because it failed to meet project purpose and need. Moreover, this alternative would require extensive right-of-way acquisition and reconfiguration of the entire street system at both ends of the Viaduct Complex. This alternative does not address the seismic concerns of the 4(f) resource, and is anticipated to result in significant environmental impact and cost.

3.0 Purpose and Need

Purpose

The purpose of the proposed project is to:

- Reduce vulnerability of the Glendale Boulevard-Hyperion Avenue viaduct complex in major earthquake events
- Resolve design deficiencies of the Glendale Boulevard-Hyperion Avenue viaduct complex
- Improve traffic circulation to improve the operational efficiency of the viaduct complex

Need

The Glendale-Hyperion Viaduct Complex has a sufficiency rating of 72, which classifies it as "functionally obsolete" under the FHWA ranking criteria. With the exception of the Waverly Drive Bridge, each of the bridge structures of the complex requires seismic retrofitting to meet current design standards of the City of Los Angeles and State of California. In addition to the need to seismically upgrade the complex, existing geometric configurations of the several complex structures do not meet current design standards for operational safety. The current viaduct complex presents a risk to public safety due to design-related deficiencies and unacceptable vulnerability to damage under recently revised maximum credible earthquake (MCE) design criteria.

This Programmatic 4(f) Determination is part of a complete Initial Study/Environmental Assessment for the Glendale Hyperion Bridge structures.[3] Additional details regarding the Purpose and Need for the bridge improvments are in Chapter 1, Purpose and Need of that document.

4.0 Description of Section 4(f) Property

The Glendale Boulevard – Hyperion Avenue Viaduct Complex (Viaduct Complex) is located between Atwater Village in the Northeast Los Angeles Community Planning Area and the Hollywood Community Planning Area of the City of Los Angeles. Please see **Figure 3-1,** Vicinity Map**.** The Viaduct Complex, completed in 1929, spans the Los Angeles River, Interstate 5 (I-5), and Riverside Drive.

The Viaduct Complex is generally aligned along a southwest-northeast axis and is bounded by Ettrick Street on the south and and Glenhurst Avenue on the north, respectively. A portion of the Hyperion Avenue Viaduct (531069) spans I-5 and is under the jurisdiction of the California Department of Transportation (Caltrans). Of the six structures comprising the Viaduct Complex, this is the only component that is part of the State Highway System. The five other structures are under the City's jurisdiction.

[3] Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project Initial Study-Environmental Assessment (IS-EA), 2012.



Figure 3-1 Vicinity Map

The six structures that comprise the Viaduct Complex have been determined, in their entirety, to be eligible for listing in the National Register of Historic Places (NRHP). The City of Los Angeles Bureau of Engineering (LABOE) designed and constructed the Viaduct Complex between 1927 and 1929. The Viaduct Complex is noted for its innovative design techniques and as a bold engineering achievement. It is also noteworthy for its aesthetic quality and use of neo-classical forms.

The Viaduct Complex is eligible for inclusion in the NRHP under Criteria A and C. It is significant as one of the twelve historic bridges over the Los Angeles River and provided an

efficient solution to a serious traffic problem. It is also significant as an example of neoclassical design and as a work of the LABOE, now seen as the most historically significant municipal bridge design department in California and a master designer.

Descriptions of the Viaduct Complex's six structures, including Bridge Identification Numbers, are included below.

Waverly Drive Bridge over Hyperion Avenue (Bridge Number 53C-1179) – The 65-feet-long earth-filled reinforced concrete arch structure is two lanes wide, with a flush roadway and pedestrian walkways on both sides of the bridge. Enclosing the bridge are railings which have solid concrete finish with inset panels that covered the original balusters. Cast bronze lanterns with glass globes are set at each corner of the bridge.

Hyperion Avenue over Riverside Drive (Bridge Number 53C-1882) – The portion of the Glendale-Hyperion Viaduct Complex that carries Hyperion Avenue over Riverside Drive is also a reinforced concrete arch bridge. It includes three arch spans with a total length of 429 feet. The Hyperion Avenue structure accommodates four traffic lanes and is 63 feet wide Support for the structure is provided by two reinforced concrete abutments and two reinforced concrete piers. The main span is an open spandrel arch measuring 135 feet. Two additional filled spandrel arches, each measuring 118 feet, make up the length of the bridge. Pedestrian walkways flank both sides of the roadway along Riverside Drive. The structure has solid reinforced concrete railings with decorative inset panels and a smooth concrete finish, which cover the original baluster railing. Two reinforced concrete octagonal-shaped pylons, capped with tile copings, are located at the east end of the main span.

Hyperion Avenue over Interstate 5 (Bridge Number 53-1069) – The segment of the Viaduct Complex that carries Hyperion Avenue over I-5 (Golden State Freeway) is a single span, reinforced concrete, open spandrel arch that is 135 feet long. It carries four lanes of traffic and is 71 feet wide with cantilevered walkways flanking the roadway. Like the other portions of the Glendale-Hyperion Viaduct Complex, the original balustrades have been covered by a smooth solid reinforced concrete finish with inset panels. Octagonal shaped pylons with tile copings along the tops are located at each end of the span. Decorative bronze-cast lanterns and glass globes, like those on the other spans, are set on the railings.

Hyperion Avenue over the Los Angeles River (Bridge Number 53C-1881) – Composed of nine spans with a total length of 518 feet, the Hyperion Avenue Bridge over the Los Angeles River is composed of reinforced concrete filled spandrel arches. The bridge carries four lanes of traffic and is 68 feet wide. It is supported by three reinforced concrete abutments and seven reinforced concrete piers, each crowned with octagonal pylons. The main span of the bridge is 68 feet wide and each of the eight additional arch spans is 48 feet wide. Cantilevered walkways flank the roadway. Solid reinforced concrete railings having decorative inset panels and a smooth concrete finish are present. These railings are identical to those found on other portions of the Viaduct Complex along Hyperion Avenue. This bridge is flanked by the structures that carry northbound and southbound Glendale Boulevard over the Los Angeles River.

Southbound Glendale Boulevard Bridge over the Los Angeles River (Bridge Number 53C-1883) – The southbound Glendale Boulevard Bridge over the Los Angeles River segment of the Glendale-Hyperion Viaduct Complex consists of six reinforced concrete arch spans with a total length of 316 feet. Each is a filled spandrel arch measuring 48 feet long. Reinforced concrete abutments and piers support the bridge. The bridge supports two traffic lanes within a total

width of 38 feet and is flanked by flush walkways that are situated next to solid reinforced concrete railings with inset panels and a smooth concrete finish. Concrete pylons are located at the terminus of the bridge and are hexagonal, each topped with tile coping. Decorative lanterns with glass globes are set on the railings.

Northbound Glendale Boulevard Bridge over the Los Angeles River (Bridge Number 53C-1884) – The northbound Glendale Boulevard Bridge over the Los Angeles River segment of the Viaduct Complex is identical to the southbound structure just discussed, except that it sits adjacent to the flow control walls, or river training walls, situated in the river on the south side of the Viaduct Complex.

5.0 Impacts on Section 4(f) Property

Under 36 CFR 800.5(a)(2)(i), an adverse effect is defined as "*Physical destruction of or damage to all or part of the property*" [emphasis added], which under this alternative is demolition. The elements of the Viaduct Complex that would be affected include many of the character defining features essential to establishing a portion of the bridge's design as Neo-Classical and thus, essential to the Viaduct Complex's eligibility for listing in the NRHP. By affecting these original components, the proposed project would potentially alter the bridge's historic integrity, specifically by changing the design, materials, workmanship, feeling, and association.

Both the Southbound Glendale Boulevard Bridge over the Los Angeles River (53C1883) and the Northbound Glendale Boulevard Bridge over the Los Angeles River (53C1884) would be partially demolished and rebuilt as wider structures as part of this project. These two structures are contributing components of the Glendale-Hyperion Viaduct Complex. The project would remove portions of these structures that are character-defining features of the Viaduct Complex, including the arches and pylons.

No-Build Alternative

Use of Section 4(f) property would not be required under this alternative. Since the status quo would be maintained, no potential adverse impacts would result.

Proposed Action

Construction associated with implementing the bridge improvements and seismic reinforcement would result in construction noise, dust, and traffic lane restrictions. These temporary effects would not diminish the historic integrity of the bridge, as all of its character-defining features would be retained and would not be adversely affected by these types of project impacts. Modifications such as restriping/installation of a pedestrian crosswalk; curb removal, sidewalk work and installation of concrete center barrier and concrete sidewalk barrier on the Hyperion Avenue bridges; replication of original balustrades, reuse and/or replication of existing street lighting, and the seismic retrofit measures will not cause a substantial adverse change to the historical resource. These elements of the project will not materially alter in an adverse manner the historical resource's physical characteristics that convey its historical significance and justify its inclusion in the California Register of Historical Resources (CRHR).

Both the Glendale Boulevard bridges (53C1883 & 53C1884), which are contributing components of the Glendale-Hyperion Viaduct Complex, would be widened. This would involve removing the decorative facade of the arches, which are character-defining features, and replicating them in the widened structure. The decorative pylons, also character-defining, would be repositioned on the widened structure to match the original appearance.

Air Quality

The proposed project would not increase traffic throughput or increase the capacity of the viaduct complex (see Section 2.10 Air Quality of Initial Study/Environmental Assessment), no increases in criteria pollutants would result that could cause adverse impacts to air quality.

Furthermore, operation of the proposed project would not result in an incremental increase of greenhouse gases relative to the No-Build Alternative. The reconfiguration of the northbound I-5 off-ramp to Glendale Boulevard would also result in a reduction in total vehicle miles traveled (VMT) and a corresponding reduction in related vehicle emissions, including greenhouse gases. The new signalized intersection at the reconfigured northbound I-5 off-ramp would operate at a free flowing level, and no CO or particulate matter hotspots are expected to occur from project operation. Similarly, this new intersection is not expected to result in PM_{10} or $PM_{2.5}$ hotspots.

Accessibility

Roadway construction along Riverside Drive, Glendale Boulevard, and Hyperion Avenue would require the temporary closure of one or more travel lanes; however, at least one lane in each direction would always be maintained, as would access to adjacent properties and land uses along Glendale Boulevard and Riverside Drive. Pedestrian access across the Glendale Boulevard Bridges over the Los Angeles River during construction would be prohibited, but access to nearby structures would not be prohibited. Because access to local streets would be maintained during construction, residential and commercial land uses would not be adversely affected.

Substantial improvements would be made to the currently inadequate pedestrian facilities on Hyperion Avenue and Glendale Boulevard. The widening of Glendale Boulevard bridges would provide room for widened sidewalks and curb lane plus the addition of a curbside shoulder. The sidewalk upgrades would not only facilitate mobility for pedestrians but improve safety by placement of a concrete vehicular barrier. These changes would have an overall positive effect.

Noise

Noise impacts from construction of the proposed project are a function of the noise generated by construction equipment, the location and sensitivity of nearby receptors, and the timing and duration of noise-generating activities. During the Glendale Boulevard Bridge widening, the loudest construction noise levels are expected to result from demolition of the sides (rails) of the bridge structures and construction of the substructure and superstructure improvements Construction of the proposed project would be conducted over an approximately 30-month period and the noise levels generated would depend upon construction activities in different construction phases (see Section 2.11 Noise of the Initial Study/Environmental Assessment). These construction phases are expected to represent the worst-case phase from a noise standpoint because they involve the highest number of pieces of construction equipment and equipment having the greatest noise-generating characteristics.

Vegetation

The bridge widening would require tapering of the new bridge width to the current roadway width along northbound Glendale Boulevard (just north of the bridge), which would require the use of a narrow sliver of the landscaped median known to the local community as a "Red Car River Park" green space. The majority of this landscaped median would remain unaffected during construction. Any disruption to the existing planting irrigation system would be properly restored and any vegetation removed would be replanted.

Visual

The existing covered railing system would be removed and replaced with railings that replicate the original balustrade design. This is seen as an improvement over the existing railing system, which is currently damaged and in a state of disrepair.The installation of replica balustrades, the most important project element that helps preserve the Viaduct Complex's historic character, would return a key feature of the property's classically-inspired design.

The replacement of the existing center divider with a concrete median barrier as well as crash-resistant protective barriers would partially conceal the restored railing, but the effect would be an improvement in the overall visual character of the viaduct complex because portions of the new balustrades would be visible from Hyperion Avenue, and fully visible from external viewpoints.

Widening of the Glendale Boulevard bridges necessitates removal of the decorative façade of the arches of each bridge and repositioning of the pylons. Though the façade and original railing design will be replicated and the pylons will be preserved and repositioned, the widening will change the appearance of the bridges, thus causing an adverse effect.

6.0 Applicability

As documented below, the proposed project meets the applicability criteria and the required findings of the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* (1983). The applicability criteria and required findings are presented in the text below.

1. The bridge is to be replaced or rehabilitated with Federal funds
2. The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places
3. The bridge is not a National Historic Landmark
4. The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of this document labeled Alternatives, Findings and Mitigation
5. A Memorandum of Agreement between the SHPO and Caltrans that addresses minimization measures was executed on October 30, 2012.

The bridge is to be replaced or rehabilitated with Federal funds.

The geometric configuration issues or deficiencies have qualified the Viaduct Complex for inclusion on the EBL for funding under the federal HBP. The HBP is intended to ensure that the Nation's highway bridges are safe for vehicular use. The program is administered by the California Department of Transportation (Caltrans) under delegated authority from the Federal Highway Administration (FHWA). Bridges are determined eligible for funding based upon inspections and evaluations by Caltrans and a scoring system developed by FHWA. The current funding amount scheduled to complete the bridge improvement is approximately $35,595,000.[4]

The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places (NRHP).

The six structures that comprise the Viaduct Complex have been determined, in their entirety, to be eligible for listing in the National Register of Historic Places (NRHP). The Viaduct Complex was determined eligible for listing by the NRHP as part of the Caltrans Historic Bridge Inventory of 1988[5] under Criterion C as a significant example of innovative design techniques

[4] Southern California Association of Governments, Final 2011 Federal Transportation Improvement Program, Los Angeles County Project Listing, Local Highway (August18, 2010). http://www.scag.ca.gov/ftip/pdf/final/2011/F2011-FTIP-LocalLA.pdf .

[5] Since updated and available online at http://www.dot.ca.gov/hq/strustr/strmaint/historic.htm.

and bold engineering achievement that was used to ease the bottlenecks of a complex traffic pattern. It is also noteworthy for its aesthetic quality and use of neo-classical forms.[6]

The bridge is not a National Historic Landmark.

The Viaduct Complex is not a National Historic Landmark listed on the U.S. Department of Interior's database.

The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of this document labeled Alternatives, Findings and Mitigation

FHWA's responsibility for 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(a)(2)(A). Hence, Caltrans, as the agency assuming responsibility for environmental review, consultation and coordination of this project, has reviewed and determined the facts of the project match those set forth in the sections of this document labeled Avoidance Alternatives and Other Findings, and Measures to Minimize Harm. The proposed action will impair the southbound and northbound Glendale Boulevard bridges over the Los Angeles River (53C1883 & 53C1884) by rehabilitationo and demolition. The proposed action would have an adverse effect under Section 106, as concurred by SHPO. (See Cultural Resources Section 2.6.3.2 Permanent Impacts)

Agreement among the FHWA, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the NHPA.

Caltrans has consulted with SHPO about the project in accordance with the Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, State Historic Preservation Officer, and the California Department of Transportation regarding compliance with Section 106 of the National Historic Preservation Act. On May 5, 2009[7], the SHPO concurred that the Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project would result in an adverse effect on the Complex. A Memorandum of Agreement between Caltrans, as assigned by the FHWA, and the SHPO that addresses minimization measures was executed on October 30, 2012 (see Appendix H).

7.0 Avoidance Alternatives and Other Findings

The following alternatives would avoid use of the historic bridge structures:

1. Do nothing.
2. Build a new structure at a different location without affecting the historic integrity of the old bridge, as determined by procedures implementing the NHPA.
3. Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA.

The facts and circumstances below support the findings required for the programmatic evaluation:

1. **Do Nothing** – The No-Build Alternative has been considered and evaluated, but would not meet the project purpose and need. No improvements to the viaduct complex would

[6] JRP Historical Consulting. Caltrans Inventory of Concrete Arch Bridges, Bridge Inspection Report, 2004.

[7] Donaldson, Milford. Finding of Adverse Effect for the Glendale Avenue-Hyperion Boulevard Viaduct Complex Improvement Project, Los Angeles, CA, May 5, 2009.

be undertaken, including seismic retrofit/rehabilitation. The existing viaduct complex would remain seismically deficient and remain vulnerable to earthquake-induced forces, deformations, and possible failures. In the event of an earthquake, the existing structures would continue to pose a level of hazard to the public using the viaduct that is greater than would be the case for a structure rehabilitated to current seismic performance standards. The Do Nothing Alternative would not meet the project purpose and need, as discussed in Section 1.2.

2. **Build on New Location Without Using the Old Bridge -** Investigations have been conducted to construct a bridge on a new location or parallel to the old bridge (allowing for a one- way couplet), but elminated for one or more of the following reason:

   Build Alternative 5 was identified to provide a replacement bridge for the existing Viaduct Complex, on either side of the Complex. The existing 4(f) resource would remain in place and retain its historic fabric, but would not be seismically improved. Moreover, Build Alternative 5 would not cure the design or seismic defects of the existing complex.

   Glendale Boulevard and Hyperion Avenue are highways within an extensive transportation network of a highly urbanized area. The viaduct complex, at its existing location, is the only feasible and prudent site, since it is provides an important linkage between the established communities of Atwater Village and Silver Lake. This alternative reconfiguration of the entire street system at both ends of the viaduct complex, and cause extraordinary disruption to established traffic patterns. This alternative would also require extensive right-of-way acquisition from an established community, and result in displacement of a significant number of families and businesses.

3. **Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA**

   Studies have been conducted of rehabilitation measures. The Build Alternative 1- Seismic Retrofit Only would sufficiently strengthen the existing viaduct complex to meet current seismic performance standards without altering the current geometric configuration. Aside from seismic improvement described in Section 1.3.1.5 of the Initial Study/Environmental Assessment, no other improvements would be provided and it would not meet the project goal of removing the viaduct complex from the EBL under the HBP. But, for one or more of the following reasons, this alternative is not feasible and prudent. It fails to meet the project's purpose and need objectives.

   With the exception of the Waverly Drive Bridge, each of the bridge structures of the complex requires seismic retrofitting to meet current design standards of the City of Los Angeles and State of California. The existing geometric configurations of several of the Complex's structures also do not meet current design standards for operational safety.

   The following design-related deficiencies are common to all structures and would remain unaddressed under this alternative:

   - Inadequate curb-to-curb width to meet major highway design standards.
   - Inadequate vertical clearance beneath the Hyperion Bridge (53C-1881 along northbound and southbound Interstate 5.

- Absence of shoulders.
- Deteriorated railings.
- Inadequate pedestrian facilities along Hyperion Avenue and Glendale Boulevard.
- Non-standard sight distance at terminous of I-5 Northbound Off-Ramp
- Non-standard sight distance at entrance to I-5 Southbound On-Ramp

8.0 Measures to Minimize Harm

Measures to minimize harm to the Section 4(f) property are discussed in Chapter 2 of the IS/EA. Listed below is a brief summary of the mitigation and least harm measures to minimize impact on 4(f) historical resources.

H-1: Recordation to Historic American Engineering Record (HAER) Specifications: Prior to the start of any work that could adversely affect characteristics that qualify the Glendale-Hyperion Viaduct Complex as a historic property, contact the National Park Service Pacific West Region Office (NPS), to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, Glendale-Hyperion Viaduct, HAER No. CA-272," 2000-2001. NPS should respond to the additional recordation request within 30 days. If additional documentation is required, it should be completed and accepted by the NPS before the viaduct is altered. Prepare draft and final reports.

H-2: Historic American Buildings Survey (HABS)/HAER Dissemination: Upon completion of the documentation prescribed in Mitigation Measure **H-1**, documentation meeting current archival quality standards established by the NPS' Heritage Documentation Program to Caltrans District 7 and the Caltrans Transportation History Library in Sacramento shall be provided. Archive quality documentation shall also be provided to NPS, if NPS requests it. Copies of the documentation shall be offered to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, and the California Office of Historic Preservation.

H-3: Online Publication: Work with the Los Angeles Public Library to place the historical information from the HAER report, prescribed in Mitigation Measure **H-1**, on City of Los Angeles website with a link to a public library website, such as the Los Angeles Public Library website, available to the public for a minimum period of three years. The information link shall also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.

H-4: Video Documentary: 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.

H-5: Traveling Exhibits: 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 the California Department of Transportation (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. Ensure that an electronic version of the booklet is posted on a City website 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. Ensure that the camera-ready master booklet is maintained and produce additional copies if there is demand.

H-6: Replication of Design Elements: Ensure that a Caltrans Professionally Qualified Staff Principal Architectural Historian reviews the 65% and 95% design plans and specifications for the Glendale-Hyperion Viaduct Complex for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (SOI Standards), and that SHPO is afforded the opportunity to review the same design plans and specifications. Failure of the SHPO to respond within thirty (30) calendar days after receipt of the plans shall not preclude Caltrans from proceeding with the undertaking. Should the SHPO or the Council object within thirty (30) calendar days to any plans and specifications submitted for review, then Caltrans shall consult with the objecting party, for a period not to exceed ten (10) calendar days, to resolve the objection. If the objection cannot be resolved within this time period, the FHWA shall request the Council review the Finding in accordance with 36 CFR 800.5(c)(3).

9.0 Coordination

Caltrans submitted the Finding of Effect for this project to SHPO, who concurred with the finding of adverse effect in May 2009. Attached is the letter from the State Historic Preservation Officer (SHPO) concurring the Glendale Boulevard-Hyperion Avenue Viaduct Complex Improvement Project would have an adverse effect on the Glendale-Hyperion Viaduct Complex. Another letter shows the City of Los Angeles' concurrence on the use evaluation of the historic bridge structures and proposed measures to minimize harm. The City of Los Angeles has jurisdiction and ownership of five bridges and the final bridge segment (53-1069) is under the ownership of Caltrans.

The Memorandum of Agreement between Caltrans and the SHPO was executed on October 30, 2012. A copy is attached.

10.0 Concluding Statement

Given the above considerations, there is no feasible and prudent alternative to the use of land from the Viaduct Complex. The proposed action includes all possible planning to minimize harm to the Viaduct Complex resulting from such use.

11.0 Letters and Other Correspondence

4(f) Concurrence Letter from City

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ANTONIO R. VILLARAIGOSA
MAYOR

February 9, 2012

Mr. Carlos Montez, Branch Chief
Division of Environmental Planning
District 7, California Department of Transportation
100 South Main Street
Los Angeles, California 90012

Dear Mr. Montez,

Programmatic 4(f) Evaluation for Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project – City concurrence on use evaluation and proposed measures to minimize harm

The City of Los Angeles is the project proponent for the Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project and also has jurisdiction and ownership of bridges identified in the Caltrans Bridge Inventory as numbers 53C-1179, 53C-1881, 53C-1882, 53C-1883, and 53C-1884. (The final bridge segment included in the complex, 53-1069, is under the ownership of Caltrans.) The complex of bridges is eligible for listing on the National Register of Historic Places.

The project is subject to Section 4(f) of the Department of Transportation Act, which requires the property owner and the agency with jurisdiction over the resource to concur that there are no feasible and prudent alternatives to the use of the historic bridge structures to be rehabilitated with federal funds and that the project includes all possible planning to minimize harm resulting from such use. The Bureau of Engineering, as the City of Los Angeles entity with jurisdiction over bridges in the public right of way, hereby concurs.

Questions regarding this concurrence may be referred to Mr. Wenn Chyn, Project Manager, at (213) 485-1455.

Sincerely,

James Treadaway
Program Manager
Bridge Improvement Program

SHPO Section 106 Concurrence Letter

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

May 5, 2009 Reply To: FHWA090401B

Gregory P. King, Chief
Cultural and Community Studies Office
Division of Environmental Analysis, MS 27
PO Box 942874
Sacramento, CA 94274-0001

Re: Finding of Adverse Effect for the Glendale Avenue-Hyperion Boulevard Viaduct Complex Improvement Project, Los Angeles, CA

Dear Mr. King:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

The California Department of Transportation (Caltrans) is requesting my concurrence, pursuant to Stipulation X.C.1. of the PA, that the above undertaking would have an adverse effect on the Glendale Hyperion Viaduct Complex, a property determined eligible for the National Register of Historic Places in 1987 and again in 2004 as part of the Caltrans Historic Bridge Inventory. Based on my review of the submitted documentation, I concur.

I look forward to working with Caltrans to develop a Memorandum of Agreement for this undertaking.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or email at nlindquist@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Memorandum of Agreement

MEMORANDUM OF AGREEMENT
BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
GLENDALE BOULEVARD – HYPERION AVENUE VIADUCT
COMPLEX IMPROVEMENT PROJECT
CITY OF LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

WHEREAS, the Federal Highway Administration (FHWA) has assigned and the California Department of Transportation (Caltrans) has assumed FHWA responsibility for environmental review, consultation, and coordination pursuant to 23 USC 327, which became effective on October 1, 2012 and applies to this undertaking; and

WHEREAS, Caltrans has determined that the Glendale Boulevard – Hyperion Avenue Viaduct Complex Improvement Project, City of Los Angeles, Los Angeles County, California (Undertaking), will have an adverse effect on the Glendale-Hyperion Viaduct Complex, which is comprised of six structures - Bridges 53 1069, 53C1179, 53C1881, 53C1882, 53C1883, 53C1884, a property determined to be eligible for inclusion in the National Register of Historic Places (National Register); and

WHEREAS, Caltrans has consulted with the California State Historic Preservation Officer (SHPO) pursuant to Stipulations X.C., and X.I of the January 2004 *Programmatic Agreement among the Federal Highway Administration, The Advisory Council on Historic Preservation, The California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA), and where the PA so directs, in accordance with 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 USC Section 470f), as amended (NHPA), regarding the Undertaking's effects on the historic property and has notified the Advisory Council on Historic Preservation (Council) of the adverse effect finding pursuant to 36 CFR§800.6(a)(1), and the Council declined to participate per their July 13, 2009 letter; and

WHEREAS, Caltrans has thoroughly considered alternatives to the Undertaking, has determined that the statutory and regulatory constraints on the design of the Undertaking preclude the possibility of avoiding adverse effects to the Glendale-Hyperion Viaduct Complex during the Undertaking's implementation, and has further determined that it will resolve adverse effects of the Undertaking on the subject historic property through execution and implementation of this Memorandum of Agreement (MOA); and

WHEREAS, Caltrans District 7 (District 7) and the City of Los Angeles (City) have participated in the consultation process and have been invited to concur in this MOA;

NOW, THEREFORE, Caltrans and the SHPO agree that, upon Caltrans' decision to proceed

with the Undertaking, Caltrans shall ensure that the Undertaking is implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on the historic property, and further agrees that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

STIPULATIONS

I. AREA OF POTENTIAL EFFECTS

A. The Undertaking's area of potential effects (APE) is included as Attachment A to this MOA. The APE includes the public right-of-way that encompasses the boundaries of the viaduct complex with the widened Glendale Boulevard bridges over the Los Angeles River, encompassing the geographic area within which the undertaking may directly or indirectly cause alterations in the character or use of the historic property. Attachment A set forth hereunder may be amended through consultation among the MOA parties without amending the MOA.

II. TREATMENT OF HISTORIC PROPERTIES

A. Prior to the start of any work that could adversely affect characteristics that qualify the Glendale-Hyperion Viaduct Complex (Bridges 53 1069, 53C1179, 53C1881, 53C1882, 53C1883, 53C1884) as a historic property, the City shall contact the National Park Service Pacific West Region Office (NPS), to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, Glendale-Hyperion Viaduct, HAER No. CA-272," 2000-2001. 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. The City shall prepare draft and final reports to be reviewed by Caltrans and NPS.

B. Upon completion of the documentation prescribed in subsection A, the City shall provide the documentation meeting current archival quality standards established by the NPS' Heritage Documentation Program to District 7 and the Caltrans Transportation History Library in Sacramento. The City shall also provide the archive quality documentation to NPS, if NPS requests it. Copies of the documentation shall be 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, and the California Office of Historic Preservation.

C. The City shall work with the Los Angeles Public Library to place the historical information from the HAER report, prescribed in subsection A, on a City website with a link to a public library website, such as the Los Angeles Public Library website, available to the public for a minimum period of three years. The information link shall also be made available to the Caltrans Transportation Library and History Center at Caltrans

Headquarters in Sacramento for inclusion on their website.

D. The City shall 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.

E. 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 the California Department of Transportation (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 ensure that an electronic version of the booklet is posted on a City website 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. Caltrans shall ensure that the City maintains the camera-ready master booklet and produce additional copies if there is demand.

F. The City shall submit the 35%, 65% and 95% design plans and specifications for the Glendale-Hyperion Viaduct Complex to District 7 and request review by a Caltrans Professionally Qualified Staff Principal Architectural Historian for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (SOI Standards). Caltrans shall be afforded 30 days to complete its review. The SHPO shall be afforded the opportunity to review the same design plans and specifications. Failure of the SHPO to respond within thirty (30) calendar days after receipt of the plans shall not preclude Caltrans from implementing the plans. Should the SHPO or the Council object within thirty (30) calendar days to any plans and specifications submitted for review, then Caltrans shall consult with the objecting party, for a period not to exceed ten (10) calendar days, to resolve the objection. If the objection cannot be resolved within this time period, Caltrans shall request the Council review the Finding in accordance with 36 CFR 800.5(c)(3).

G. The City shall prepare a construction monitoring plan and conduct periodic monitoring of construction activities to ensure the project is conducted in a manner that meets the SOI Standards. The City shall provide District 7 a draft construction monitoring plan. District 7 shall have thirty (30) calendar days after receipt of the document to review and comment. The City will address the comments and prepare a final construction monitoring plan. The plan shall include description of the project, description of the

historic property's character-defining features, discussion of the monitoring's purpose, and construction activities to be monitored, as well as methods, schedule, and procedures for monitoring and reporting. Caltrans shall ensure that the construction monitoring plan is implemented. Monitoring reports shall include photographs indicating that the activities are in compliance with the SOI Standards. The monitor shall meet the Secretary of the Interior's Professional Qualifications Standards for Architectural Historian or Historic Architect pursuant to CFR 36 CFR Part 61, Appendix A (PQS Standards).

III. ADMINISTRATIVE PROVISIONS

A. Definitions. The definitions provided at 36 CFR§800.16 are applicable throughout this MOA.

B. Professional Qualifications and Standards. Caltrans shall ensure that only individuals meeting the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44738-39) in the appropriate field of study carry out or review appropriateness and quality of the actions and product required by Stipulation II. A in this MOA.

C. Discoveries and Unanticipated Effects. If Caltrans determines during implementation of the terms of this MOA or after construction of the Undertaking has commenced, that the Undertaking will affect a previously unidentified property that may be eligible for listing in the National Register, or affect a known historic property in an unanticipated manner, Caltrans will address the discovery or unanticipated effect in accordance with 36 CFR Part 800.13(b)(3). Caltrans at its discretion may hereunder assume any discovered property to be eligible for inclusion in the National Register in accordance with 36 CFR 800.13 (c).

D. Resolving Objections

1. Should any party to this MOA object at any time in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to implementation of the MOA, or to any document prepared in accordance with and subject to the terms of the MOA, Caltrans shall immediately notify the other parties of the objection, request their comments on the objection within 15 days following receipt of Caltrans' notification, and proceed to consult with the objecting party for no more than 30 days to resolve the objection. Caltrans will honor the request of any other parties to participate in the consultation and will take any comments provided by those parties into account.

2. If the objection is resolved during the 30 day consultation period, Caltrans may proceed with the disputed action in accordance with the terms of such resolution.

3. If at the end of the 30 day consultation period, Caltrans determines that the objection

cannot be resolved through such consultation, then Caltrans shall forward all documentation relevant to the objection to the Council, including Caltrans' proposed response to the objection, with the expectation that the Council will, within 30 days after receipt of such documentation:

a. Advise Caltrans that the Council concurs in Caltrans' proposed response to the objection, whereupon Caltrans will respond to the objection accordingly. The objection shall thereby be resolved; or

b. Provide Caltrans with recommendations, which Caltrans will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby be resolved; or

c. Notify Caltrans that the objection will be referred for comment pursuant to 36 CFR Part 800.7(c) and proceed to refer the objection and comment. Caltrans shall take the resulting comments into account in accordance with 36 CFR 800.7(c)(4) and Section 110(1) of the NHPA. The objection shall thereby be resolved.

4. Should the Council not exercise one of the above options within 30 days after receipt of all pertinent documentation, Caltrans may implement their proposed response. The objection shall thereby be resolved.

5. Caltrans shall take into account any of the Council's recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. Caltrans' responsibility to carry out all other actions under this MOA that are not the subject of the objection shall remain unchanged.

6. At any time during implementation of the measures stipulated in this MOA, should a member of the public raise an objection in writing pertaining to such implementation to any signatory party to this MOA, that signatory party shall immediately notify the other signatory party in writing of the objection. Either signatory party may choose to comment in writing on the objection to the other signatory party. Caltrans shall establish a reasonable time frame for this comment period. Caltrans shall consider the objection, and in reaching its decision, Caltrans will take all comments from the other signatory party into account. Within 15 days following closure of the comment period, Caltrans will render a decision regarding the objection and respond to the objecting party. Caltrans will promptly notify the other signatory party of its decision in writing, including a copy of the response to the objecting party. Caltrans' decision regarding resolution of the objection will be final. Following issuance of its final decision, Caltrans may authorize the action subject to dispute hereunder to proceed in accordance with the terms of that decision.

7. Caltrans shall provide all parties to this MOA, and the Council, if the Council has commented, and any parties that have objected pursuant to Section D.6 of the

stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this stipulation.

8. Caltrans may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with the terms of this stipulation.

E. Amendments

Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult to consider such amendment. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the Council. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation III. F, below.

F. Termination

1. If this MOA is not amended as provided for in section E of this stipulation, or if either signatory party proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other MOA parties, explain the reasons for proposing termination, and consult with the other parties for at least 30 days to seek alternatives to termination. Such consultation shall not be required if Caltrans proposes termination because the Undertaking no longer meets the definition set forth in 36 CFR Part 800.16(y).

2. Should such consultation result in an agreement on an alternative to termination, the signatory parties shall proceed in accordance with the terms of that agreement.

3. Should such consultation fail, the signatory party proposing termination may terminate this MOA by promptly notifying the other parties in writing. Termination hereunder shall render this MOA without further force or effect.

4. If this MOA is terminated hereunder, and if Caltrans determines that the Undertaking will nonetheless proceed, then Caltrans shall comply with the requirements of 36 CFR Part 800.3-800.6.

G. Duration of the MOA

1. Unless terminated pursuant to section F of this stipulation, or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the signatory parties until Caltrans, in consultation with the other signatory party, determines that all of its stipulations have been satisfactorily fulfilled.

2. The terms of this MOA shall be satisfactorily fulfilled within ten (10) years

following the date of execution by the signatory parties. If Caltrans determines that this requirement cannot be met, the MOA parties will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment of the MOA or termination. In the event of termination, Caltrans will comply with section F.4 of this stipulation, if it determines that the Undertaking will proceed notwithstanding termination of this MOA.

3. If the Undertaking has not been implemented within five (5) years following execution of this MOA, this MOA shall automatically terminate and have no further force or effect. In such event, Caltrans shall notify the other signatory parties in writing and, if it chooses to continue with the Undertaking, shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

H. Progress Reports. The City will prepare semi-annual progress reports regarding the stipulation measures, to be circulated among the signatories.

I. Effective Date

This MOA will take effect on the date that it has been executed by Caltrans and the SHPO.

EXECUTION of this MOA by Caltrans and the SHPO, its filing with the Council in accordance with 36 CFR§800.6(b)(I)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36CFR§800.6(c), that Caltrans has afforded the Council an opportunity to comment on the Undertaking and its effects on historic properties, and that Caltrans has taken into account the effects of the Undertaking on historic properties.

MEMORANDUM OF AGREEMENT
BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
GLENDALE BOULEVARD – HYPERION AVENUE VIADUCT
COMPLEX IMPROVEMENT PROJECT
CITY OF LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

SIGNATORY PARTIES:

California Department of Transportation

By: _____ Date: 10/29/2012
Jay Norvell, Chief
Division of Environmental Analysis

California State Historic Preservation Officer

By: _____ Date: 10/30/12
Carol Roland-Nawi
State Historic Preservation Officer

MEMORANDUM OF AGREEMENT
BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
GLENDALE BOULEVARD – HYPERION AVENUE VIADUCT
COMPLEX IMPROVEMENT PROJECT
CITY OF LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

CONCURRING PARTIES:

California Department of Transportation

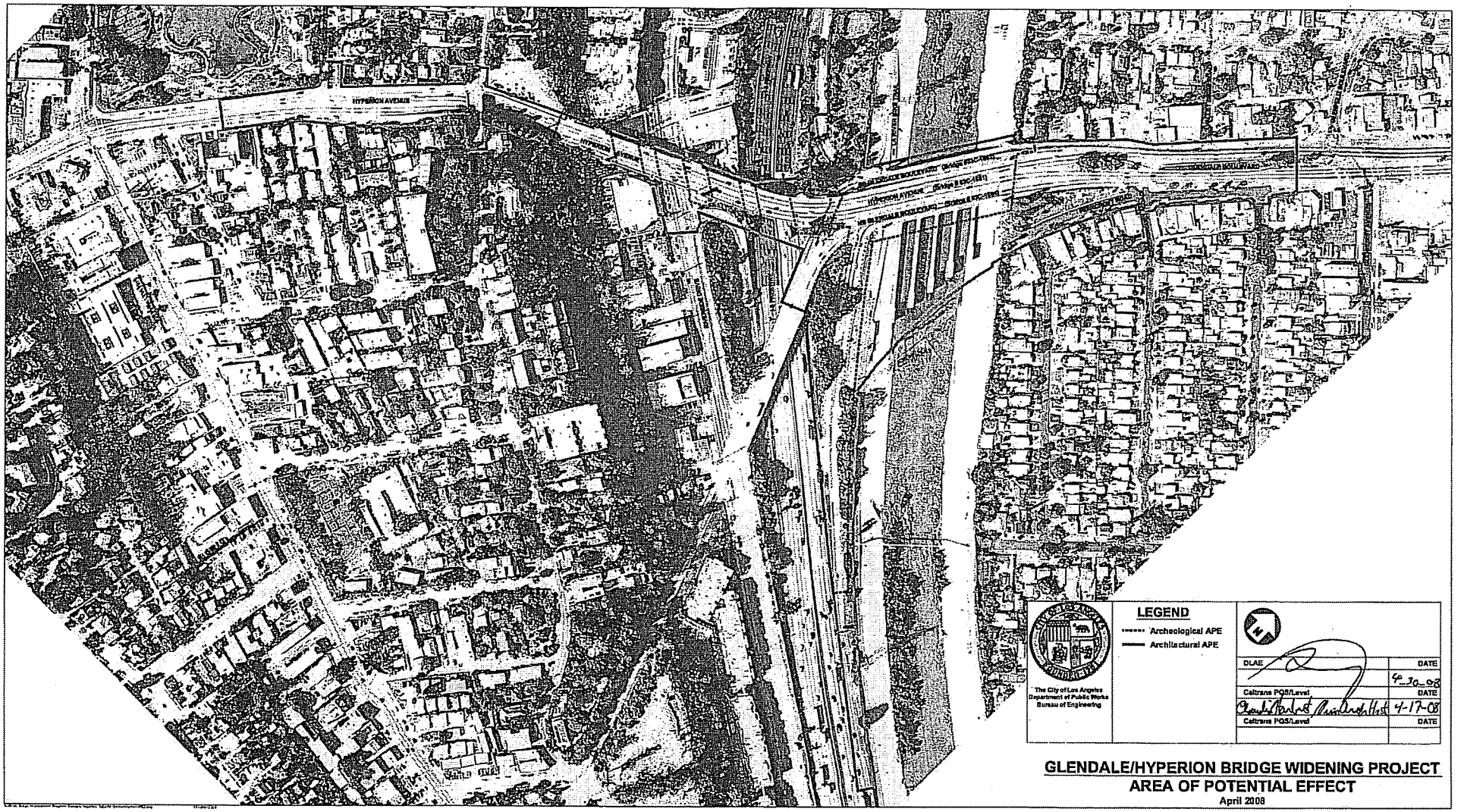
By: _____ Date: 12/13/17
Michael Miles, District Director
District 7, Los Angeles

City of Los Angeles

By: _____ Date: 3.8.17
~~Gary Lee Moore, P.E.~~ Deborah Weintraub, AIA., LEED
Interim City Engineer

ATTACHMENT A

Area of Potential Effects (APE) Map



GLENDALE/HYPERION BRIDGE WIDENING PROJECT

AREA OF POTENTIAL EFFECT

April 2008

APPENDIX B2: Resources Evaluated Relative to the Requirements of Section 4(f)

Appendix B2 Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses the parks, recreational facilities, and trails found within or adjacent to the Glendale Boulevard-Hyperion Avenue Complex of Bridges Improvement Project ("proposed project") area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Each potential 4(f) resource has been independently evaluated below and the location of each potential resource evaluated has been included on **Figure 1,** Resources Evaluated Relative to Section 4(f).

1.0 LA River Bike Path

The Los Angeles River Bike Path is located along the top of the right bank of the Los Angeles River within the City of Los Angeles right-of-way, and is classified as a Class I bicycle path in the 2010 Bicycle Plan, a component of the Transportation Element of the City's General Plan. The bike path is an integral part of the local transportation system, and is utilized for both commuter and recreational purposes.

As discussed in the environmental document, the proposed project would require the temporary rerouting of the Los Angeles River Bike Path, which would occur prior to construction so that bike path use can be maintained. A bicycle pedestrian ramp linking the bike path with NB Glendale Boulevard would also be constructed, utilizing the current location of the I-5 NB off-ramp terminus, as part of this project. The project would not permanently incorporate land from the bike path, and would result only in a temporary occupancy of the bike path.

The proposed project would result in a temporary occupancy of the bike path, and meets all the conditions set forth in 23 CFR 771.135(p)(7):

a. The occupancy of the bike path during construction would be temporary, and would not exceed the construction period. There would be short-term partial closure of the bike path during off-peak hours during construction. However, the bike path would remain accessible to users. Following construction, the bike path would remain under the City of Los Angeles's right-of-way, and no change in land ownership would occur as a result of the proposed project.

b. The scope of the work would be minor, and does not involve construction of the bike path. The proposed project would widen the Glendale Boulevard bridges, extending the deck by eight feet, and pier supports upstream and downstream. Construction would be

contained within the Glendale Boulevard Bridge, and would result in temporary narrowing (partial closure) of the bike path. The new bicycle ramp, which links NB Glendale Boulevard to the bike path, would be conducted early in the project construction phase, and can be utilized as an alternative route.

c. There would be no permanent adverse physical impacts to the bike path as a result of the temporary detour during construction and bike path linkage improvements. The commuter and recreational purposes of the bike path would be unaffected, as the proposed project would maintain its alignment and continuity.

d. Following the completion of the seismic improvements, the bike path would be fully restored to the existing condition, and the continuity of the bike path would be restored to pre-construction conditions.

e. The documented agreement from the City of Los Angeles Department of Transportation (LADOT), who has jurisdiction over the bike path, is included as **Attachment 1**. This agreement specifies that the LADOT concurs the proposed project meets the temporary occupancy conditions set forth in 23 CFR 774.13(d), as described above.

As demonstrated, the temporary occupancy of the Los Angeles River Bike Path meets all the conditions set forth is 23 CFR 771.135(p)(7), and does not constitute the use of a Section 4(f) resource. Therefore, the provisions of Section 4(f) are not triggered.

2.0 Griffith Park

Griffith Park is an official park and recreational facility operated by the Los Angeles Department of Parks and Recreation, and is located approximately 0.15 mile from the project site. It encompasses 4,210 acres, and is situated just west of the Golden State Freeway (I-5), roughly between Los Feliz Boulevard on the south and the Ventura Freeway (SR 134) on the north. Griffith Park provides recreational opportunities and activities throughout the park.

Griffith Park is a 4(f) resource. Please see section 2.1.5, Parks and Recreational Facilities, of the Environmental Document for additional details. The proposed project does not impact Griffith Park. Approximately 30.91 acres of the park are located within a 0.5-mile radius of the proposed project site. No access points within the 30.91 acres lie within a 0.5-mile radius.

Accessibility	The proposed project does not affect or impact accessibility to Griffith Park.
Visual	The visual integrity of Griffith Park would remain. The visual character and view to the surrounding land uses within the project area will be preserved.
Noise	The proposed project will not result in noise impacts to Griffith Park.
Vegetation	The proposed project will not disturb vegetation within Griffith Park.

Wildlife The proposed project will not disturb existing wildlife or wildlife habitat within Griffith Park.

Air Quality The proposed project will not result in air quality impacts to Griffith Park.

Water Quality The proposed project will not disturb or impact water quality within Griffith Park.

The proposed project will not "*use*" Griffith Park, as defined by 23 CFR 771.135(p). The proposed project will not cause a constructive use of Griffith Park because the proximity impacts will not substantially impair the protected activities, features, or attributes of the park. The proposed project also would have no impact on the accessibility, visual quality, noise, vegetation, wildlife, air quality and water quality to either the Park in its entirety or the portion of the Park that lies within 0.5 mile of the project area.

3.0 Equestrian Trail (along the Los Angeles River)

The equestrian trail, located within the City of Los Angeles right-of-way, is located along the top of the left (north) bank of the Los Angeles River, and ends at the Glendale Boulevard Bridges. It is identified in the Citywide Major Equestrian and Hiking Trails Plan. The segment of the equestrian trail within the project area is undeveloped. As specified in the Northeast Los Angeles Community Plan, the equestrian trail is proposed for future completion and connection to trails to serve recreational needs and improve accessibility to other open space resources.

Accessibility The equestrian trail at this segment has not been implemented, and ends at the Glendale Boulevard Bridges. The proposed project does not affect or impact accessibility to the equestrian trail.

Visual The visual integrity of the equestrian trail would remain and be unaffected by the proposed project. Therefore, the visual character and view to the surrounding land uses within the project area will be preserved.

Noise The proposed project will have no noise impacts to the equestrian trail.

Vegetation The proposed project will not disturb vegetation along the equestrian trail.

Wildlife The proposed project will not disturb and existing wildlife or wildlife habitat along the equestrian trail.

Air Quality There will be no air quality impacts to the equestrian trail.

Water Quality The proposed project will not disturb or impact water quality along the equestrian trail.

The proposed project will not "*use*" the equestrian trail, as defined by 23 CFR 771.135(p). The proposed project will not cause a constructive use of the equestrian trail because the proximity impacts will not substantially impair the protected activities, features, or attributes of the trail. The proposed project also would have no impact on the accessibility, visual quality, noise, vegetation, wildlife, air quality and water quality to the equestrian trail. Further, the proposed

project would not change the alignment or impair the continuity of the existing or proposed future development of the equestrian trail.

4.0 Sunnynook River Park

Located west of Glendale Boulevard and Los Angeles River, east of I-5, upstream of the project site, is a 3.4-acre parcel for the proposed "Sunnynook River Park." It is not a state or local-designated park, and would be constructed entirely within the Caltrans right-of-way. It is a priority project of the Los Angeles River Revitalization Master Plan, and is scheduled for construction in 2012.

Caltrans has granted permission to use this right-of-way to the City of Los Angeles Department of Parks and Recreation through an *Agreement for Maintenance of Landscape Area Within State Right-of-Way*. The agreement has been included as **Attachment 2, Agreement for Maintenance of Landscape Area within State Highway Right of Way.** Use of the site is granted through Permit No. 708-NLF-1868 between the City of Los Angeles and Caltrans.

In situations where land which is owned by a State DOT or other applicant and designated for future transportation purposes (including highway rights-of-way) is temporarily occupied or being used for either authorized or unauthorized recreational purposes such as for a playground or a trail (bike, snowmobile, hiking, etc.) on property purchased as right-of-way, Section 4(f) does not apply.[1] Therefore, the provisions of Section 4(f) are not triggered.

5.0 Red Car River Park

Red Car River Park is a triangular-shaped, landscaped median separating the northbound lanes from the two-directional frontage road within the Glendale Boulevard right-of-way. A community group, the "Friends of Atwater Village," has unofficially designated this median "Red Car River Park." It is not a state or local designated park or recreation area, and is maintained, as are all other landscaped medians in street rights-of-way, by the City's Bureau of Street Services.

In situations where land which is owned by a State DOT or other applicant and designated for future transportation purposes (including highway rights-of-way) is temporarily occupied or being used for either authorized or unauthorized recreational purposes such as for a playground or a trail (bike, snowmobile, hiking, etc.) on property purchased as right-of-way, Section 4(f) does not apply.[2]

Section 4(f) does not apply to unofficial recreational purposes within the city's right-of-way. Therefore, the provisions of Section 4(f) are not triggered.

[1] See http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#14.
[2] Ibid.

References

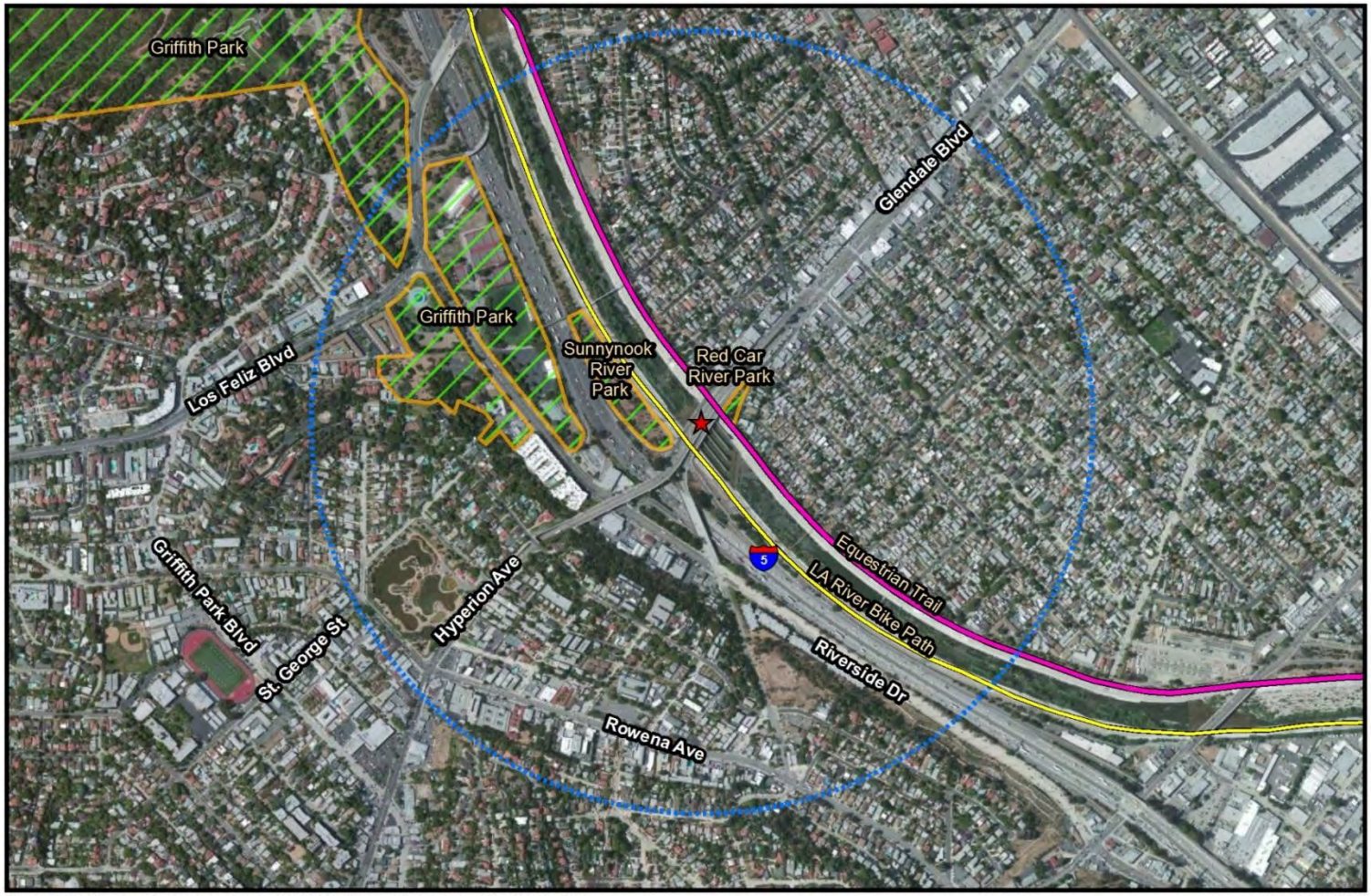
- 23 CFR 774: Parks, Recreation Areas, Wildlife And Waterfowl Refuges, and Historic Sites (Section 4(f))
- Technical Advisory T6640.8A, Guidance for Preparing and Processing
- Section 4(f) Policy Paper, March 1, 2005 (NOTE: FHWA has not updated this guidance since the release of 23 CFR 774 and some of the information is no longer current.)
- Section 4(f) Checklist (FHWA Western Resource Center)
- FHWA Interim Guidance, August 22, 1994. Applying Section 4(f) on Transportation Enhancement Projects and National Recreation Trail Projects

Attachments:

Figure 1 - Resources Evaluated Relative to Section 4(f)

Attachment 1 – Agreement from City of Los Angeles

Attachment 2 - Agreement for Maintenance of Landscape Area within State Highway Right of Way



Source: UltraSystems Environmental, Inc., 2012; Bing Maps, 2011; Los Angeles County, 2011

March 14, 2012

Scale: 1:18,000 or 1 inch = 1,500 feet

0 500 1,000 1,500 Feet

0 100 200 300 Meters

N

Legend

- Project Location
- Half-Mile Radius
- Equestrian Trail
- LA River Bike Path
- Resources Evaluated Relative to 4(f)
- Los Angeles County Boundary

Figure 1
Glendale-Hyperion Viaduct Complex
Resources Evaluated Relative to 4(f)

UltraSystems

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GARY LEE MOORE, P.E.
CITY ENGINEER

1149 S. BROADWAY, SUITE 700
LOS ANGELES, CA 90015-2213

http://eng.lacity.org

July 2, 2012

Tim Fremaux
City of Los Angeles
Department of Transportation
100 S. Main St., 10th Floor
Los Angeles, CA 90012

Re: Glendale Boulevard – Hyperion Avenue Complex of Bridges Improvement Project, Los Angeles, CA, Request for Concurrence on Temporary Occupancy of the Los Angeles River Bike Path

Dear Mr. Fremaux:

The City of Los Angeles (City), in cooperation with the California Department of Transportation (Caltrans), proposes to improve the Glendale Boulevard-Hyperion Avenue Viaduct Complex and a portion of the I-5 northbound off-ramp to northbound (NB) Glendale Boulevard in the City of Los Angeles, California. The proposed project includes seismically strengthening the existing viaduct complex, widening the Glendale Boulevard bridges, improving pedestrian and bicycle facilities, replacing railings with replica balustrades, and realigning the I-5 NB off-ramp to NB Glendale Boulevard. As a mitigation measure, the project will also install an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers.

The Los Angeles River Bike Path is located along the top of the right bank of the Los Angeles River within the City of Los Angeles right-of-way, and is classified as a Class I bicycle path in the 2010 Bicycle Plan, a component of the Transportation Element of the City's General Plan. The bike path is an integral part of the local transportation system, and is utilized for both commuter and recreational purposes.

Section 4(f) of the US Department of Transportation Act directs that the Federal Highway Administration (FHWA) not approve of any project that would require the use of any publicly owned land from a public park, recreation area or wildlife and waterfowl refuge of federal, state, or local significance unless there is no feasible and prudent alternatives to such use (49 USC Section 303 and 23 CFR Part 774). In addition, a temporary occupancy of land does not constitute a use within the meaning of Section 4(f) when the following conditions set forth in 23 C.F.R. 771.135(p)(7) are satisfied:

1. Duration (of the occupancy) must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;

2. Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the 4(f) resource are minimal;
3. There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
4. The land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and
5. There must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions.

Two alternatives are being considered for the project: the No Build Alternative, and the Proposed Project.

No Build Alternative

Under the No Build Alternative, the proposed project would not be constructed; therefore, no use of the Los Angeles River Bike Path would occur. The No Build Alternative would not adversely affect the activities, features, and attributes that qualify the Los Angeles River Bike Path for protection under Section 4(f).

Proposed Project

The proposed project includes seismically strengthening the existing viaduct complex, widening the Glendale Blvd bridges, improving pedestrian and bicycle facilities, replacing railings with replica balustrades, and realigning the I-5 NB off-ramp to NB Glendale Boulevard. As a mitigation measure, the project will also install an alternate pedestrian crossing over the Los Angeles River across the existing Red Car piers. Construction of the proposed project is anticipated to last approximately 30 months. The proposed project would require the temporary rerouting of the Los Angeles River Bike Path, which would occur prior to construction so that bike path use can be maintained. A bicycle pedestrian ramp linking the bike path with NB Glendale Boulevard would also be constructed, utilizing the current location of the I-5 NB off-ramp terminus, as part of this project. The project would not permanently incorporate land from the bike path, and would result only in a temporary occupancy of the bike path.

The occupancy of the bike path during construction would be temporary, and would not exceed the construction period. There would be short-term partial closure of the bike path during off-peak hours during construction. However, the bike path would remain accessible to users. Following construction, the bike path would remain under the City of Los Angeles right-of-way, and no change in land ownership would occur as a result of the proposed project.

The scope of the work would be minor, and does not involve construction of the bike path. The proposed project would widen the Glendale Boulevard bridges, extending the deck by eight feet, and pier supports upstream and downstream. Construction would be contained within the Glendale Boulevard Bridge, and would result in temporary narrowing (partial closure) of the bike path. The new bicycle ramp, which links NB Glendale Boulevard to the bike path, would be built early in the project construction phase, and can be utilized as an alternative route.

There would be no permanent adverse physical impacts to the bike path as a result of the temporary detour during construction and bike path linkage improvements. The commuter and recreational purposes of the bike path would be unaffected, as the proposed project would maintain its alignment and continuity.

Following the completion of the seismic improvements, the bike path would be fully restored to its existing condition, and the continuity of the bike path would be restored to pre-construction conditions.

Temporary Use Determination

Based upon environmental analyses conducted, and for the reasons described above, it has been determined that project impacts on the Los Angeles River Bike Path would be on a *temporary use* basis, where the temporary occupancy of land is so minimal that it does not constitute a use within the meaning of Section 4(f), as specified in 23 C.F.R. 771.135(p)(7).

The City Bureau of Engineering and Caltrans would like to request the concurrence of the City Department of Transportation, as the official with 4(f) jurisdiction over the Los Angeles River Bike Path, regarding the conditions discussed above. The proposed project would result in a *temporary occupancy* on the Los Angeles River Bike Path.

Please sign below to document your concurrence with this finding. If you have any questions regarding this project or the Los Angeles River Bike Path as a Section 4(f) resource, please feel free to contact me.

Sincerely,

Linda Moore
Environmental Manager,
Bridge Improvement Program
Environmental Management Group
Bureau of Engineering, Department of Public Works
(213) 485-5751

Mr. Tim Fremaux, P.E.
Transportation Engineering Associate III
City of Los Angeles
Department of Transportation

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 100 SOUTH MAIN STREET, 2ND fl.
LOS ANGELES, CA 90012

AGREEMENT FOR MAINTENANCE OF LANDSCAPE AREA WITHIN STATE HIGHWAY RIGHT OF WAY

Permit No. 708-NLF-1868

Location: 07-LA-5-23.8

Project: Sunnynook River Park

This Agreement is made and entered into this 8th day of December, 2009 by and between the State of California, acting by and through the Department of Transportation, District 7, located at 100 South Main Street, Los Angeles, California 90012, hereinafter referred to as "STATE", and City of Los Angeles, a municipal corporation, acting by and through its Board of Recreation and Parks Commissioners located at 221 North Figueroa Street, Suite 1510 Los Angeles, California 90012, hereinafter referred to as "PERMITTEE".

A. RECITALS:

The parties desire to provide that PERMITTEE may have the use of the real property within the STATE'S right of way along the northbound 5 freeway just north of Glendale Boulevard in City of Los Angeles (hereafter "PREMISES") as shown on the attached Exhibit A so that PERMITTEE may: 1) use a section of the PREMISES for a portion of the term of this agreement as a laydown area in connection with a City construction project; and 2) develop a new riverside park for recreational purposes by installing and maintaining improvements, which shall include landscaping (planting and irrigation), site furniture (picnic tables, benches, signage), fencing, and decomposed granite pathways, referred to herein as "PROJECT." PERMITTEE is willing to fund one hundred (100%) of all design, capital outlay, maintenance, and staffing costs.

B. AGREEMENT:

In consideration of the mutual covenants and promises herein contained, PERMITTEE agrees as follows:

1. PERMITTEE will submit plans, prepared and signed by a licensed Landscape Architect to the Office of Permits for review and approval and will obtain all necessary encroachment permits prior to the installation of the PROJECT within the PREMISES,

2. After installation of PROJECT and to the satisfaction of STATE, PERMITTEE shall apply for an annual maintenance permit (NLM) in accordance with

STATE'S standard permit procedures. PERMITTEE shall obtain aforesaid encroachment permit through the Caltrans, District 7, Office of Permits at (213) 897-3631.

3. PERMITTEE may contract with others to install, and thereafter to maintain the PROJECT per Section 6. A separate encroachment permit is required for any sponsored third party which shall be issued at no cost. In addition, a letter is required from PERMITTEE stating that authorization has been granted to a third party to perform such maintenance work. It is understood that terms and conditions of this agreement, or any interest herein, or any portion hereof, with exception to Section 7 shall not be assigned or delegated to third parties.

4. Damage to PROJECT resulting from accident, storm, neglect or other causes beyond the control of the STATE are the responsibility of the PERMITTEE.

5. STATE will maintain all highway signs, paved drainage structures, and other non-landscape highway appurtenance with exception to those items listed in Section "A", Recitals and as shown on the attached Exhibit.

6. Except as to the "Laydown Area" section of the PREMISES during that period of time when the space is needed for the construction project, in addition to designing and installing these permitted landscape items, PERMITTEE agrees to:

   a) Provide and maintain all water and irrigation systems including utility costs for PROJECT. Irrigation system will be maintained and operated to avoid slope damage, excessive water flooding, or spraying onto the pavement.

   b) Replace unhealthy or dead plantings as they are observed.

   c) Be responsible for the removal of litter and debris.

   d) Be responsible for rodent and pest control activities.

   e) Control weed growth before weeds exceed 6 inches in length. Any weed control performed by chemical weed sprays (pesticides) shall comply with all laws, rules, and regulations established by the California Department of Food and Agriculture.

   f) Maintain the landscaping, paving or other unplanted areas along the roadside within the limits of the PROJECT, exclusive of paved drainage facilities, so as not to obstruct the flow of water.

g) All plantings shall be maintained in such condition that they do not interfere with the free flow of traffic, includes the maintenance of adequate sight distances and visibility of signs, signals, and pedestrians.

h) Adequately water and fertilize all plantings to maintain a healthy growth. Plants shall be fertilized 3 times a year.

7. It is understood that for any reason PERMITTEE decides not to renew its maintenance permit required herein, or if the planting is not maintained to the minimum standards specified herein, STATE shall provide PERMITTEE with a written notice. In such event, PERMITTEE shall respond within thirty (30) days of receipt of said notice. Said response shall describe the action to be taken by PERMITTEE to bring the affected areas back into compliance. In the event PERMITTEE does not provide such response and take any action, this AGREEMENT will be terminated. In such event, PERMITTEE will reimburse STATE, on presentation of a bill, for all costs incurred by STATE forces or a STATE contractor to maintain or remove the PROJECT and to pave over or otherwise restore the area to a condition satisfactory with STATE; provided, PERMITTEE shall not be responsible for costs of restoration to a condition better than the PROJECT area was in prior to installation of the PROJECT.

8. All work performed for or by PERMITTEE within the PROJECT will be done at no cost to the STATE.

9. Various future STATE projects may be implemented which will require removal and/or modification to all or a portion of PROJECT. Any replacement landscaping including irrigation facilities may be STATE'S responsibility. Upon completion of work, which affects the limits of maintenance, a revised Exhibit will be prepared and delivered to PERMITTEE for review. The revised exhibit will supersede the original limits shown on the original exhibit/permit plans.

10. Changes to PROJECT affecting public safety or public convenience, all design and specification changes and all major changes including removal, severe pruning (topping), or addition of either planting or irrigation shall be approved by STATE in advance of performing work. Unless otherwise directed by STATE'S representative, changes authorized will require an encroachment permit. Failure to notify STATE of such changes shall result in the immediate removal of PROJECT or portions of PROJECT at PERMITTEE'S expense.

C. LEGAL RELATIONS AND RESPONSIBILITIES:

1. Nothing in this provision of this AGREEMENT is intended to create duties or obligations to or rights in third parties not parties to this agreement, or affects the legal liability of either party by imposing any standard of care respecting the design, construction, and maintenance of STATE highway right of way different from the standard of care imposed by law.

2. It is understood and agreed that, except as to acts or circumstances caused in whole or in part by the acts or omissions of the STATE, neither STATE, nor any officer or employee thereof is responsible for any damage or liability occurring by reason of anything done or omitted to be done by PERMITTEE under or in connection with any work performed by PERMITTEE under this agreement. It is further understood and agreed that, pursuant to Government Code Section 895.4, PERMITTEE shall defend, indemnify and hold harmless the STATE, and all of its officers and employees from all claims, suits, or actions of every name, kind and description brought for or on account of injuries to or death of any person or damage to property resulting from anything done or omitted to be done by PERMITTEE under or in connection with any work performed by PERMITTEE under this agreement.

3. Except as to acts or circumstances caused in whole or in part by the acts or omissions of the STATE, PERMITTEE waives any and all rights to any type of express, implied and comparative indemnity against STATE, its officers and employees arising from any work performed by PERMITTEE under this agreement.

4. Upon termination of this agreement, ownership and title to all materials, equipment and appurtenances installed inside STATE'S right of way will automatically be vested in STATE. Those materials and equipment installed outside of the STATE'S right of way will automatically and immediately be vested in PERMITTEE, and no further agreement will be necessary to transfer ownership.

D. NOTICES:

1. All notices and demands which may or are to be required or permitted to be given by either party to the other hereunder shall be in writing. All notices and demands shall be personally delivered (including by means of professional messenger service), sent by United States mail, postage prepaid, return receipt requested, or transmitted by telecopier (e.g., Fax) or electronic mail (upon mutual agreement of participating parties), in which case the receiving party shall immediately confirm receipt of such telecopied or electronic mail notice. All notices are effective upon

receipt. Either party may from time to time designate another person or place in a notice.

2. All notices given under this Agreement which are mailed or telecopied shall be addressed to the respective parties as follows (except where redesignated as provided above):

To PERMITTEE:

Department of Recreation and Parks
Planning and Construction Division/Real Estate
221 North Figueroa Street, Suite 100
Los Angeles, California 90012
Telecopier: (213) 202-2611

with a copy of any notice to:

Office of the City Attorney
Real Property/Environment Division
200 North Main Street, Room #701
Los Angeles, California 90012
Telecopier: (213) 978-8090

To STATE:

Caltrans
Office of Permits - MS-9
100 South Main Street, Suite 100
Los Angeles, CA 90012
Telecopier: (213) 897-0420

E. TERM OF AGREEMENT

1. The term of this agreement is 30 years.

2. PERMITTEE may terminate this Agreement upon three (3) months prior written notice to the STATE.

3. Failure to comply with provisions set forth in Section B, Article 7 would be grounds for Notice of Termination by STATE.

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 100 SOUTH MAIN STREET, 2ND fl.
LOS ANGELES, CA 90012

IN WITNESS WHEREOF, parties hereto have caused this AGREEMENT to be executed by their duly authorized representatives.

Executed this 12th day of November, 2009

THE CITY OF LOS ANGELES, a municipal corporation, acting by and through its Board of Recreation and Park Commissioners

By _____
PRESIDENT

By _____
SECRETARY

Executed this _____ day of _____, 2009

STATE OF CALIFORNIA

By _____
JEFFREY A. YUEN
LANDSCAPE ASSOCIATE
(213) 897-6381

Approved as to Form:

Date: 11/16/09

CARMEN A. TRUTANICH,
City Attorney

By _____
KEVIN T. RYAN
DEPUTY CITY ATTORNEY



SUNNYNOOK RIVER PARK

EXHIBIT A

APPENDIX C: Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
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NON-DISCRIMINATION POLICY STATEMENT

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For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

APPENDIX D: List of Technical Studies

List of Technical Studies

Air Quality Technical Study, 2007 and updated 2009 and 2012.

Archaeological Survey Report, 2008.

Finding of Effect, 2008.

Floodplain Evaluation Report, 2004.

Historic Property Survey Report, 2008.

Initial Site Assessment, 2004 and supplement 2012.

Location Hydraulic Study, 2004.

Natural Environment Study, 2004 and updated 2012.

Pedestrian Circulation Study, 2007.

Traffic Data, 2007.

Traffic Study for the Proposed Realignment of I-5 Northbound Off Ramp Intersection with Glendale Boulevard, 2004.

Visual Impact Assessment, 2012.

APPENDIX E: Notice of Preparation

CITY OF LOS ANGELES
CALIFORNIA

ANTONIO R. VILLARAIGOSA
MAYOR

January 8, 2007

NOTICE OF PREPARATION

To: Responsible Agencies, Trustee Agencies, Stakeholders and Interested Persons

From: City of Los Angeles
Department of Public Works, Bureau of Engineering
Environmental Management Group
1149 S. Broadway, Suite 700
Los Angeles, CA 90015-2213

Subject: Notice of Preparation of a Draft Environmental Impact Report

The City of Los Angeles (City), Bureau of Engineering (BOE), is the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified below. The City is proposing to seismically strengthen and improve the Glendale–Hyperion Viaduct complex in the Atwater area of the City (see Figure 1, Project Vicinity). The City is requesting input from responsible agencies, trustees, and other interested parties on the scope and content of the proposed Project relevant to the statutory responsibilities of responsible and trustee agencies' and the concerns of interested organizations and persons. Using the information obtained through this public process, the City will prepare an EIR to analyze the environmental impacts of the proposed Project and alternatives. The contents of this NOP have been prepared in accordance with Section 15082 of the California Environmental Quality Act Guidelines.

The Glendale-Hyperion Viaduct complex (shown in Figure 2, Project Location) consists of the following structures:

- Hyperion Avenue Bridge over the Los Angeles River (53C-1881)
- Hyperion Avenue Bridge over Riverside Drive (53C-1882)
- Hyperion Avenue Bridge over I-5 (53-1069)
- Southbound Glendale Boulevard Bridge over the Los Angeles River (53C-1883)
- Northbound Glendale Boulevard Bridge over the Los Angeles River (53C-1884)
- Waverly Drive Bridge (Bridge Number 53C-1179)

The maximum credible earthquake event for the project area is a magnitude 7.5 event. The existing viaduct was not designed to withstand such an earthquake and is therefore seismically deficient. In addition, existing geometric configurations of the several complex

components, do not meet current design standards for operational safety. As part of the Highway Bridge Program, the City evaluated the condition of the Viaduct complex. The Sufficiency Rating of the existing complex was determined to be 72, which classifies the complex as "functionally obsolete" under the FHWA ranking criteria. To address these issues, the proposed Project would be comprised of the following improvements:

- Seismically strengthen the Viaduct complex structures.
- Improve Hyperion Avenue by adding a center median to physically separate northbound and southbound traffic, consolidate the two sidewalks along Hyperion Avenue into a single sidewalk along the west side of the complex, add a pedestrian crosswalk across southbound Glendale Boulevard at the northern end of the bridge, and restripe the travel lanes to provide new lane widths (12-foot wide inner lanes and 14-foot wide curb lanes.
- Widen the northbound and southbound Glendale Boulevard bridges over the Los Angeles River by approximately 8 feet.
- Replace the railings along both Glendale Boulevard viaducts, along Hyperion Avenue, and along the Waverly Bridge with replicas that more closely resemble the original railing systems.
- Realign the existing I-5 northbound off-ramp to Glendale Boulevard to connect with northbound Glendale Boulevard south of the current exit.
- Add a connector from northbound Glendale Boulevard to the bike path along the Los Angeles River.
- Construct an observation overlook to the east of the Viaduct complex that extends from the bike path.

Potential impacts associated with the proposed Project include:

- Air Quality
- Biological Resources
- Cultural Resources

An analysis of potential environmental effects is provided in an Initial Study Checklist, which can be viewed or obtained at the following locations:

1. Bureau of Engineering, Bridge Program, 221 N. Figueroa Street, Suite 350, Los Angeles CA, 90012, Contact: Wallace E. Stokes at (213) 202-5580, fax: (213) 202-5518

2. Atwater Village Public Library, 3379 Glendale Boulevard, Los Angeles, CA 90039

3. Los Feliz Public Library, 1874 Hillhurst Avenue, Los Angeles, CA 90027

4. Satellite Office, Council Pres. Eric Garcetti, CD 13, 3700 Verdugo Rd., Los Angeles, CA 90065

5. District Office, Councilmember Tom LaBonge,, CD4, 10116 Riverside Dr., Ste 200, Toluca Lake, CA 91602

In addition, two scoping meetings will be held to obtain input on the scope and contents of the EIR, at the times and locations shown below:

Thursday, February 8, 2007
7- 9 pm
Glenfeliz Blvd Elementary School
3955 Glenfeliz Blvd.
Los Angeles, CA 90039

Thursday, February 15, 2007
7-9 pm
Silverlake Community Church
2930 Hyperion Avenue (near Rowena)
Los Angeles, CA 90027

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice.

Please send your response to:

Wallace E. Stokes
City of Los Angeles
Public Works, Bureau of Engineering
Bridge Program
221 N. Figueroa Street, Suite 350
Los Angeles, CA 90012

If you have any questions, please contact Mr. Wallace Stokes (213) 202-5580. We would appreciate the name, telephone number, and e-mail address for the person to contact if we have any questions regarding your comment.

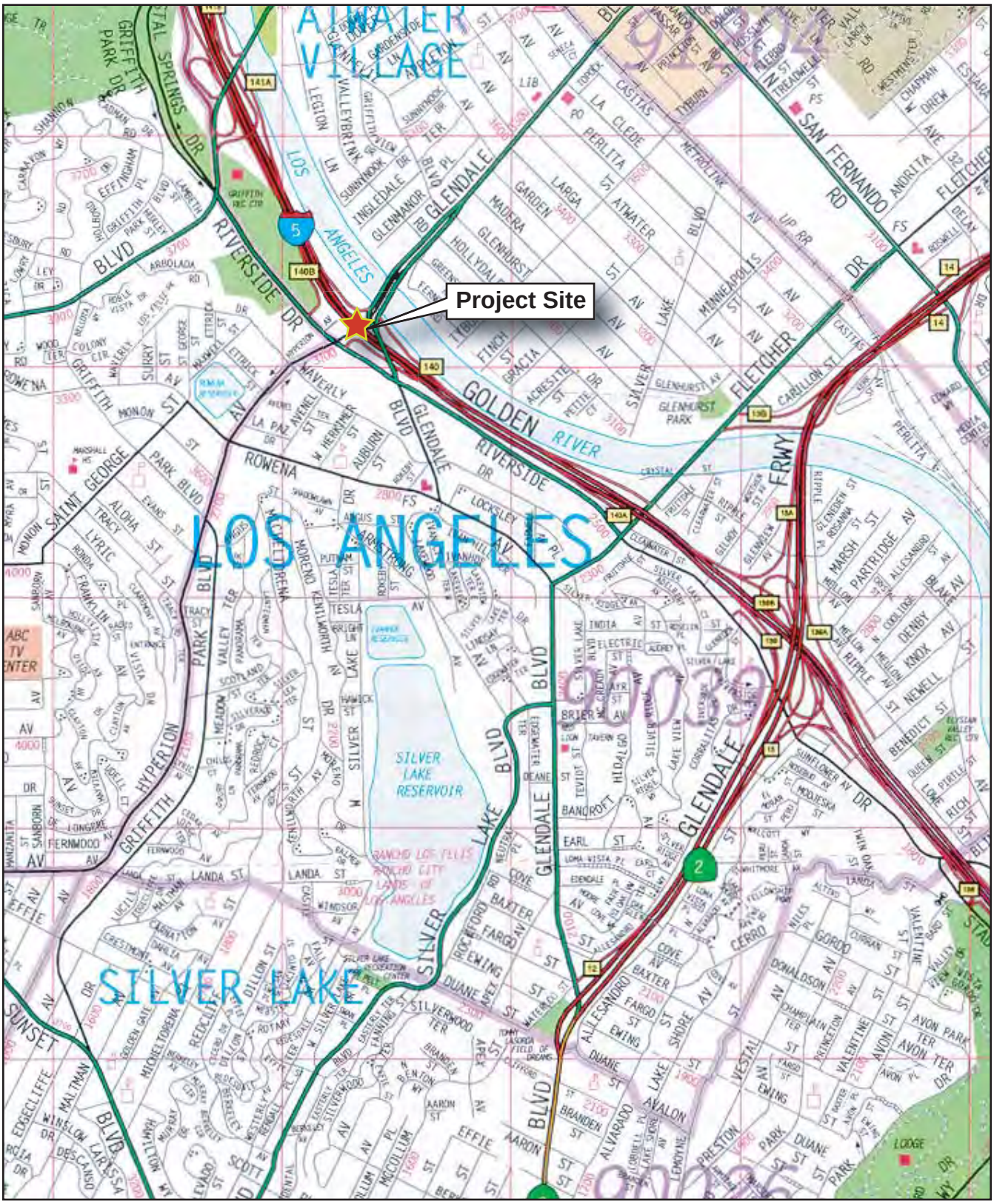
Prepared By: _____ Date: January 8, 2007
Wallace E. Stokes

Approved By: Gary Moore, P.E.
City Engineer

By: _____ Date: 1/18/07
Ara Kasparian, Ph.D., Manager
Environmental Management Group

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Source: Thomas Guide, Page 594, LA and Orange Counties, 2003

Figure 1
Project Vicinity Map
Glendale-Hyperion Structures (53C-1881, 53C-1883, and 53C-1884)
Rehabilitation and Seismic Retrofit Design

CH2MHILL

SCO165946.T1.A1.EN.CH projvicin3.ai 4/04



Figure 2
Project Location Map
Glendale - Hyperion Structures
(53C-1881, 53C-1883,
and 53C-1884)
Rehabilitation and Seismic
Retrofit Design

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CH2MHILL

APPENDIX F: Traffic Studies

Technical Memorandum No. 1

To: City of Los Angeles Bureau of Engineering

From: Alejandro Angel, PE, PTOE and Arief Naftali, PE, TE

cc: Anissa Voyiatzes, PE

Date: June 9, 2014

Re: **Existing and Future Traffic Demand – Updated**

Executive Summary

This Technical Memorandum is the first of a series of memoranda that are being developed to evaluate various existing and future traffic conditions at the Glendale-Hyperion bridge complex. These traffic conditions include vehicles, pedestrians and bicycles and their infrastructure needs. In this memorandum, existing traffic demand was measured by conducting vehicle, pedestrian and bicycle counts at several locations within the project limits. Psomas also conducted usage survey of pedestrians and bicyclists who use the Hyperion Avenue Bridge as part of their travel path.

The resulting numbers shown in the following pages and in the appendices consist of 24-hour vehicle counts, 12-hour bicycle and pedestrian counts, and intersection peak-hour counts. This memorandum also documents questionnaire responses that were gathered from pedestrians and bicyclists during a normal weekday. The latter part of this report discusses how future traffic conditions are predicted. Psomas performed research and collected information to determine a reasonable traffic growth rate to forecast what a 2040 (future) traffic demand will look like. In order to do so, we took into account information and data from Southern California Association of Governments (SCAG), Los Angeles County Congestion Management Plan, Los Angeles historical traffic data, and short-term planned developments within the project area. A growth rate of 0 to 1 percent on the conservative end was found. In order to be conservative and consistent with the environmental documents, Psomas recommends that a growth rate of 1 percent be used to forecast 2040 traffic conditions.

Introduction & Background

In 2003, the City of Los Angeles Bureau of Engineering Bridge Improvement Program initiated an improvement project to mitigate structural deficiencies in the Hyperion Avenue Viaduct Complex of Bridges (constructed in 1929) which include a total of six bridges over the I-5 (Caltrans), Riverside Drive, Los Angeles River and the Waverly Drive Bridge over Hyperion Avenue itself.

Since its inception, original improvement alternatives have evolved and been redefined to focus on seismic retrofit and modifications to the roadway portion and sidewalk with the objectives of improving public safety and optimizing space for multi-modal use of the bridge facility. Community feedback regarding a non-standard sight distance at the I-5 NB off-ramp and inadequate merging distance to Glendale Boulevard, for instance, have resulted in a proposed realignment to the off-ramp that would enhance the safety and operational efficiency of the interchange.

Following the public review of the draft environmental document, the City decided to conduct additional traffic studies and explore design options that would lead to the most balanced multi-modal transportation improvement given the constraints of the site conditions. Subjects of the traffic studies include examining the existing and future traffic demands, traffic circulation, operational issues on Hyperion Avenue, and multi—modal use involving bikes and pedestrians and their infrastructure needs, such as sidewalk, bike lane, crosswalk and pertinent safety and traffic calming measures.

As mentioned in the Executive Summary, this Technical Memorandum is the first of a series of memoranda that will evaluate the issues listed above.

Objectives

The objectives of this Technical Memorandum are to :

- Summarize findings from recently conducted traffic counts and data collection within the project area
- Document research findings from community plans relating to traffic growth rate in the area
- Recommend a traffic growth rate to be used in the evaluation of transportation elements for the proposed bridge improvements.

Psomas has included relevant exhibits, transcripts of raw data counts, and manual surveys in the Appendix section of this memorandum as a reference.

Existing Traffic Count Summary

Various vehicular, bicycle and pedestrian counts were conducted over the February – March period of 2014 at and around the Glendale-Hyperion Complex of Bridges. They consist of 24-hour Average Daily Traffic (ADT), Peak Hour Turning Movement at the intersections of Glenhurst Avenue - Glenfeliz Boulevard/Glendale Boulevard and Hyperion Avenue/Rowena Avenue, 12-hour pedestrian and bicycle counts, and intercept surveys of bicyclists and pedestrians.

The following are summaries of these counts. Relevant exhibits are included in the Appendix portion of this Technical Memorandum.

24-Hour Average Daily Traffic (ADT)

A 24-hour vehicular count was conducted at the following locations on Thursday, February 13, 2014 :

Table 1. 24-Hour Average Daily Traffic (ADT) Counts within the Project Area

No.	Locations	24-hr ADT	AM Peak Vol	PM Peak Vol	Truck %*
1	Northbound (NB) Hyperion Ave Bridge	12,014	737	1,012	8
2	Southbound (SB) Hyperion Ave Bridge	13,081	1,235	887	9
3	Northbound Glendale Blvd Bridge	12,390	661	962	4
4	Southbound Glendale Blvd Bridge	11,212	923	811	7
5	I-5 NB Off-Ramp to Glendale Blvd Bridge	6,887	478	484	4
6	I-5 NB On-Ramp from Glendale Blvd Bridge	4,308	386	282	4

* = Truck percentage includes buses and all trucks classified as Category 4 or higher in the FHWA Vehicle Classification chart.

A summary of these counts and their locations is included in the Appendix.

Peak Hour/Turning Movement Volumes

Morning peak hour (7 – 9 AM) and evening peak hour (4 – 6 PM) counts were also conducted on Thursday, February 13, 2014.

A supplemental count to account for U-turn movement on northbound Glendale Boulevard was conducted on Thursday, April 24, 2014. With the exception of northbound left and U-turn volumes at the intersection of Glendale Boulevard/Glenfeliz-Glenhurst, average peak hour volume numbers from February and April were adopted in operational analysis for the intersection.

In 2007, a similar traffic count completed at the intersection of Glendale Boulevard/Glenfeliz-Glenhurst yielded an equal amount of vehicles who made U-turns in the northbound direction headed southbound to Hyperion Avenue and Glendale Boulevard. This distribution is assumed to be consistent in this case with 50 percent of U-turning vehicles going soutbound to Glendale Boulevard with the remaining heading to the Hyperion Avenue bridge, as shown in Figure 1, on the following page.



Hyperion Avenue/Rowena Avenue Intersection
Morning Peak Hour : 7:30 – 8:30 AM
Evening Peak Hour : 4:30 – 5:30 PM



Glendale Boulevard/Glenhurst-Glenfeliz Boulevard Intersection
Morning Peak Hour : 7:30 – 8:30 AM
Evening Peak Hour : 4:45 - 5:45 PM

Legend : xxx(xxx) = AM Peak (PM Peak)

Figure 1. Peak Hour Turning Movement Counts

12-Hour Pedestrian and Bicycle Counts

Psomas also performed pedestrian and bicycle counts over a 12-hour period on Tuesday, March 25, 2014. The following are graphical summaries of those counts:





Figure 2. 12-hour Pedestrian Counts



Figure 3. 12-hour Bicycle Counts

Some of the observations from the counts include:

- Most pedestrians on the Hyperion Bridge use the west side of the bridge. In fact, for every pedestrian using the east sidewalk, there are more than four pedestrians on the west sidewalk. This could be influenced by the location of John Marshall High School (on the west side of Hyperion), and the fact that there are stairs from the west sidewalk of the Hyperion Bridge to Glendale Boulevard and the LA River trail system.
- The highest volume pedestrian crossing is across southbound Glendale Boulevard just north of the LA River for pedestrians to get access to/from the Hyperion Bridge.
- Some level of "wrong way" bike riding is taking place on the sidewalks. To some extent, this may be related to the fact that some riders may not feel comfortable riding with traffic without dedicated bike lanes.

Intercept Surveys

In addition to manual traffic counts, Psomas also intercepted several pedestrians and bicyclists who use facilities within the project limits. These surveys were conducted on a voluntary basis and took place between 8:30 - 10:00 AM and 1:30 – 3:00 PM on Tuesday, March 4, 2014.

Pedestrian Survey

Table 2. Pedestrians Intercept Survey

No	Purpose of Trip	Origin	Destination	Frequency/ Month
1	Work	Silver Lake/Hyperion Ave	Hyperion Ave/Rowena Ave	40
2	Work	7-11 Store	LA River	8
3	Recreational	Gym	Koreatown	40
4	Recreational	Hyperion Ave/Rowena Ave	Glendale Blvd/Garden Ave	40
5	Recreational	S. Water Village/Silver Lake Blvd	S. Water Village/ Silver Lake Blvd	40
6	Recreational	Glendale Blvd/Edenhurst Ave	Hyperion/Tracy	24

7	Recreational	Casitas	Gym	60
8	Recreational	Sunset/Virgil	Hyperion Ave/Valleybrink Rd	1
9	Recreational	Metro Fitness	Waverly Dr/Herkimer St	26
10	Recreational	Hyperion Ave/Rowena Ave	Hyperion Ave/Glendale Blvd	80
11	Recreational	Madera Ave/Silver Lake Blvd	Franklin Ave/Los Feliz	40
12	School	John Marshall Middle School	Perlita st	22
13	School	John Marshall Middle School	Glendale	5
14	School	John Marshall High School	Revere/Glendale Blvd	24
15	School	John Marshall High School	Valleybrink/Glenmora	22
16	School	John Marshall High School	Glenmanor/Valley Glen	22
17	School	John Marshall High School	Valleybrink/Glendale	40
18	School	John Marshall High School	Valleybrink/Glendale	40
19	School	John Marshall High School	Valleybrink/Glendale	40
20	School	Griffith Park/Rowena	Garden Ave/Glendale Blvd	40

Pedestrians intercepted and interviewed use the Hyperion Bridge to commute to school or for recreational trips (45% for each purpose). This indicates that a significant number of the pedestrians are school-age. More than 80% of the pedestrians interviewed walk through the bridge frequently and regularly (more than 20 times per month).

Bicycle Survey

Table 3. Bicyclists Intercept Survey

No.	Location	Purpose of Trip	Origin	Destination	Frequency/ Month	Cycling Skills
1	1	Recreational	Silver Lake/Los Feliz	Eagle Rock	30	Advanced
2	1	School/Work	Los Angeles City College	Glendale	60	Advanced
3	1	Work	Verdugo/Colorado	Highland/Willoughby	60	Advanced
4	1	Work	Riverside Dr	San Fernando Blvd	30	Advanced
5	1	School	Hollywood	Glendale	60	Intermediate
6	2	Work	Elisonbali**???**	Los Feliz	10	Advanced
7	2	Work	Highland Park	Hollywood	16	Advanced
8	2	Work	N. Mission Rd	Patrol	30+	Advanced
9	2	Work	Rowena Ave	Maple St/Glendale Blvd	4	Advanced
10	2	Work	Hollywood	Colorado St	10+	Advanced

Location 1 = NE Corner of Hyperion and Rowena
Location 2 = NW Corner of Hyperion and Glenfeliz/Glenhurst intersection

Bicyclists use the Hyperion Bridge primarily to commute to work or school. The majority of bicyclists are experienced riders with advanced skills.

Community Plan and Future Development

In addition to evaluating existing traffic conditions, Psomas will be performing operational analysis on future traffic volumes. The signed Draft Project Report recently approved on August 21, 2013, provides future traffic data up to the year 2037 with an assumed growth rate of 1 percent/year. Since it has been three years since "Existing" traffic volumes were collected in 2011 for the report, Psomas proposes to use 2040 as the future traffic demand volumes based on the recently collected 2014 counts.

A key variable to arriving at future traffic demand volume is **assumed growth rate,** and its justification. Psomas examined several sources of information before arriving at a growth rate to use in this Traffic Study, as elaborated in the following:

1. City of Los Angeles Historical Traffic Counts

Research of historical traffic counts within the City of Los Angeles for ADT on Glendale Boulevard immediately south of Glenfeliz reveals 0.1% growth between 2001 and 2014. On Hyperion Avenue, volumes have gone down 2.3% per year since 2002 (there was a big drop between 2002 and 2008 – especially in the southbound direction). Additionally, between 2008 and 2014, volumes have actually gone down 1% per year. This trend is clearly shown in the graphic on the following page:

Figure 4. Historic Traffic Volumes in the project area (2001-2014)

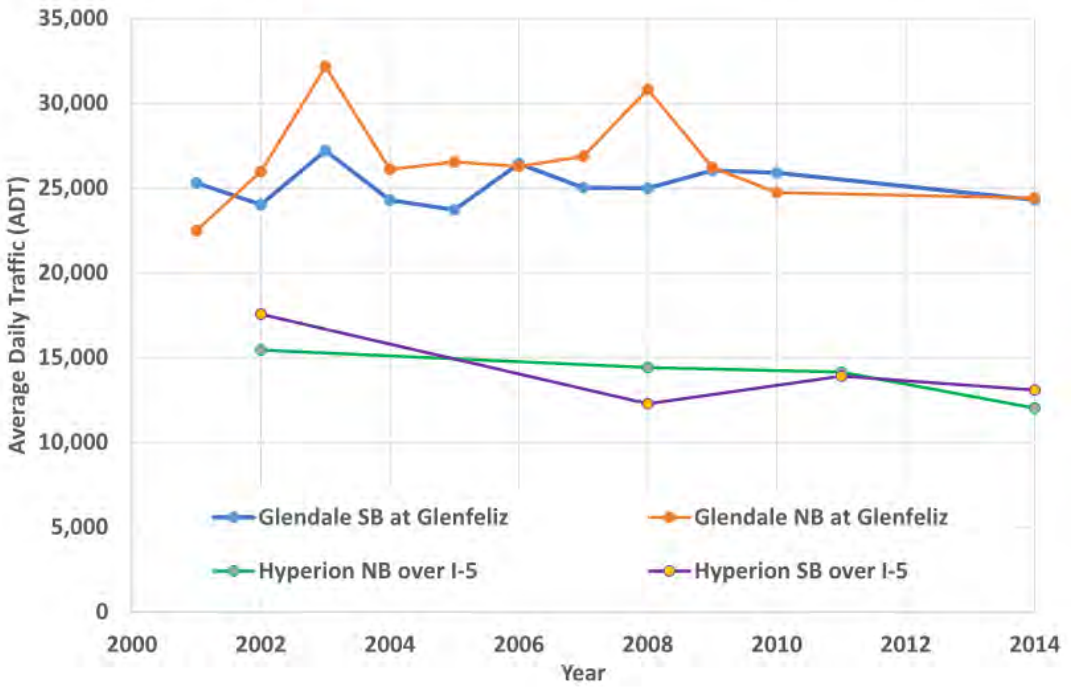


Figure 4. Historical ADT Volumes on Glendale Boulevard and Hyperion Avenue Bridge

Generally speaking, the City of Los Angeles historical data essentially shows **0%** growth over the past 13 years for the project limits.

2. **Los Angeles County Metro Congestion Management Program (CMP) 2010**

The Los Angeles County Metro CMP for Transportation Impact Analysis, which is available for viewing and download online, recommends the adoption of a total traffic growth rate of 6.8% between the years of 2010 and 2035 for the Los Angeles-Glendale study area. Psomas extrapolated this number for the years 2014 – 2040 and arrived at a total traffic growth rate of 7.1%, constituting an annual traffic growth rate of **0.3%.**

3. Southern California Association of Governments (SCAG) ADT Forecast Data

SCAG developed a 2035 model based on forecasted growth in population, households and employment. As shown below, total growth rate ranges from 10% for employment to up to 24% for population.

Table 4. 2008-2035 Population, Households and Employment Growths in the Glendale-Los Angeles Area

City Name	2008 Population	2035 Population	2008 Households	2035 Households	2008 Employment	2035 Employment
City of Glendale	191,600	209,300	72,200	78,600	93,600	103,000
City of Los Angeles	3,770,500	4,320,600	1,309,900	1,626,600	1,735,200	1,906,800
Glendale Growth Rates	16 %		16 %		10 %	
Los Angeles Growth Rates	15 %		24 %		10 %	

Considering all factors equally between population, households and employment, the average growth is 15% which equates to an annual growth rate of 0.5 percent.

In absolute terms, SCAG Average Daily Traffic (ADT) and Peak-hour volumes for 2012 are much higher than those we collected in 2014, in large part because the SCAG model has a network error with Hyperion/Riverside being shown as an at-grade intersection (as a result, traffic from Riverside is being shown as going to Hyperion). However, in terms of percent change, volumes are shown to be flat on Hyperion near Rowena and to grow 1% on Glendale just north of Glenfeliz. The average amounts to **0.6%,** according to the table below:

Table 5. 2012 – 2035 Average Daily Traffic (ADT) Growth Rates

	2012	2035	Annual Growth
Hyperion N of Rowena	42,254	42,131	-0.01%
Glendale S of Brunswick	43,410	55,707	1.09%
TOTAL	**85,664**	**97,838**	**0.6%**

4. Short-term Planned Development Permits within the Zone of Influence of the Study Area

Psomas also collected a list of planned developments involving new residential units, as well as apartments and commercial buildings, based on the City of Los Angeles' permit applications within the "Zone of Influence" of the project study area (this list is enclosed in the Appendix).

As shown on the following page, a total of 77 residential units fall within the zone of influence, with 13 of them being new units on vacant lots. There are 113 new apartment units being proposed and about 41,000 square feet of gross leaseable commercial development area that falls within the Zone of Influence.

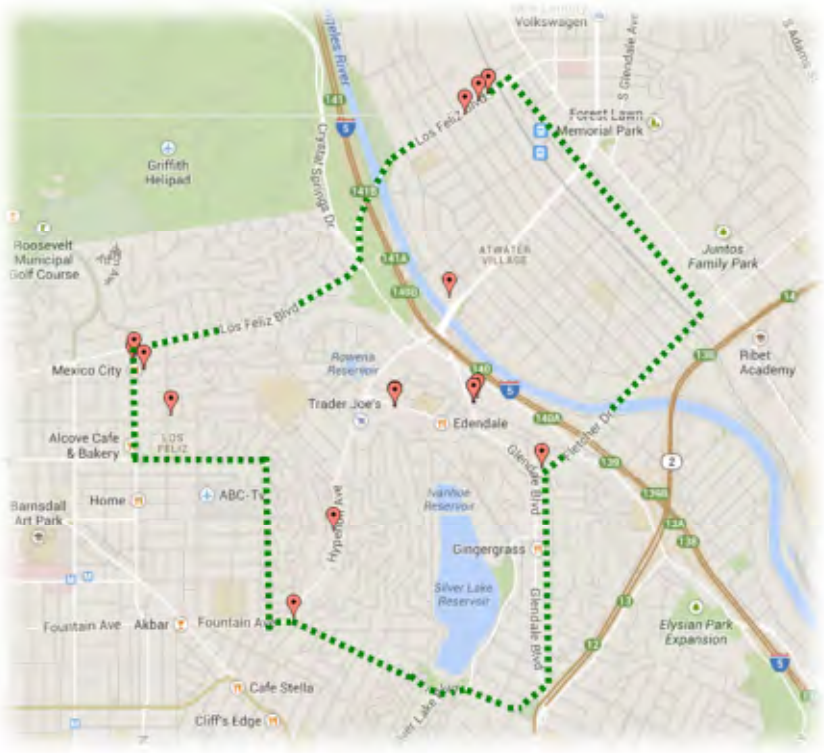


Figure 5. 2014 Apartments and Commercial Development Permitting Projects

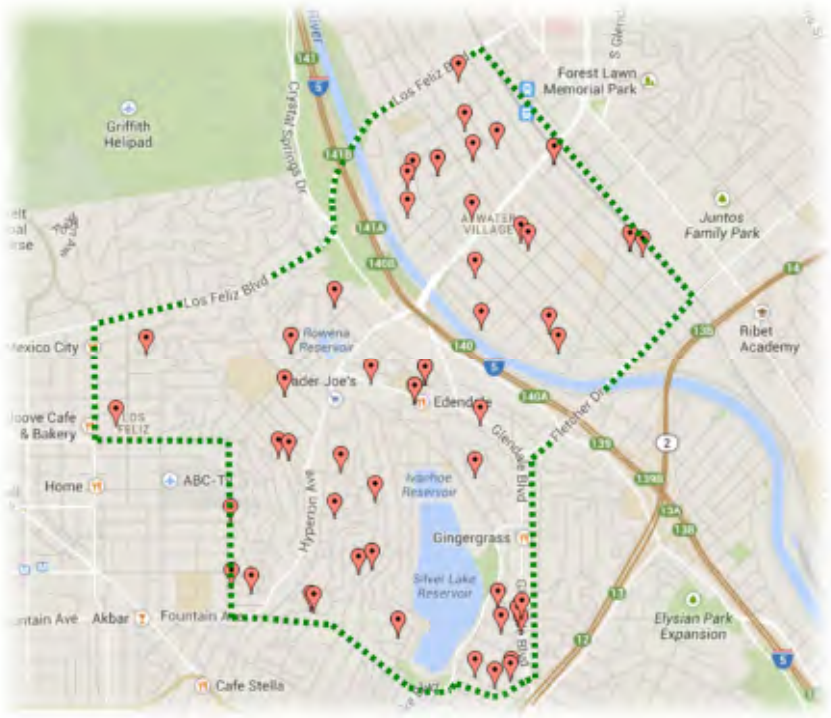


Figure 6. 2014 Residential Permitting Projects

As part of our analysis, it is assumed that 50 percent of the trips to be generated will use Glendale Boulevard and Hyperion Avenue as part of their daily trips. The rest of the trips will use Los Feliz Boulevard and/or Fletcher Drive to access the I-5 freeway or other routes. It is also assumed that these permitted development projects will be built and occupied within a period of three years, or by 2017, resulting in an annual growth rate of approximately 0.4%, as shown below:

Table 6. Growth Rate Based on Planned Developments

Land Use	Unit	Total Units	Daily Trips/Unit*	Pass-by Reduction*	Transit Reduction**	Net trip rate / Unit	Total Trips
Commercial/Retail	1000 SF	41	42.94	34%	5%	26.92	1,104
New Single Family Residential	Dwelling Unit	13	9.57	0%	5%	9.09	118
Apartments	Dwelling Unit	113	6.65	0%	5%	6.32	714
						TOTAL	**1,222**

** Based on ITE Trip Generation*
*** Based on City of LA Traffic Study Policies & Procedures*

% of Trips using the Glendale/Hyperion bridges (rest of traffic uses Glendale to the N, Hyperion to the S, I-5 Los Feliz or Fletcher, CA-2 or other routes)	50%
Total trips using the Glendale/Hyperion bridges	611
Existing Daily Volume (Total of Glendale and Hyperion bridges from 2014 counts)	48,697
Growth represented by all permits (new volume/existing volume)	1.3%
Time for construction of all permits (Years)	3
Annual Traffic Growth Rate	**0.42%**

Conclusion

Based on the preceding discussion, historic and projected growth rates range from approximately 0 % to 1% on the conservative end. Negative traffic growth found on the City's historical counts can be attributed partially to the deep recession that the Country, State and City of Los Angeles as a local agency endured and from which they are continuing to recover. Another factor in the reduced traffic volumes could be the rise of non-motorized travel modes with increased bicycle and pedestrian volumes. As part of the economic recovery, positive traffic growth is anticipated for the future, as is also reflected in data from SCAG, Los Angeles County CMP, and immediate development plans within the project area.

Given that 0% growth is reflected in the existing conditions, we recommend using the upper end of the growth rate (1%) to evaluate future operational concerns conservatively. A 1% rate is also consistent with the recently approved Draft Project Report and its accompanying environmental document. Furthermore, an intermediate scenario of 0.5% could easily be interpolated between 0% growth (existing conditions) and 1% (strong growth). Future Average Daily Traffic (ADT) expected with 1% annual growth rate is presented below in Table 7.

Table 7. Projected Daily Traffic Volumes in Project Area

No.	Locations	24-hr ADT	2040 ADT with 1% growth rate
1	Northbound (NB) Hyperion Ave	12,014	***15,558***
2	Southbound (SB) Hyperion Ave	13,081	***16,940***
3	Northbound Glendale Blvd	12,390	***16,045***
4	Southbound Glendale Blvd	11,212	***14,520***
5	I-5 NB Off-Ramp	6,887	***8,919***
6	I-5 NB On-Ramp	4,308	***5,579***

Peak hour volumes at the intersections of Glenhurst-Glenfeliz/Glendale and Hyperion/Rowena will be generated from these projected volumes for operational analysis purposes. Technical Memorandum No. 4 will address operational analysis and results of existing and future traffic volumes.

Appendices

A. Summary of Vehicular Counts and Raw Data

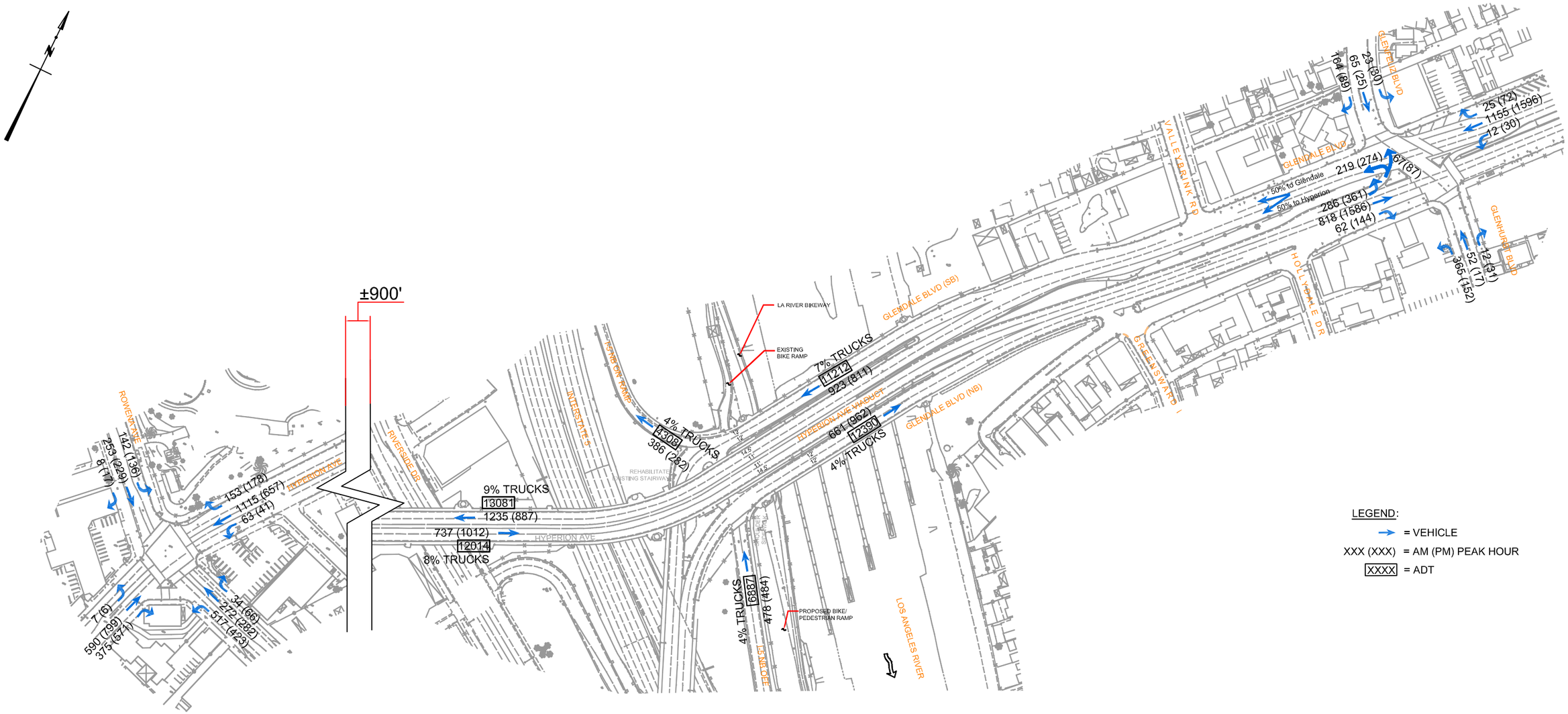
B. Pedestrians and Bicycles Raw Count Data

C. Raw Intercept Survey Data Sheets

D. Permitted Planned Developments Lists

APPENDIX A

SUMMARY OF VEHICULAR COUNTS AND RAW DATA



LEGEND:

→ = VEHICLE

XXX (XXX) = AM (PM) PEAK HOUR

XXXX = ADT

Traffic Count Summary Exhibit

PSOMAS

DATE: 05-05-14

GLENDALE BLVD - HYPERION AVE COMPLEX OF BRIDGES

VEHICLE CLASSIFICATIONS

I-5 Northbound Off-Ramp - I-5 North Bound & Glendale Boulevard (NORTH BOUND)

QTD PROJ/LOC #:	2014127 - 001	**GPS COORDINATES:**	0
ON STREET:	I-5 Northbound Off-Ramp	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	I-5 North Bound & Glendale Boulevard	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	0	56	8	0	0	1	0	0	0	0	0	0	0	65
1:00	0	44	2	0	1	0	0	0	0	0	0	0	0	47
2:00	0	29	2	1	0	0	0	0	0	0	0	0	0	32
3:00	0	20	4	0	2	0	0	0	1	0	0	0	0	27
4:00	0	27	7	2	0	1	0	1	1	0	0	0	0	39
5:00	0	83	17	1	5	2	0	0	0	0	0	0	0	108
6:00	9	205	28	3	13	5	0	0	0	0	0	0	0	263
7:00	2	409	48	1	8	3	1	6	0	0	0	0	0	478
8:00	4	328	25	0	6	3	0	3	0	0	0	0	0	369
9:00	2	282	37	3	8	4	0	6	2	0	0	0	0	344
10:00	7	324	37	1	17	4	1	4	0	0	0	0	0	395
11:00	3	297	35	4	16	1	1	6	0	0	0	0	0	363
12:00	4	354	31	3	9	6	1	2	2	0	0	0	0	412
13:00	4	336	32	1	10	1	0	2	0	0	0	0	0	386
14:00	4	403	36	5	11	5	1	1	1	0	0	0	0	467
15:00	3	429	35	2	9	2	0	4	0	0	0	0	0	484
16:00	4	318	34	0	2	7	1	1	0	0	0	0	0	367
17:00	5	331	26	2	2	1	1	4	0	0	0	0	0	372
18:00	4	405	26	5	7	2	4	2	0	0	0	0	0	455
19:00	7	391	32	3	3	4	2	2	1	0	0	0	0	445
20:00	1	304	14	1	4	1	0	1	0	1	0	0	0	327
21:00	2	255	13	0	1	1	0	0	0	0	0	0	0	272
22:00	2	205	12	2	1	0	0	0	0	0	0	1	0	223
23:00	1	139	5	1	1	0	0	0	0	0	0	0	0	147
TOTAL	68	5974	546	41	136	54	13	45	8	1	0	1	0	**6887**
% of Total:	1%	87%	8%	1%	2%	1%	0%	1%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
847	798	739

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Northbound Glendale Boulevard - I-5 Northbound Off-Ramp & Greensward Road (NORTH BOUND)

QTD PROJ/LOC #:	2014127 - 002	**GPS COORDINATES:**	0
ON STREET:	Northbound Glendale Boulevard	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	I-5 Northbound Off-Ramp & Greensward Road	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	1	98	8	1	0	0	0	0	1	0	0	0	0	109
1:00	0	60	5	1	0	0	0	0	0	0	0	0	0	66
2:00	0	39	3	2	0	0	0	0	0	0	0	0	0	44
3:00	0	36	5	1	2	0	0	0	1	0	0	0	0	45
4:00	0	45	9	2	0	1	0	1	1	0	0	0	0	59
5:00	0	123	26	3	6	1	0	0	0	0	0	0	0	159
6:00	5	291	47	5	17	4	1	0	1	0	0	0	0	371
7:00	1	577	56	10	9	1	0	6	1	0	0	0	0	661
8:00	7	536	49	6	9	5	0	1	1	0	0	0	0	614
9:00	6	528	60	4	12	4	1	3	2	1	0	0	0	621
10:00	7	576	73	6	16	7	1	4	2	0	0	0	0	692
11:00	4	572	74	6	24	5	0	5	1	0	0	0	0	691
12:00	7	644	64	8	11	6	0	5	0	0	1	0	0	746
13:00	7	632	52	4	16	9	0	0	0	0	0	0	0	720
14:00	9	685	70	8	16	6	1	4	0	0	0	0	0	799
15:00	9	763	62	7	14	5	0	6	0	0	0	0	0	866
16:00	15	728	64	4	13	5	0	4	0	0	0	0	0	833
17:00	7	833	53	7	10	6	0	4	0	0	0	0	0	920
18:00	2	874	54	9	7	9	0	4	1	0	2	0	0	962
19:00	8	795	61	4	4	5	0	1	2	0	0	0	0	880
20:00	3	510	20	3	5	0	0	0	1	0	0	0	0	542
21:00	4	413	23	1	1	0	0	0	0	0	0	0	0	442
22:00	4	296	11	2	1	3	0	0	0	0	0	1	0	318
23:00	1	220	7	2	0	0	0	0	0	0	0	0	0	230
TOTAL	107	10874	956	106	193	82	4	48	15	1	3	1	0	**12390**
% of Total:	1%	88%	8%	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
1275	1466	1753

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Southbound Glendale Boulevard - I-5 Northbound On-Ramp & Valleybrink Road (SOUTH BOUND)

QTD PROJ/LOC #:	2014127 - 003	**GPS COORDINATES:**	0
ON STREET:	Southbound Glendale Boulevard	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	I-5 Northbound On-Ramp & Valleybrink Road	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	1	64	8	1	2	0	0	0	1	0	0	0	0	77
1:00	1	41	6	1	2	1	0	0	0	0	0	0	0	52
2:00	2	23	3	1	2	2	0	0	0	0	0	0	0	33
3:00	1	22	3	1	1	0	0	0	0	0	0	0	0	28
4:00	1	39	10	2	5	0	0	0	0	1	0	0	0	58
5:00	1	123	27	3	16	2	0	0	0	0	0	0	0	172
6:00	11	276	50	7	15	4	0	2	1	0	0	0	0	366
7:00	6	668	99	5	29	4	0	10	0	0	0	0	0	821
8:00	11	741	98	10	50	6	1	6	0	0	0	0	0	923
9:00	19	564	80	8	36	7	0	4	1	0	0	0	0	719
10:00	11	496	80	7	21	5	2	2	0	0	0	0	0	624
11:00	13	457	73	8	35	5	2	5	2	0	0	0	0	600
12:00	18	497	84	5	34	8	0	4	1	0	0	0	0	651
13:00	15	502	72	5	24	7	0	1	0	0	0	0	0	626
14:00	3	502	86	10	27	7	1	6	2	0	0	0	0	644
15:00	11	561	83	7	28	6	1	4	0	0	1	0	0	702
16:00	12	636	71	5	26	5	2	2	0	0	0	0	0	759
17:00	19	654	85	9	27	11	0	5	1	0	0	0	0	811
18:00	16	573	72	9	17	7	0	3	1	0	0	0	0	698
19:00	12	473	54	1	11	3	0	7	0	0	0	0	0	561
20:00	12	387	49	3	19	1	1	0	0	1	0	0	0	473
21:00	7	333	27	2	6	4	0	2	0	0	0	0	0	381
22:00	8	227	26	2	0	2	0	0	0	0	0	0	0	265
23:00	1	138	26	2	1	0	0	0	0	0	0	0	0	168
TOTAL	212	8997	1272	114	434	97	10	63	10	2	1	0	0	**11212**
% of Total:	2%	80%	11%	1%	4%	1%	0%	1%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
1744	1277	1570

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

I-5 Northbound On-Ramp - Hyperion Avenue & I-5 Northbound (NORTH BOUND)

QTD PROJ/LOC #:	2014127 - 004	**GPS COORDINATES:**	0
ON STREET:	I-5 Northbound On-Ramp	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	Hyperion Avenue & I-5 Northbound	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	0	26	3	0	1	0	0	1	0	0	0	0	0	31
1:00	0	21	2	0	1	0	0	0	0	0	0	0	0	24
2:00	0	9	2	0	1	0	0	0	0	0	0	0	0	12
3:00	0	6	0	0	1	0	0	0	0	0	0	0	0	7
4:00	0	13	5	1	1	0	0	0	1	0	0	0	0	21
5:00	1	58	7	0	8	0	0	0	0	0	0	0	0	74
6:00	2	108	13	2	6	1	0	0	1	0	0	0	0	133
7:00	1	234	31	0	7	1	0	2	0	0	0	0	0	276
8:00	2	328	38	1	11	0	0	4	2	0	0	0	0	386
9:00	3	266	22	4	6	0	0	3	2	0	1	0	0	307
10:00	1	209	31	3	8	2	1	1	0	0	0	0	0	256
11:00	3	209	36	2	9	0	0	1	0	0	0	0	0	260
12:00	4	212	27	2	6	0	0	1	1	0	0	0	0	253
13:00	7	219	17	0	9	1	0	0	1	0	0	0	0	254
14:00	1	209	30	4	8	0	0	3	0	0	0	0	0	255
15:00	7	211	32	1	10	0	0	1	0	0	0	0	0	262
16:00	2	238	25	0	11	0	1	1	0	0	0	0	0	278
17:00	2	245	25	0	8	0	0	2	0	0	0	0	0	282
18:00	0	206	28	0	6	0	0	1	0	0	0	0	0	241
19:00	1	196	13	0	2	0	0	1	0	0	0	0	0	213
20:00	0	161	19	0	8	0	0	1	0	0	0	0	0	189
21:00	2	128	4	0	4	0	0	0	0	0	0	0	0	138
22:00	0	89	7	0	0	0	0	0	0	0	0	0	0	96
23:00	0	55	5	0	0	0	0	0	0	0	0	0	0	60
TOTAL	39	3656	422	20	132	5	2	23	8	0	1	0	0	**4308**
% of Total:	1%	85%	10%	0%	3%	0%	0%	1%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
662	507	560

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Hyperion Avenue - Greenswald Road & Etrick Street (NORTH BOUND)

QTD PROJ/LOC #:	2014127 - 005	**GPS COORDINATES:**	0
ON STREET:	Hyperion Avenue	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	Greenswald Road & Etrick Street	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	2	101	4	0	3	1	0	0	0	0	0	0	0	111
1:00	0	59	2	1	1	0	0	0	0	0	0	0	0	63
2:00	1	33	2	0	3	0	0	0	0	0	0	0	0	39
3:00	0	24	3	0	2	0	0	0	0	0	0	0	0	29
4:00	0	30	8	0	1	1	0	0	0	0	0	0	0	40
5:00	0	65	11	1	4	0	0	0	0	0	0	0	0	81
6:00	1	166	17	2	6	0	0	1	0	0	0	0	0	193
7:00	10	425	50	23	8	6	2	5	0	0	0	0	0	529
8:00	12	594	67	27	9	7	2	17	1	0	1	0	0	737
9:00	8	525	59	21	11	3	0	12	0	0	0	0	0	639
10:00	8	525	54	13	11	7	0	12	1	0	0	0	0	631
11:00	9	497	53	12	12	7	0	5	1	1	0	0	0	597
12:00	9	593	38	19	10	13	0	12	0	0	0	0	0	694
13:00	12	567	43	20	19	9	0	9	0	0	0	0	0	679
14:00	15	605	51	22	21	15	0	15	3	0	0	0	0	747
15:00	16	725	62	18	15	11	2	19	0	0	0	0	0	868
16:00	18	736	63	25	22	19	1	11	2	0	1	0	0	898
17:00	20	819	52	28	20	17	3	29	4	0	2	0	0	994
18:00	24	824	40	32	26	20	5	32	7	0	1	1	0	1012
19:00	17	816	26	20	14	21	0	19	4	0	0	0	0	937
20:00	4	526	31	7	6	7	1	7	1	0	1	0	0	591
21:00	3	357	20	2	5	3	0	0	1	0	0	0	0	391
22:00	6	281	18	2	5	2	0	0	0	0	0	0	0	314
23:00	2	187	8	2	0	1	0	0	0	0	0	0	0	200
TOTAL	197	10080	782	297	234	170	16	205	25	1	6	1	0	**12014**
% of Total:	2%	84%	7%	2%	2%	1%	0%	2%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
1266	1373	1892

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Hyperion Avenue - Greenswald Road & Etrick Street (SOUTH BOUND)

QTD PROJ/LOC #:	2014127 - 005	**GPS COORDINATES:**	0
ON STREET:	Hyperion Avenue	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	Greenswald Road & Etrick Street	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	1	63	8	1	1	0	0	1	1	0	0	0	0	76
1:00	0	45	4	0	1	0	0	0	0	0	0	0	0	50
2:00	0	34	3	0	1	0	0	0	0	0	0	0	0	38
3:00	0	16	6	0	2	0	0	0	1	0	0	0	0	25
4:00	0	43	3	1	1	0	0	0	1	0	0	0	0	49
5:00	1	90	9	4	5	0	0	0	0	0	0	0	0	109
6:00	2	378	43	4	10	2	0	6	1	0	0	0	0	446
7:00	15	978	127	24	37	18	0	34	1	0	1	0	0	1235
8:00	20	940	77	31	35	21	1	40	6	2	0	0	0	1173
9:00	15	689	63	17	22	14	1	21	4	0	0	0	0	846
10:00	4	480	52	15	16	8	0	18	0	0	0	0	0	593
11:00	8	565	45	10	21	8	1	18	2	0	0	0	0	678
12:00	8	545	42	12	14	12	0	11	1	0	0	0	0	645
13:00	9	566	49	20	13	9	0	9	2	0	1	0	0	678
14:00	7	634	43	21	17	11	2	20	1	0	0	0	0	756
15:00	18	653	50	25	21	10	2	25	2	0	2	0	0	808
16:00	21	663	49	23	9	30	3	16	3	0	0	0	0	817
17:00	11	693	56	36	13	20	2	23	2	0	1	0	0	857
18:00	19	675	46	46	27	22	1	47	2	0	1	0	1	887
19:00	20	591	31	26	8	7	0	13	1	0	0	0	0	697
20:00	6	515	32	6	10	10	0	7	1	0	0	0	0	587
21:00	5	440	25	9	5	7	0	7	0	0	0	0	0	498
22:00	3	307	16	1	0	3	0	2	0	0	0	0	0	332
23:00	1	182	11	3	1	2	0	1	0	0	0	0	0	201
TOTAL	194	10785	890	335	290	214	13	319	32	2	6	0	1	**13081**
% of Total:	1%	82%	7%	3%	2%	2%	0%	2%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
2408	1323	1674

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Hyperion Avenue - Greenswald Road & Etrick Street (COMBINED)

QTD PROJ/LOC #:	2014127 - 005	**GPS COORDINATES:**	0
ON STREET:	Hyperion Avenue	**START DATE:**	Thursday, February 13, 2014
CROSS STREETS:	Greenswald Road & Etrick Street	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	3	164	12	1	4	1	0	1	1	0	0	0	0	187
1:00	0	104	6	1	2	0	0	0	0	0	0	0	0	113
2:00	1	67	5	0	4	0	0	0	0	0	0	0	0	77
3:00	0	40	9	0	4	0	0	0	1	0	0	0	0	54
4:00	0	73	11	1	2	1	0	0	1	0	0	0	0	89
5:00	1	155	20	5	9	0	0	0	0	0	0	0	0	190
6:00	3	544	60	6	16	2	0	7	1	0	0	0	0	639
7:00	25	1403	177	47	45	24	2	39	1	0	1	0	0	1764
8:00	32	1534	144	58	44	28	3	57	7	2	1	0	0	1910
9:00	23	1214	122	38	33	17	1	33	4	0	0	0	0	1485
10:00	12	1005	106	28	27	15	0	30	1	0	0	0	0	1224
11:00	17	1062	98	22	33	15	1	23	3	1	0	0	0	1275
12:00	17	1138	80	31	24	25	0	23	1	0	0	0	0	1339
13:00	21	1133	92	40	32	18	0	18	2	0	1	0	0	1357
14:00	22	1239	94	43	38	26	2	35	4	0	0	0	0	1503
15:00	34	1378	112	43	36	21	4	44	2	0	2	0	0	1676
16:00	39	1399	112	48	31	49	4	27	5	0	1	0	0	1715
17:00	31	1512	108	64	33	37	5	52	6	0	3	0	0	1851
18:00	43	1499	86	78	53	42	6	79	9	0	2	1	1	1899
19:00	37	1407	57	46	22	28	0	32	5	0	0	0	0	1634
20:00	10	1041	63	13	16	17	1	14	2	0	1	0	0	1178
21:00	8	797	45	11	10	10	0	7	1	0	0	0	0	889
22:00	9	588	34	3	5	5	0	2	0	0	0	0	0	646
23:00	3	369	19	5	1	3	0	1	0	0	0	0	0	401
TOTAL	391	20865	1672	632	524	384	29	524	57	3	12	1	1	**25095**
% of Total:	2%	83%	7%	3%	2%	2%	0%	2%	0%	0%	0%	0%	0%	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
3674	2696	3566

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Hyperion Avenue - Greenswald Road & Etrick Street (NORTH BOUND)

QTD PROJ/LOC #:	2014127 - 005	**GPS COORDINATES:**	0
ON STREET:	Hyperion Avenue	**START DATE:**	Friday, February 14, 2014
CROSS STREETS:	Greenswald Road & Etrick Street	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
% of Total:	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
0	0	0

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
4	BUSES	8	FOUR OR LESS AXLE, SINGLE TRAILER	12	SIX AXLE, MULTI TRAILER
				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE CLASSIFICATIONS

Hyperion Avenue - Greenswald Road & Etrick Street (SOUTH BOUND)

QTD PROJ/LOC #:	2014127 - 005	**GPS COORDINATES:**	0
ON STREET:	Hyperion Avenue	**START DATE:**	Friday, February 14, 2014
CROSS STREETS:	Greenswald Road & Etrick Street	**VICINITY:**	Los Angeles, CA

Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
% of Total:	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

7 - 9 AM Peak Total	12 - 2 PM Peak Total	4 - 6 PM Peak Total
0	0	0

FHWA Vehicle Classification Scheme

1	MOTORCYCLES	5	TWO AXLE, SIX TIRE SINGLE UNIT	9	FIVE-AXLE SINGLE TRAILER
2	PASSENGER CARS	6	THREE AXLE, SINGLE UNIT	10	SIX OR MORE AXLE, SINGLE TRAILER
3	FOUR TIRE, SINGLE UNIT	7	FOUR OR MORE AXLE, SINGLE UNIT	11	FIVE OR LESS AXLE, MULTI TRAILER
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				13	SEVEN OR MORE AXLE, MULTI-TRAILER

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VEHICLE TURNING MOVEMENT COUNT

#006 Hyperion Avenue & Rowena Avenue - AM PEAK

LOCATION#:	**006**	**QTD PROJ#:**	**2014124**
NORTH / SOUTH:	**Hyperion Avenue**	**DATE:**	**Wednesday, February 12, 2014**
EAST / WEST:	**Rowena Avenue**	**VICINITY:**	**Los Angeles, CA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	1	1	2	0	1	1	0	2	1	1	
7:00 AM	1	62	37	7	194	32	14	20	2	95	45	5	514
7:15 AM	0	73	58	11	210	43	24	40	4	100	63	6	632
7:30 AM	0	123	89	13	303	40	27	55	4	130	70	5	859
7:45 AM	0	159	105	18	313	55	44	74	0	136	88	13	1005
8:00 AM	0	145	113	15	251	29	41	65	2	111	55	4	831
8:15 AM	7	163	68	17	248	29	30	59	2	140	59	12	834
8:30 AM	0	123	62	14	280	48	20	44	2	119	70	12	794
8:45 AM	0	162	64	14	210	46	39	52	5	133	69	17	811

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	8	1010	596	109	2009	322	239	409	21	964	519	74	6280
P.H.V: [1]	7	590	375	63	1115	153	142	253	8	517	272	34	3529
P.H.F: [2]		0.920			0.862			0.854			0.868		0.878

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#006 Hyperion Avenue & Rowena Avenue - PM PEAK

LOCATION#:	**006**	**QTD PROJ#:**	**2014124**
NORTH / SOUTH:	**Hyperion Avenue**	**DATE:**	**Wednesday, February 12, 2014**
EAST / WEST:	**Rowena Avenue**	**VICINITY:**	**Los Angeles, CA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	1	1	2	0	1	1	0	2	1	1	
4:00 PM	4	170	116	13	143	36	53	70	2	99	48	6	760
4:15 PM	3	171	120	6	158	32	32	55	2	101	45	16	741
4:30 PM	3	178	168	6	176	36	34	64	5	108	58	14	850
4:45 PM	1	199	134	10	152	53	38	58	1	111	70	23	850
5:00 PM	1	202	127	13	162	43	26	51	10	103	86	19	843
5:15 PM	1	220	142	12	167	46	38	56	1	101	68	10	862
5:30 PM	0	206	118	11	158	45	21	62	3	117	78	24	843
5:45 PM	1	207	96	17	161	47	23	57	1	131	91	15	847

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	14	1553	1021	88	1277	338	265	473	25	871	544	127	6596
P.H.V: [1]	6	799	571	41	657	178	136	229	17	423	282	66	3405
P.H.F: [2]		0.948			0.973			0.927			0.927		0.988

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

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ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

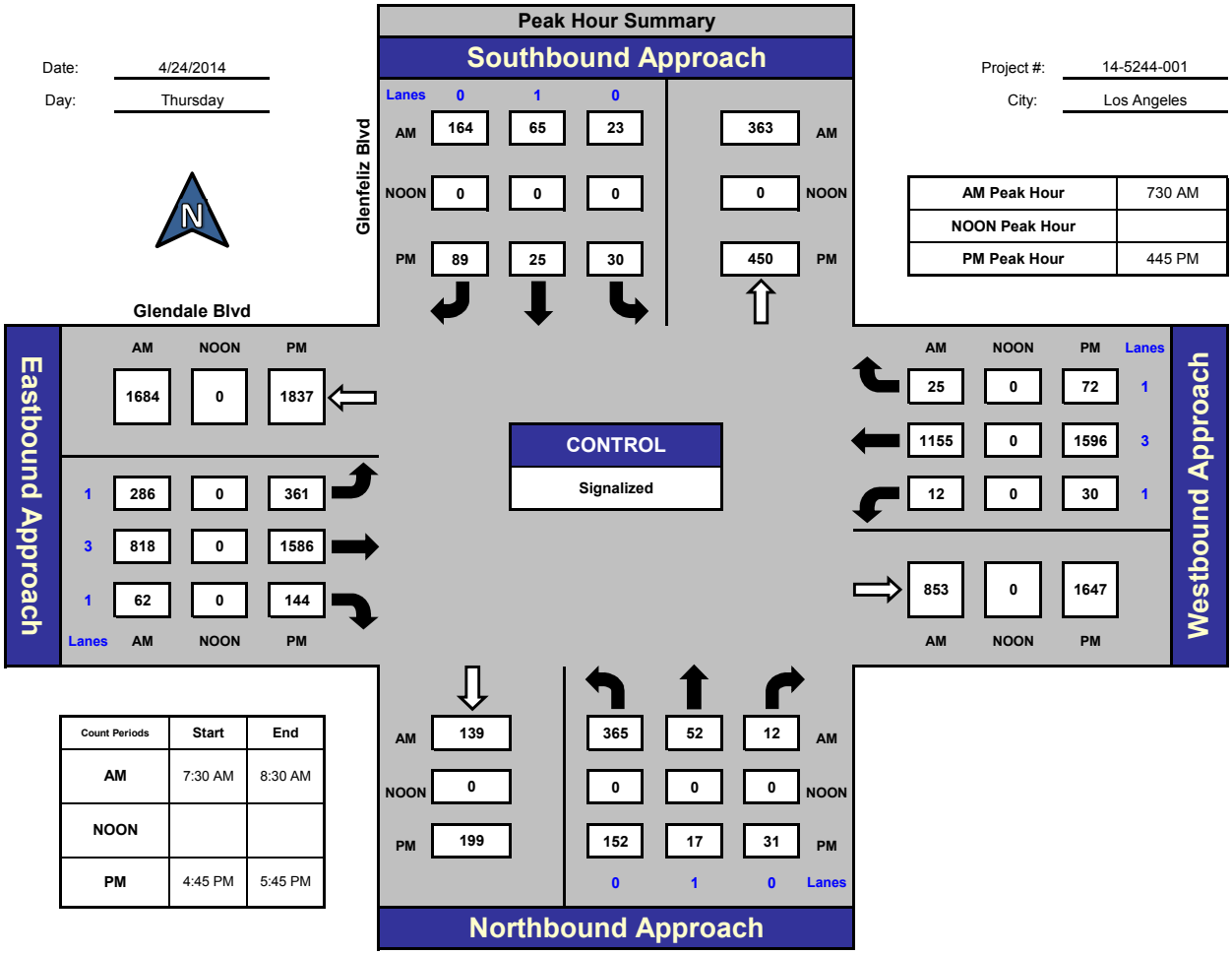
Glenfeliz Blvd and Glendale Blvd , Los Angeles

Date: 4/24/2014

Day: Thursday

Project #: 14-5244-001

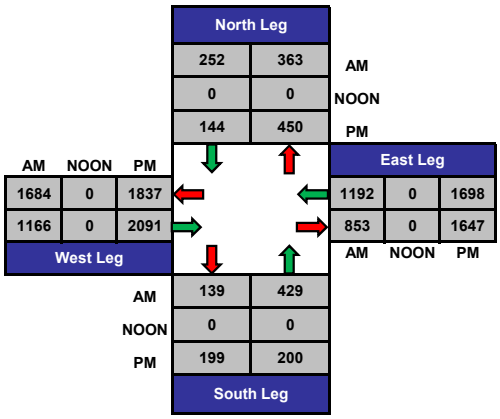
City: Los Angeles



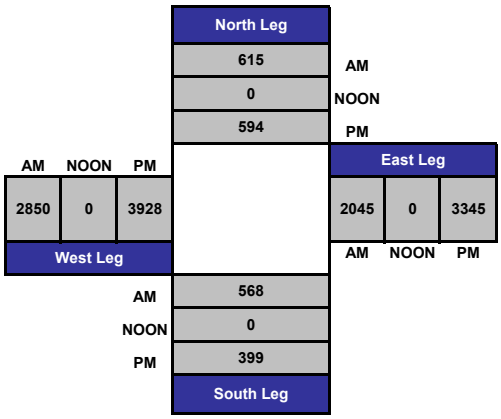
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Count Periods	Start	End
AM	7:30 AM	8:30 AM
NOON		
PM	4:45 PM	5:45 PM

Total Ins & Outs



Total Volume Per Leg



APPENDIX B

PEDESTRIANS AND BICYCLES RAW COUNT DATA

12-Hour Peds and Bikes Count Locations



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-001
N/S Street: Hyperion Ave Bridge
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	2	1
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	1	1	0
9:45 AM	0	0	0	0	1	0	0	0
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	0	1	1
TOTALS	**0**	**0**	**0**	**0**	**2**	**2**	**6**	**9**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	2	0	0	0
9:00 AM	0	0	0	0	2	0	0	0
9:15 AM	0	0	0	0	1	0	0	2
9:30 AM	0	0	0	0	2	0	0	1
9:45 AM	0	0	0	0	1	0	0	1
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	1	0
10:45 AM	0	0	0	0	1	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**11**	**0**	**1**	**15**

N O O N

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	1	0	1	0
11:30 AM	0	0	0	0	0	0	1	1
11:45 AM	0	0	0	0	0	1	0	0
12:00 PM	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	1	0
12:45 PM	0	0	0	0	0	0	1	0
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	1	0
1:30 PM	0	0	0	0	0	0	0	3
1:45 PM	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	1
2:15 PM	0	0	0	0	0	0	5	2
2:30 PM	0	0	0	0	1	0	2	1
2:45 PM	0	0	0	0	0	0	1	2
TOTALS	**0**	**0**	**0**	**0**	**2**	**1**	**13**	**12**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	4
11:15 AM	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	1	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	1	0	0	1
1:30 PM	0	0	0	0	0	0	1	1
1:45 PM	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	2	0	0	0
2:30 PM	0	0	0	0	0	0	0	2
2:45 PM	0	0	0	0	0	0	0	3
TOTALS	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**14**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	3	0	3	2
3:30 PM	0	0	0	0	5	0	5	1
3:45 PM	0	0	0	0	1	0	4	0
4:00 PM	0	0	0	0	0	0	2	1
4:15 PM	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	4	0
4:45 PM	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	1	1	0
5:15 PM	0	0	0	0	0	0	4	1
5:30 PM	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	1
6:15 PM	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	1	0	1	0
6:45 PM	0	0	0	0	0	0	5	1
TOTALS	**0**	**0**	**0**	**0**	**10**	**3**	**32**	**10**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	2
3:15 PM	0	0	0	0	0	0	1	0
3:30 PM	0	0	0	0	1	0	0	0
3:45 PM	0	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	2	0	0	1
4:30 PM	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	3	0	0	0
5:00 PM	0	0	0	0	2	0	0	1
5:15 PM	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	2	0	0	1
5:45 PM	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	1	0	0	0
6:15 PM	0	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	2	2
6:45 PM	0	0	0	0	0	0	0	2
TOTALS	**0**	**0**	**0**	**0**	**12**	**1**	**4**	**14**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-002
N/S Street: Glendale Bl
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	0	1	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	1	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	2	0	0	1
9:45 AM	0	0	0	0	1	0	0	1
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	1	0	1	0
10:30 AM	0	0	0	0	0	0	1	2
10:45 AM	0	0	0	0	0	0	1	0
TOTALS	**0**	**0**	**0**	**0**	**6**	**2**	**4**	**5**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	1	0	0	0
7:15 AM	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	1	0	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	1	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	1	0	0	0
10:15 AM	0	0	0	0	1	0	0	0
10:30 AM	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**5**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	1	0
1:00 PM	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	1	1	0
2:00 PM	0	0	0	0	1	0	0	1
2:15 PM	0	0	0	0	0	1	0	0
2:30 PM	0	0	0	0	1	0	1	0
2:45 PM	0	0	0	0	1	1	0	1
TOTALS	**0**	**0**	**0**	**0**	**4**	**4**	**3**	**3**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	1	0	0	0
1:00 PM	0	0	0	0	0	0	1	0
1:15 PM	0	0	0	0	1	0	0	1
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	1	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	1	0	0	1
2:45 PM	0	0	0	0	1	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**6**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	2
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	1	0	1
5:00 PM	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	1	0	0
5:30 PM	0	0	0	0	2	2	1	0
5:45 PM	0	0	0	0	1	0	1	0
6:00 PM	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	1	1	0	0
6:30 PM	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	3	1	0
TOTALS	**0**	**0**	**0**	**0**	**6**	**10**	**3**	**5**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	2	0	1	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	2	0	0	1
5:45 PM	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	2
6:30 PM	0	0	0	0	2	0	0	1
6:45 PM	0	0	0	0	1	0	0	1
TOTALS	**0**	**0**	**0**	**0**	**8**	**0**	**1**	**18**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-003
N/S Street: Glendale Blvd
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	1	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0
8:15 AM	1	5	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	1	0	1	0	0	0	0	0
9:15 AM	1	1	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	1	1	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0
10:30 AM	0	2	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0
TOTALS	**3**	**10**	**4**	**1**	**0**	**0**	**0**	**0**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	1	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0
7:30 AM	1	1	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0
8:30 AM	0	1	2	0	0	0	0	0
8:45 AM	0	1	1	0	0	0	0	0
9:00 AM	1	1	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	1	0	0	0	0	0
9:45 AM	1	0	0	1	0	0	0	0
10:00 AM	0	1	1	0	0	0	0	0
10:15 AM	1	1	2	0	0	0	0	0
10:30 AM	1	1	0	0	0	0	0	0
10:45 AM	0	0	2	0	0	0	0	0
TOTALS	**5**	**12**	**9**	**1**	**0**	**0**	**0**	**0**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	1	2	0	0	0	0	0	0
11:15 AM	0	0	2	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0
11:45 AM	0	1	1	0	0	0	0	0
12:00 PM	0	0	1	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	0	0
12:30 PM	1	0	0	0	0	0	0	0
12:45 PM	2	0	0	0	0	0	0	0
1:00 PM	3	1	0	1	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	1	0	0	0	0
2:00 PM	0	1	0	0	0	0	0	0
2:15 PM	0	1	2	1	0	0	0	0
2:30 PM	1	0	1	0	0	0	0	0
2:45 PM	0	2	1	1	0	0	0	0
TOTALS	**8**	**9**	**9**	**4**	**0**	**0**	**0**	**0**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	1	3	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	1	1	0	0	0	0	0
12:30 PM	0	1	0	0	0	0	0	0
12:45 PM	0	1	1	0	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0
1:15 PM	2	2	1	0	0	0	0	0
1:30 PM	1	0	0	0	0	0	0	0
1:45 PM	0	1	0	0	0	0	0	0
2:00 PM	0	2	0	0	0	0	0	0
2:15 PM	0	0	0	1	0	0	0	0
2:30 PM	1	2	0	0	0	0	0	0
2:45 PM	1	0	0	0	0	0	0	0
TOTALS	**6**	**17**	**3**	**1**	**0**	**0**	**0**	**0**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	1	0	0	0	0	0	0
3:15 PM	0	0	1	1	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0
4:30 PM	2	2	0	0	0	0	0	0
4:45 PM	0	0	0	2	0	0	0	0
5:00 PM	5	3	2	0	0	0	0	0
5:15 PM	1	4	2	1	0	0	0	0
5:30 PM	1	1	1	1	0	0	0	0
5:45 PM	3	0	1	1	0	0	0	0
6:00 PM	0	2	0	0	0	0	0	0
6:15 PM	0	4	1	1	0	0	0	0
6:30 PM	2	3	0	0	0	0	0	0
6:45 PM	0	1	0	1	0	0	0	0
TOTALS	**14**	**23**	**8**	**8**	**0**	**0**	**0**	**0**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	1	2	0	0	0	0	0
3:15 PM	0	1	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	1	0	1	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	0	0
4:15 PM	0	3	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	1	1	0	0	0	0	0
5:15 PM	0	2	1	1	0	0	0	0
5:30 PM	0	1	1	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0
6:00 PM	1	1	6	0	0	0	0	0
6:15 PM	1	5	0	4	0	0	0	0
6:30 PM	1	0	0	0	0	0	0	0
6:45 PM	0	3	1	0	0	0	0	0
TOTALS	**4**	**20**	**13**	**5**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-004
N/S Street: Hyperion Bridge
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	1	2
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	3	1
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	1	1	0
9:45 AM	0	0	0	0	1	0	0	0
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	1	1
TOTALS	**0**	**0**	**0**	**0**	**2**	**2**	**7**	**9**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	2	0	0	0
9:00 AM	0	0	0	0	2	0	0	1
9:15 AM	0	0	0	0	1	0	0	1
9:30 AM	0	0	0	0	2	0	0	1
9:45 AM	0	0	0	0	1	0	0	1
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	1	0	1	0
10:45 AM	0	0	0	0	1	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**13**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	1	0	1	0
11:30 AM	0	0	0	0	0	1	1	1
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	1	0
1:30 PM	0	0	0	0	0	0	0	3
1:45 PM	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	1
2:15 PM	0	0	0	0	0	0	5	2
2:30 PM	0	0	0	0	1	1	2	1
2:45 PM	0	0	0	0	0	0	1	1
TOTALS	**0**	**0**	**0**	**0**	**2**	**2**	**11**	**10**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	3
11:15 AM	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	1	0	0	1
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	1	0	0	0
12:45 PM	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	1	0	0	1
1:30 PM	0	0	0	0	0	0	2	1
1:45 PM	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	4	0	0	0
2:30 PM	0	0	0	0	0	0	0	2
2:45 PM	0	0	0	0	0	0	0	2
TOTALS	**0**	**0**	**0**	**0**	**7**	**0**	**2**	**12**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	8	0	6	1
3:45 PM	0	0	0	0	1	0	3	0
4:00 PM	0	0	0	0	0	1	2	1
4:15 PM	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	1	0	1	0
4:45 PM	0	0	0	0	0	1	3	1
5:00 PM	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	1	0	3	0
5:30 PM	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	1	0	1
6:30 PM	0	0	0	0	1	0	0	0
6:45 PM	0	0	0	0	0	0	5	0
TOTALS	**0**	**0**	**0**	**0**	**12**	**4**	**26**	**11**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	1	0	1	0
3:30 PM	0	0	0	0	1	0	0	0
3:45 PM	0	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	2	0	0	0
4:30 PM	0	0	0	0	1	0	0	0
4:45 PM	0	0	0	0	3	0	0	0
5:00 PM	0	0	0	0	3	0	0	1
5:15 PM	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	2	0	0	0
5:45 PM	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	2	0	0	0
6:15 PM	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	2
6:45 PM	0	0	0	0	0	0	0	2
TOTALS	**0**	**0**	**0**	**0**	**16**	**0**	**1**	**10**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-005n
N/S Street: Glendale Bl
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	1	2
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	1	3
8:15 AM	0	0	0	0	0	0	2	7
8:30 AM	0	0	0	0	0	0	3	4
8:45 AM	0	0	0	0	0	0	0	3
9:00 AM	0	0	0	0	0	0	3	1
9:15 AM	0	0	0	0	0	0	2	1
9:30 AM	0	0	0	0	0	0	2	0
9:45 AM	0	0	0	0	0	0	0	3
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	3
10:30 AM	0	0	0	0	0	0	1	3
10:45 AM	0	0	0	0	0	0	2	3
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**35**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	1	4
8:00 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	2
9:15 AM	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	1
9:45 AM	0	0	0	0	0	0	1	1
10:00 AM	0	0	0	0	0	0	0	3
10:15 AM	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	2	0
10:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**22**

N O O N

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	2	3
11:15 AM	0	0	0	0	0	0	1	0
11:30 AM	0	0	0	0	0	0	2	4
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	3	1
1:00 PM	0	0	0	0	0	0	0	2
1:15 PM	0	0	0	0	0	0	4	0
1:30 PM	0	0	0	0	0	0	5	5
1:45 PM	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	2
2:15 PM	0	0	0	0	0	0	7	9
2:30 PM	0	0	0	0	0	0	3	3
2:45 PM	0	0	0	0	0	0	5	2
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**32**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	6
11:15 AM	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	2
12:30 PM	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	2
1:00 PM	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	2	3
1:30 PM	0	0	0	0	0	0	1	1
1:45 PM	0	0	0	0	0	0	1	1
2:00 PM	0	0	0	0	0	0	0	2
2:15 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	4
2:45 PM	0	0	0	0	0	0	0	2
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**30**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	3	6
3:15 PM	0	0	0	0	0	0	2	1
3:30 PM	0	0	0	0	0	0	6	0
3:45 PM	0	0	0	0	0	0	4	2
4:00 PM	0	0	0	0	0	0	3	1
4:15 PM	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	0	5	4
4:45 PM	0	0	0	0	0	0	6	9
5:00 PM	0	0	0	0	0	0	6	2
5:15 PM	0	0	0	0	0	0	3	3
5:30 PM	0	0	0	0	0	0	2	5
5:45 PM	0	0	0	0	0	0	3	2
6:00 PM	0	0	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	4
6:30 PM	0	0	0	0	0	0	0	4
6:45 PM	0	0	0	0	0	0	6	4
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**49**	**53**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	1	2
3:15 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	1	0
4:00 PM	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	2
6:00 PM	0	0	0	0	0	0	1	1
6:15 PM	0	0	0	0	0	0	1	8
6:30 PM	0	0	0	0	0	0	1	2
6:45 PM	0	0	0	0	0	0	0	5
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**34**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-5172-005s
N/S Street: Glendale Bl
E/W Street: -
DATE: 3/25/2014 DAY: Tuesday
CITY: Glendale

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	0	1	0	0	0
7:45 AM	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	1	0	0	0
10:00 AM	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**0**	**0**	**4**	**2**	**0**	**0**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	0	0
8:45 AM	0	0	0	0	2	0	0	0
9:00 AM	0	0	0	0	1	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	0	0	0	0	2	0	0	0
9:45 AM	0	0	0	0	1	1	0	0
10:00 AM	0	0	0	0	1	0	0	0
10:15 AM	0	0	0	0	2	0	0	0
10:30 AM	0	0	0	0	1	0	0	0
10:45 AM	0	0	0	0	1	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**14**	**1**	**0**	**0**

N O O N

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	3	0	0	0
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	1	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	1	0	0
2:00 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	2	0	0	0
2:30 PM	0	0	0	0	1	2	0	0
2:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**8**	**4**	**0**	**0**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	2	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	1	0	0	0
1:15 PM	0	0	0	0	2	0	0	0
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	1	0	0
2:15 PM	0	0	0	0	0	1	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**6**	**2**	**0**	**0**

P M

PEDESTRIANS

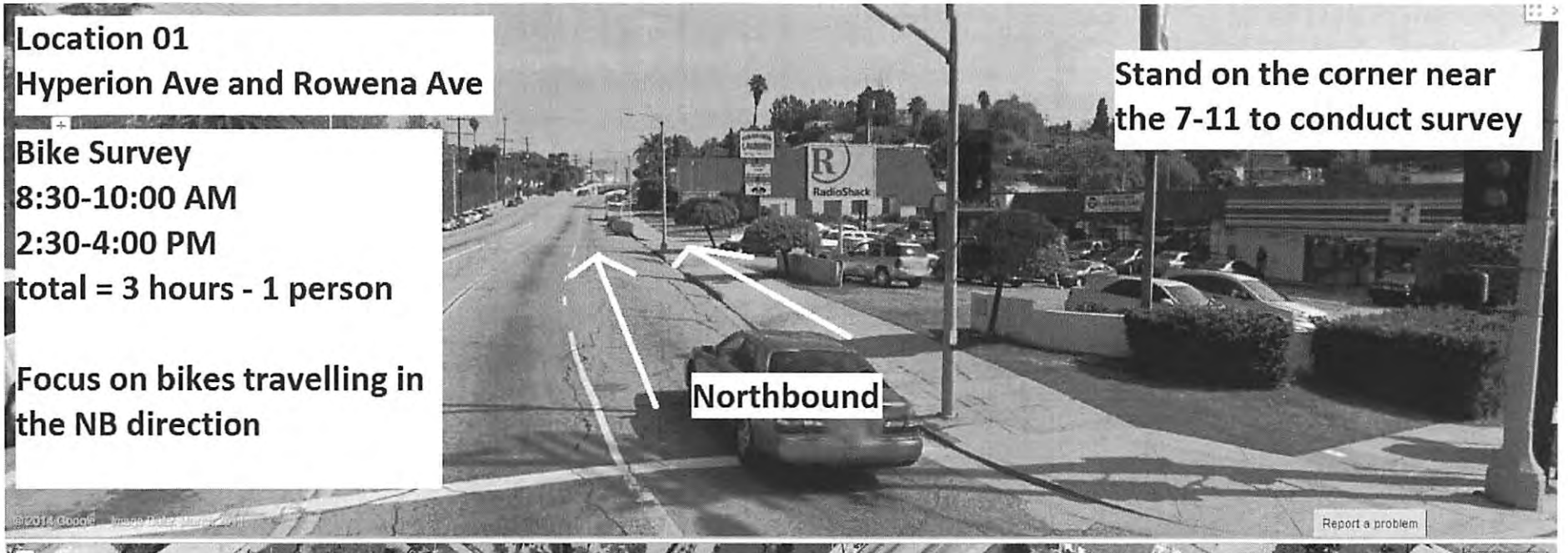
TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	1	1	0	0
3:30 PM	0	0	0	0	2	1	0	0
3:45 PM	0	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0
4:30 PM	0	0	0	0	1	0	0	0
4:45 PM	0	0	0	0	1	1	0	0
5:00 PM	0	0	0	0	1	0	0	0
5:15 PM	0	0	0	0	2	0	0	0
5:30 PM	0	0	0	0	1	0	0	0
5:45 PM	0	1	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	1	0	0	0	0
6:30 PM	0	2	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	2	0	0
TOTALS	**0**	**3**	**0**	**1**	**10**	**7**	**0**	**0**

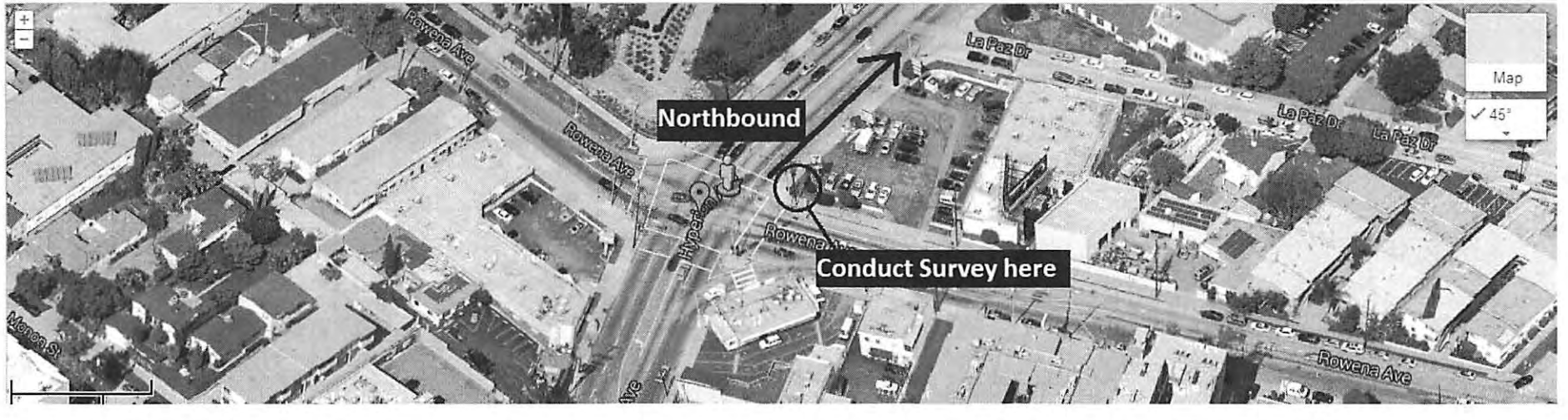
BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	2	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	1	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	3	0	0	0
5:00 PM	0	0	0	0	5	0	0	0
5:15 PM	0	0	0	0	1	1	0	0
5:30 PM	0	0	0	0	2	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	8	0	0	0
6:15 PM	0	0	0	0	1	4	0	0
6:30 PM	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**24**	**6**	**0**	**0**

APPENDIX C

RAW INTERCEPT SURVEY DATA SHEETS


Location 01
Hyperion Ave and Rowena Ave
Bike Survey
8:30-10:00 AM
2:30-4:00 PM
total = 3 hours - 1 person
Focus on bikes travelling in the NB direction
Stand on the corner near the 7-11 to conduct survey
Northbound
RadioShack
Report a problem


Northbound
Conduct Survey here
Rowena Ave
La Paz Dr
Map

Loc. 001
AM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Silver Lake/Los Feliz
(Landmark or Cross-Streets)

Destination: Eagle Rock
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?
30

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Loc. 001

NB PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: ~~Home~~ Los Ang. City College
(Landmark or Cross-Streets)

Destination: Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?
60

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Loc. 001

NB PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Verdugo & Colorado
(Landmark or Cross-Streets)

Destination: Highland & Willoughby
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?

60

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Lx 301

NB PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Riverside Dr
(Landmark or Cross-Streets)

Destination: San Fernando Blvd
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?
30

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Lx 001

NB PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Hollywood
(Landmark or Cross-Streets)

Destination: Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?

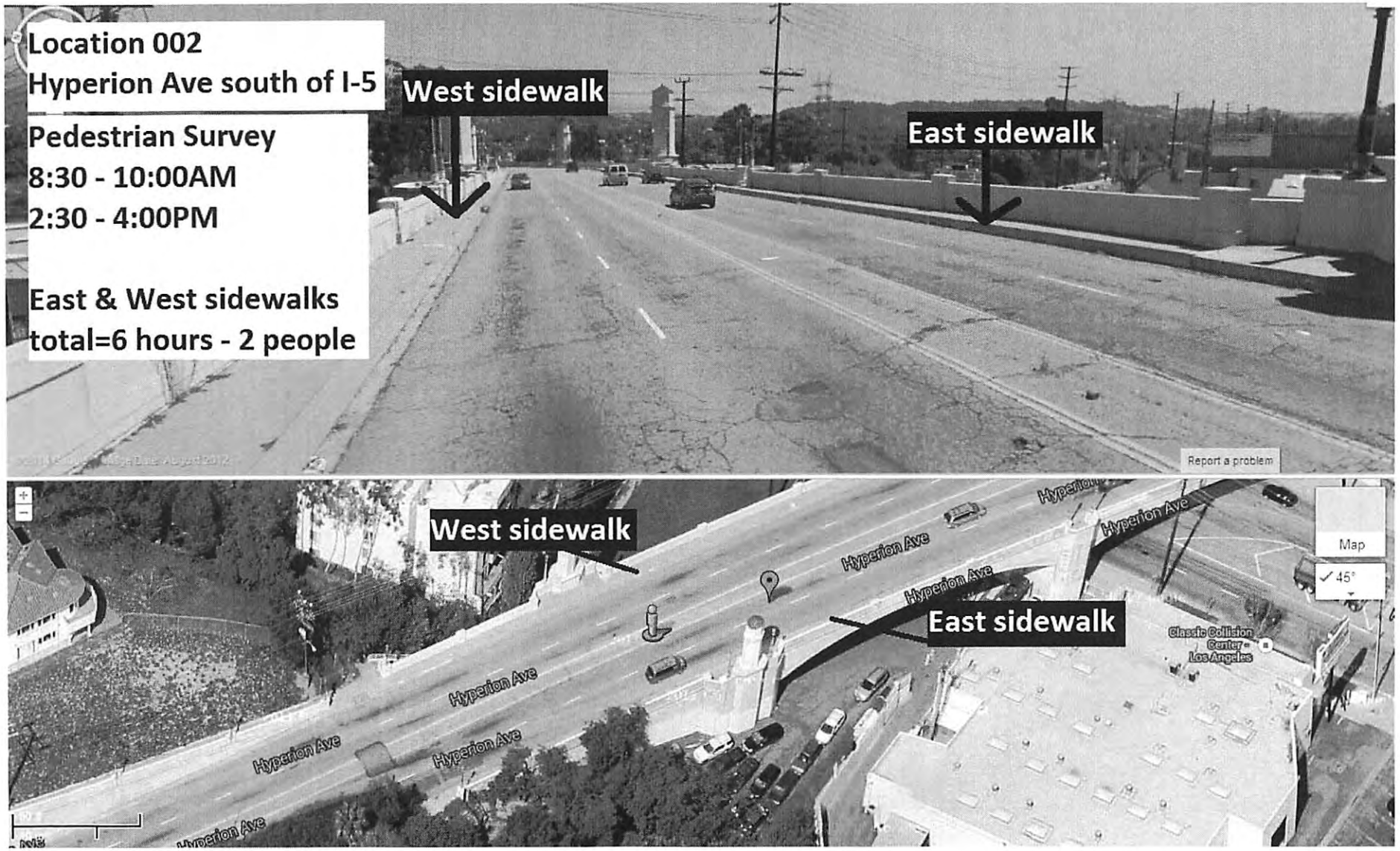
60

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☑ **Intermediate** ☐ **Advanced**

Closing statement :
Thank you for your time

PSOMAS


Location 002
Hyperion Ave south of I-5
Pedestrian Survey
8:30 - 10:00AM
2:30 - 4:00PM
East & West sidewalks
total=6 hours - 2 people
West sidewalk
East sidewalk
Report a problem
West sidewalk
East sidewalk
Hyperion Ave
Map
45°
Classic Collision Center - Los Angeles

Location 02

No AM Peds

EAST

PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshal middle school
(Landmark or Cross-Streets)

Destination: Perlita st
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
22 times

Closing statement :
Thank you for your time

PSOMAS

EAST

PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John marshal Middle school
(Landmark or Cross-Streets)

Destination: Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
5 times

Closing statement :
Thank you for your time

PSOMAS

EAST

PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☐ **Recreation** ☑ **Other** COMMUTE

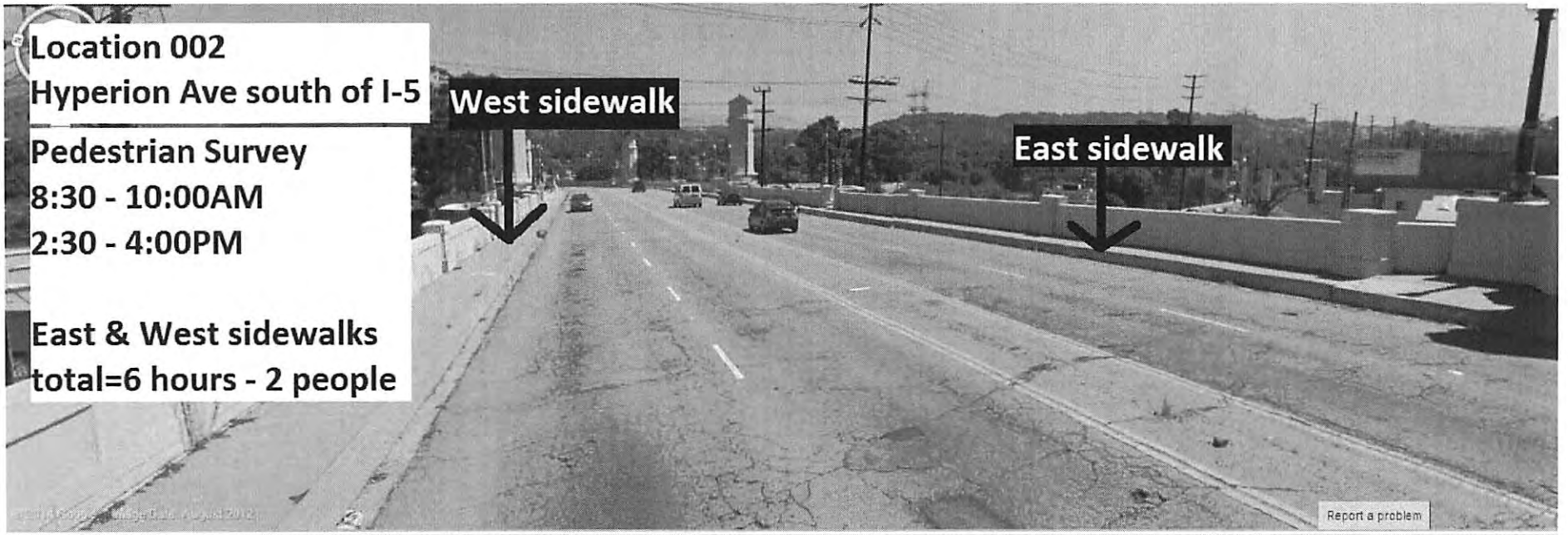
Q2: Trip Origin: 7 eleven
(Landmark or Cross-Streets)

Destination: LA river
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
8 times

Closing statement :
Thank you for your time

PSOMAS


Location 002
Hyperion Ave south of I-5
Pedestrian Survey
8:30 - 10:00AM
2:30 - 4:00PM
East & West sidewalks
total=6 hours - 2 people
West sidewalk
East sidewalk
Report a problem


West sidewalk
East sidewalk
Hyperion Ave
Hyperion Ave
Hyperion Ave
Hyperion Ave
Hyperion Ave
Hyperion Ave
Classic Collision Center - Los Angeles
Map
45°

Loc 002



West 8:30AM - 10:00 AM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: S Water Village & Silver Lake blvd
(Landmark or Cross-Streets)

Destination: S Water Village & Silver Lake Blvd
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

(oc 002

West 8:30AM - 10:00AM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☐ **Recreation** ☑ **Other** Home

Q2: Trip Origin: Gym
(Landmark or Cross-Streets)

Destination: Korean Town
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 8:30AM – 10:00AM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Glendale Blvd & Edenhurst
(Landmark or Cross-Streets)

Destination: Hyperion & Tracy
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
24

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 8:30 AM - 10:00 AM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Casitas
(Landmark or Cross-Streets)

Destination: Gym
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
60

Closing statement :
Thank you for your time

PSOMAS

Loc. 002

West : 2:30 PM - 4:00 PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall ~~St. George~~ High School
(Landmark or Cross-Streets)

Destination: Revere & Glendale Blvd
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?

~~15~~ 24

Closing statement :
Thank you for your time

PSOMAS

(x.002

West 2:30-4:00PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Sunset & Virgil
(Landmark or Cross-Streets)

Destination: Hyperion & Valleybrink Rd
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?

1

Closing statement :
Thank you for your time

PSOMAS

Loc. 002



West : 2:30PM - 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Metro Fitness
(Landmark or Cross-Streets)

Destination: Waverly Dr & Herkimer st
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
26

Closing statement :
Thank you for your time

PSOMAS

Loc 002

West 2:30PM - 4:00PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / (Female)
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☐ **Recreation** ☑ **Other** Vet

Q2: Trip Origin: Hyperion Rowena
(Landmark or Cross-Streets)

Destination: Glendale & Garden
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002

West 2:30PM - 4:00PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Rowena & Hyperion
(Landmark or Cross-Streets)

Destination: Hyperion & Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
30

Closing statement :
Thank you for your time

PSOMAS

Loc 002

West 2:30PM - 4:00PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☐ **Recreation** ☑ **Other** Business

Q2: Trip Origin: Silverlake & Hyperion
(Landmark or Cross-Streets)

Destination: Hyperion & Romena
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 2:30PM - 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall
(Landmark or Cross-Streets)

Destination: Valleybrink & ~~Elsinore~~ Glenmora
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?

22

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 2:30PM - 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall
(Landmark or Cross-Streets)

Destination: Glenmmor & Valley Green
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?

22

Closing statement :
Thank you for your time

PSOMAS

Loc 002

West 230-4



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall High School
(Landmark or Cross-Streets)

Destination: Valley Brink & Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?

40

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 2:30PM - 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall High
(Landmark or Cross-Streets)

Destination: Valley Brink & Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 2:30PM – 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: (Male) / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: John Marshall high
(Landmark or Cross-Streets)

Destination: Valley Drink & Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002



West 2:30PM – 4:00PM

PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male (Female)
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☑ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Griffith Park Rovers
(Landmark or Cross-Streets)

Destination: ~~Glenhurst La Madera~~ Garden & Glendale
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS

Loc 002

West 2:30PM - 4:00PM



PEDESTRIAN SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / (Female)
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a pedestrian activity survey on the Hyperion bridge, and would like to ask you 3 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☐ **Work** ☐ **School** ☑ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Madera & Silverlake
(Landmark or Cross-Streets)

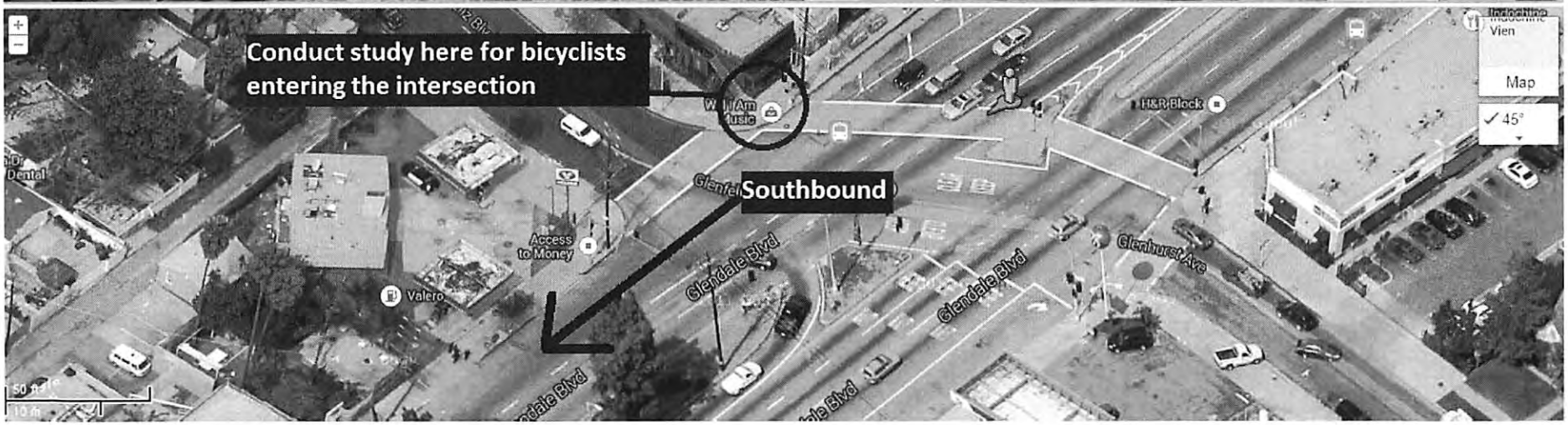
Destination: Franklin & Los Feliz
(Landmark or Cross-Streets)

Q3: How many times a month do you walk across the Hyperion Bridge?
40

Closing statement :
Thank you for your time

PSOMAS


3113 Glendale Boulevard, Los Angeles, California, United States
Address is approximate
Location 003
Hyperion Ave and Glenfeliz Blvd
Bike Survey
8:30 - 10:00 AM
2:30 - 4:00 PM
total 3 hours = 1 person
Focus on bikes travelling in the SB Direction
Stand on this corner to conduct surveys.
Southbound
© 2014 Google
Image Date: July 2012
Report a problem


Conduct study here for bicyclists entering the intersection
Southbound
Glendale Blvd
Glendale Blvd
Glendale Blvd
Glenhurst Ave
Access to Money
Valero
H&R Block
Map

Loc_003

+M



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: elisabeli Elisabeli
(Landmark or Cross-Streets)

Destination: Los Feliz
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?

10

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Loc. 003

AM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Highland Park
(Landmark or Cross-Streets)

Destination: Hollywood
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?

16

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Ex. 003

1

AM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: 1616 N. Mission
(Landmark or Cross-Streets)

Destination: Patrol
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?

30 +

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Loc 003
PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

SB

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** (Returning from) ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Rowena ave, / *(Landmark or Cross-Streets)*

Destination: Maple st, Glendale / *(Landmark or Cross-Streets)*

Q3: How many times a month do you bike across the Hyperion Bridge?

4

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

Loc 003
PM



BICYCLE SURVEY
Glendale-Hyperion Complex of Bridges

SB

Gender: Male / Female
(circle one)

Intro statement :
May I interrrupt you for a moment? We are doing a bicycle usage survey on the Hyperion bridge, and would like to ask you 4 short questions. Everything should take less than 2 minutes.

Q1: What is the purpose of your trip?

☑ **Work** ☐ **School** ☐ **Recreation** ☐ **Other** _____

Q2: Trip Origin: Hollywood
(Landmark or Cross-Streets)

Destination: Colorado st
(Landmark or Cross-Streets)

Q3: How many times a month do you bike across the Hyperion Bridge?
10+

Q4: Please rate your level of cycling experience.

☐ **Beginner** ☐ **Intermediate** ☑ **Advanced**

Closing statement :
Thank you for your time

PSOMAS

APPENDIX D

PERMITTED PLANNED DEVELOPMENTS LISTS

Apartment and Commercial Developments

PERMIT	PRIMARY_ADDR	ZIP_CODE	PER_TYPE	PER_SUB_TYPE	PC_SUBMT_DATE	ISSUE_DATE	STATUS_DATE	STATUS_DESC	WORK_DESCRIPTION	AREA (SQ FT)	# of UNITS	EXISTING LOT CONDITIONS
07010 300	4454 W AVOCADO ST	90027	Bldg-New	Apartment	2/11/2010		3/16/2010	Reviewed by Supervisor	SUPPLEMENTAL TO 07010 30000 04970, RE-CHECK ZONING FOR NEW 2 STORY 4 UNIT APARTMENT OVER ONE LEVEL PARKING.	0.00	4	BUILDING
10010 100	2580 N GLENDALE BLVD	90039	Bldg-New	Commercial	5/13/2010	9/22/2010	11/19/2010	CofO Issued	PROPOSED ONE STORY 14' X 120' STEEL STRUCTURE AND COVER FOR VACUUM SYSTEM (#1) FOR EXISTING CAR WASH, PER CASE ZA 2006-10209-ZV-CU.	1,680.00		BUILDING/SHOPPING PLAZA
10010 100	2580 N GLENDALE BLVD	90039	Bldg-New	Commercial	5/13/2010	9/22/2010	11/9/2010	Permit Finaled	PROPOSED ONE-STORY 14' X 120' STEEL STRUCTURE AND COVER FOR VACUUM SYSTEM (#2) FOR EXSITING CAR WASH PER CASE ZA 2006-10209-ZA-CU.	1,680.00		BUILDING/SHOPPING PLAZA
10010 200	4454 W AVOCADO ST 1-4	90027	Bldg-New	Apartment	12/20/2010	6/14/2012	6/14/2012	Issued	(N) 42' X 86'8" 3 STORY TYPE VB FULLY SPRINKLERED 4 UNIT APARTMENT OVER GARAGE.		4	BUILDING
11010 100	2006-2008 1/2 N COMMONWEALTH AVE	90027	Bldg-New	Apartment	4/8/2011		4/8/2011	PC Approved	CONSTRUCTION OF DETACHED CARPORTS FOR 4 CARS	648.00		BUILDING
11010 100	2915 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	9/29/2011	3/7/2012	10/23/2012	CofO Issued	PROPOSED 4,481 SQ FT CHASE BANK WITH TWO LANE DRIVE UP ATM. TRUSSES ON A SEPARATE PERMIT (DEFFERED)	4,481.00		BUILDING/SHOPPING PLAZA
12010 100	4500 W LOS FELIZ BLVD	90027	Bldg-New	Commercial	1/11/2012		3/21/2012	PC Approved	****PLAN CHECK B12LA00300 APPROVAL IS ONLY FOR 12016-10000-00639, NOT FOR THIS APPLICATION****NEW WOOD DECK USE OF LAND FOR OUTDOOR EATING 37' X 31' IRREGULAR	1,147.00		BUILDING
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED 120'X88' DOME SHAPED TENT (FABRIC STRUCTURE) TO BE OCCUPIED AS CHURCH W/ STAGE - IDENTIFIED AS BUILDING 'E' ON PLAN. TV = $ (1 OF 7) PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	10,560.00		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED??? COMMERCIAL COACH (35'4"X60') USED AS OFFICES FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'B' ON PLAN. TV = $ (2 OF 7) PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	2,119.80		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED??? COMMERCIAL COACH USED AS ACTIVITY??? ROOM (60'X96') FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'A' ON THE PLAN. TV = $ (3 OF 7) PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	5,760.00		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED??? COMMERCIAL COACH (24'X60') USED AS OFFICES & STORAGE RM FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'D1' ON PLAN. TV = $ (4 OF 7) PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	1,140.00		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED???? COMMERCIAL COACH (21'3"X36') USED AS RESTROOM & STORAGE BLDG FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'F' ON PLAN. TV = $ (5 OF 7). PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	765.00		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED??? COMMERCIAL COACH (12'X62') USED AS RESTROOM & STORAGE BLDG FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'C' ON PLAN. TV = (6 OF 7). PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	744.00		VACANT LOT
12010 100	2861 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	2/9/2012		2/28/2012	Re-Submittal Required	PROPOSED NEW STATE APPROVED???? COMMERCIAL COACH (24'X60') USED AS CHILDCARE ??? FACILITY FOR PROPOSED CHURCH (12010-10000-00411) - IDENTIFIED AS BUILDING 'D2' ON PLAN. TV = $ (7 OF 7) PLANNING ACTION REQUIRED FOR THESE USES W/IN THE M1 ZONE.	1,440.00		VACANT LOT
12010 100	1800 N HYPERION AVE	90039	Bldg-New	Commercial	5/7/2012		3/18/2013	PC Approved	NEW CANOPY.	0.00		BUILDING
12010 100	2753 W WAVERLY DR BLDG.-#1	90039	Bldg-New	Apartment	10/26/2012		11/6/2012	Reviewed by Supervisor	PHASE I: (BUILDING #1 - 5 UNITS). CONSTRUCT NEW 3-STORY WITH ROOF DECK CONDOMINIUM. ATTACHED TWO CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		5	VACANT LOT
12010 100	2753 W WAVERLY DR BLDG.-#2	90039	Bldg-New	Apartment	10/26/2012		11/6/2012	Reviewed by Supervisor	PHASE I: (BUILDING #2 -4 UNITS). CONSTRUCT NEW 3-STORY WITH ROOF DECK CONDOMINIUM. ATTACHED TWO CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		4	VACANT LOT
12010 100	2753 W WAVERLY DR BLDG.-#3	90039	Bldg-New	Apartment	10/26/2012		11/6/2012	Reviewed by Supervisor	PHASE I: (BUILDING #3 - 4 UNITS). CONSTRUCT NEW 3-STORY WITH ROOF DECK CONDOMINIUM. ATTACHED TWO CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		4	VACANT LOT
12010 100	2753 W WAVERLY DR BLDG.-#4	90039	Bldg-New	Apartment	10/26/2012		11/6/2012	Reviewed by Supervisor	PHASE I: (BUILDING #4 - 6 UNITS). CONSTRUCT NEW 3-STORY WITH ROOF DECK CONDOMINIUM. ATTACHED TWO CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		6	VACANT LOT
12010 200	2131 N HILLHURST AVE	90027	Bldg-New	Commercial	1/23/2012	7/12/2012	1/24/2014	CofO in Progress	NEW 2-STORY + BASEMENT OFFICE AND TRADE SCHOOL WITH OPEN DECK OVER DRIVEWAY trade school floor area = 863 sqft office floor area = 4953 sqft covered driveway area = 1134 sqft and basement storage area = 1246 sqft (see comments)	8,196.00		VACANT LOT
13010 100	2753 W WAVERLY DR BLDG.-#5	90039	Bldg-New	Apartment	1/30/2013	12/18/2013	12/18/2013	Issued	PHASE I: (BUILDING #5 - 6 UNITS). CONSTRUCT NEW 3-STORY WITH ROOF DECK TOWNHOUSE WITH ATTACHED TWO CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		6	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 6	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 6- 6 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		6	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 7	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 7- 6 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		6	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 8	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 8- 6 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		6	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 9	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 9- 8 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		8	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 10	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 10- 4 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		4	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG. # 11	90039	Bldg-New	Apartment	3/28/2013		4/10/2013	Reviewed by Supervisor	PHASE II: (BLDG # 11- 8 UNITS) CONSTRUCT NEW 3-STORY W/ ROOF DECK CONDOMINIUM. ATTACHED 2-CAR GARAGE FOR EACH UNIT AT FIRST LEVEL.		8	VACANT LOT
13010 100	2753 W WAVERLY DR	90039	Bldg-New	Apartment	6/4/2013		6/20/2013	Reviewed by Supervisor	PROPOSE TO CONSTRUCT A POOL RESTROOM 1 STORY BLDG. TO SERVE THE COMMUNITY OF 11 APARTMENT BLDGS. SEPARATE PERMIT FOR SWIMMING POOL.	0.00		VACANT LOT
13010 100	2920-2930 W ROWENA AVE	90039	Bldg-New	Apartment	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY 6 UNITS TOWNHOUSE TYPE BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #1)		6	BUILDING

Apartment and Commercial Developments

13010 100	2920-2930 W ROWENA AVE	90039	Bldg-New	Apartment	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY 3 UNITS TOWNHOUSE TYPE BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #2)		3	BUILDING
13010 100	2920-2930 W ROWENA AVE	90039	Bldg-New	Apartment	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY 6 UNITS TOWNHOUSE TYPE BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #3)		6	BUILDING
13010 100	2920-2930 W ROWENA AVE	90039	Bldg-New	Apartment	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY 6 UNITS TOWNHOUSE BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #4)		6	BUILDING
13010 100	2920-2930 W ROWENA AVE	90039	Bldg-New	Apartment	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY 10 UNITS TOWNHOUSE TYPE BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #6)		10	BUILDING
13010 100	2960 N GLENMANOR PL	90039	Bldg-New	Commercial	12/20/2013		2/6/2014	Reviewed by Supervisor	NEW MOTION PICTURE THEATER , 1 STORY WITH MEZZANINE	0.00		HOUSE
13010 100	2239 N HYPERION AVE	90027	Bldg-New	Apartment	12/27/2013		1/29/2014	Reviewed by Supervisor	NEW 11 UNIT APARTMENT W/PARKING ON GRADE PER ZA 2008-2782 (ZV)(ZAA) 13640 SF		11	VACANT LOT
13010 100	2753 W WAVERLY DR BLDG.-#5	90039	Bldg-New	Apartment	11/19/2013		12/3/2013	Reviewed by Supervisor	SUPPLEMENTAL PERMIT FOR RECHECK DUE TO PLAN REVISIONS. MAIN PERMIT WILL BE USED FOR PERMIT ISSUANCE. THE PERMIT WILL ALSO SERVE AS AN EARLY START PERMIT FOR FOUNDATION ONLY FOR BUILDING #5. ** PERMIT ISSUED ON 13010-10001-00130 **	0.00		VACANT LOT
13016 100	2980 W LOS FELIZ BLVD	90039	Bldg-New	Commercial	12/31/2013		2/6/2014	Reviewed by Supervisor	PROPOSED NEW DETACHED TRELLIS (???' X ???') FOR COVERED OUTDOOR DINING FOR EXISTING RESTAURANT.	0.00		BUILDING
	Total	**37**								**40,360.80**	**113**	**# of Apartment**

Residential Dwelling

PERMIT	ADDRESS	ZIP	PER_TYPE	PER_SUB_TYPE	PC_SUBMT_DATE	ISSUE_DATE	STATUS_DATE	STATUS_DESC		AREA (SQ FT)	EXISTING LOT CONDITIONS
06010 10002 01333	1926 N LUCILE AVE	90039	Bldg-New	1 or 2 Family Dwelling	6/16/2010		7/16/2010	Reviewed by Supervisor	SUPPLEMENTAL PLAN CHECK TO RECHECK ZONING CODE REQUIREMENTS ONLY PER 2008 L.A. CITY ZONING CODE AND CAPTURE CLEARANCES AS REQUIRED FOR PLAN CHECK EXTENSION ON ORIGINAL PERMIT.	0.00	HOUSE
08010 10002 02920	3234-3274 W CASITAS AVE # 10-18	90039	Bldg-New	1 or 2 Family Dwelling	12/2/2010		12/23/2010	Verifications in Progress	SUPPLEMENTAL PERMIT TO #08010-10000-02920 TO RECHECK PER CURRENT ZONING CODE FOR 9 ASSOCIATED UNIT; PLAN CHECK ONLY	0.00	BUILDING
09010 10001 02378	2364 W LOMA VISTA PL	90039	Bldg-New	1 or 2 Family Dwelling	5/30/2012		11/26/2012	Verifications in Progress	SUPPLEMENTAL TO PERMIT #09010-10000-02378 TO RE-CHECK FOR PROPOSED 2-STORY SINGLE FAMILY - 2,300 FT (RE-CHECK FOR RETAINING WALL & GRADING ALSO) PLAN CHECK ONLY~	2,300.00	HOUSE
09010 20001 01256	1922 N LUCILE AVE	90039	Bldg-New	1 or 2 Family Dwelling	4/26/2010		5/7/2010	Reviewed by Supervisor	SUPPLEMENTAL TO PERMIT # 09010-10000-01256: STRUCTURAL CHANGES TO THE GARAGE FOUNDATION/SHORING SYSTEM. PLAN CHECK ONLY.	0.00	HOUSE
10010 10000 01093	3795 W VALLEYBRINK ROAD	90039	Bldg-New	1 or 2 Family Dwelling	6/8/2010	6/15/2010	1/7/2014	CofO Issued	NEW 2-CAR GARAGE PER ENGINEER'S DESIGN (18 X 18)	324.00	HOUSE
10010 10000 01736	2240 W FARGO ST	90039	Bldg-New	1 or 2 Family Dwelling	8/26/2010		12/3/2010	Verifications in Progress	CONSTRUCT (N) TWO STORY SINGLE FAMILY DWELLING WITH ATTACHED GARAGE PER SMALL LOT SUBDIVISION CASE # AA-2005-2496-PMLA (AND THE CLARIFICATION LETTER).	1,600.00	VACANT LOT
10010 10000 01737	2242 W FARGO ST	90039	Bldg-New	1 or 2 Family Dwelling	8/26/2010		10/20/2010	Reviewed by Supervisor	CONSTRUCT (N) TWO STORY SINGLE FAMILY DWELLING WITH ATTACHED CARPORT PER SMALL LOT SUBDIVISION CASE # AA-2005-2496-PMLA (AND THE CLARIFICATION LETTER).	1,600.00	HOUSE
10010 10000 01920	2328 W COVE AVE	90039	Bldg-New	1 or 2 Family Dwelling	10/6/2010		2/10/2011	Verifications in Progress	TWO-STORY, 22' X 36', TYPE V-B ACCESSORY LIVING QUARTERS.	792.00	HOUSE
10010 10000 02469	3264 W CASITAS AVE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	5/31/2011	1/8/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "2A", 43'4" X 27'4", TOTAL AREA IS 3234 SQFT);	3,234.00	BUILDING
10010 10000 02470	3264 W KAZAZ LANE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	7/8/2011	5/15/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "1B", 43'4" X 27'4", TOTAL AREA IS 3081 SQFT);	3,081.00	BUILDING
10010 10000 02473	3268 W CASITAS AVE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	5/31/2011	1/8/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "2B", 43'4" X 27'4", TOTAL AREA IS 3189 SQFT);	3,189.00	BUILDING
10010 10000 02474	3270 W CASITAS AVE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	5/31/2011	1/9/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "2A", 43'4" X 27'4", TOTAL AREA IS 3234 SQFT);	3,234.00	BUILDING
10010 10000 02475	3272 W CASITAS AVE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	5/31/2011	1/8/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "2B-ALT", 43'4" X 27'4", TOTAL AREA IS 3189 SQFT);	3,189.00	BUILDING
10010 10000 02476	3268 W KAZAZ LANE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	7/8/2011	5/15/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "1A", 43'4" X 27'4", TOTAL AREA IS 2998 SQFT);	2,998.00	BUILDING
10010 10000 02477	3270 W KAZAZ LANE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	7/8/2011	5/15/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "1B", 43'4" X 27'4", TOTAL AREA IS 3081 SQFT);	3,081.00	BUILDING
10010 10000 02478	3272 W KAZAZ LANE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	7/8/2011	5/15/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "1A", 43'4" X 27'4", TOTAL AREA IS 2998 SQFT);	2,998.00	BUILDING
10010 10000 02479	3274 W KAZAZ LANE	90039	Bldg-New	1 or 2 Family Dwelling	12/14/2010	7/8/2011	5/23/2013	CofO Issued	CONSTRUCT (N) 4-STORY SINGLE FAMILY DWELLING WITH OPEN ROOF DECK AND ATTACHED GARAGE (FLOOR PLAN TYPE "1B-ALT", 43'4" X 27'4", TOTAL AREA IS 3081 SQFT);	3,081.00	BUILDING
10010 20000 00673	3808 W GRIFFITH VIEW DR	90039	Bldg-New	1 or 2 Family Dwelling	4/14/2010	7/2/2010	12/3/2010	CofO Issued	NEW(30' x 62.5') IRREGULAR SHAPE 2 STORY SFD W/2-CAR ATT GARAGE	1,873.00	HOUSE
10010 20000 02183	3948 W REVERE AVE	90039	Bldg-New	1 or 2 Family Dwelling	10/29/2010	11/1/2010	12/14/2010	CofO Issued	(N) 16' x 23' ONE-CAR GARAGE. ALL WORK TO BE PER TYPE V SHEET.	368.00	HOUSE
10010 30000 02173	3402 N SANBORN AVE	90027	Bldg-New	1 or 2 Family Dwelling	10/28/2010	4/12/2011	4/4/2012	CofO Issued	IRR. SHAPE ACCESSORY BLDG CONTAINING B.B.Q AREA,COUNTER SPACE&SINK.	0.00	HOUSE
10014 10000 01867	3206 W GLENHURST AVE	90039	Bldg-New	1 or 2 Family Dwelling	5/24/2010	5/12/2011	3/23/2012	CofO Issued	DETACHED (N) 1-CAR GARAGE. (N) 1-CAR COVERED PARKING. (N) 380 S.F. ONE STORY RECREATION ROOM.(ENTIRE BUILDING MUST BE SPRINKLERED WITH NFPA 13-D)	380.00	HOUSE
11010 10000 00698	3723 W BOYCE AVE	90039	Bldg-New	1 or 2 Family Dwelling	4/1/2011	4/27/2011	7/15/2011	CofO Issued	NEW DETACHED 20'-4" X 20'-6" 2-CAR GARAGE AT REAR OF LOT. COMPLY WITH DEPARTMENT ORDER effective date 09/06/2010. PERMIT WILL EXPIRE 30 DAYS FROM ISSUANCE DATE.	416.77	HOUSE
11010 10000 00722	2218 N NEUTRA PL	90039	Bldg-New	1 or 2 Family Dwelling	4/6/2011	5/27/2011	6/19/2013	Permit Expired	FULLY SPRINKLERED (N)REC. ROOM(744 S.F.) WITH COVERED PATIO (300 S.F.) REC. ROOM INCLUDES HALF BATH.	1,044.00	HOUSE
11010 10000 00885	2118 N REDCLIFF ST	90039	Bldg-New	1 or 2 Family Dwelling	4/28/2011	10/24/2012	10/24/2012	Issued	NEW 3-STORY SINGLE FAMILY RESIDENCE AUTOMATIC FIRE SPRINKLYER SYSTEM TO BE INSTALLED (UNDER SEPARATE PERMIT)	2,400.00	HOUSE
11010 10000 01205	2118 N REDCLIFF ST	90039	Bldg-New	1 or 2 Family Dwelling	4/28/2011	10/24/2012	10/24/2012	Issued	NEW 2-STORY ACCESSORY BUILDING ALONG KENILWORTH AVENUE (RECREATION ROOM OVER 2-CAR GARAGE). NO INTERIOR ACCESS BETWEEN GARAGE AND RECREATION ROOM. CONCRETE MAT	1,600.00	HOUSE
11010 10000 01416	2131 N CEDARHURST DR	90027	Bldg-New	1 or 2 Family Dwelling	6/20/2011	11/22/2011	11/22/2011	Issued	LEGALIZE A 20 ft X 20 ft PRIVATE GARAGE	400.00	HOUSE

Residential Dwelling

11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	12/21/2012	CofO Issued	SINGLE FAMILY HOMES "UNIT A - LOT 1" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	12/21/2012	CofO Issued	SINGLE FAMILY HOMES "UNIT B - LOT 2" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	1/2/2013	CofO Issued	SINGLE FAMILY HOMES "UNIT B - LOT 3" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	12/21/2012	CofO Issued	SINGLE FAMILY HOMES "UNIT B LOT 4" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	1/2/2013	CofO Issued	SINGLE FAMILY HOMES "UNIT B LOT 5" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 10000 01862	2844 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2011	2/2/2012	12/21/2012	CofO Issued	SINGLE FAMILY HOMES "UNIT C LOT 6" W/ATTACHED TWO CAR GARAGES UNDER SMALL LOT ORDINANCE; LOT IS CURRENTLY VACANT.	2,000.00	VACANT LOT
11010 20000 00162	2933 N FINCH ST	90039	Bldg-New	1 or 2 Family Dwelling	1/13/2011	1/14/2011	9/13/2011	CofO Issued	NEW 17' X 19' TWO CAR CARPORT.(SEE COMMENTS)	323.00	VACANT LOT
11010 20000 00694	3419 W GARDEN AVE	90039	Bldg-New	1 or 2 Family Dwelling	4/1/2011	4/1/2011	4/1/2011	Issued	NEW 22'X 25' DET. GARAGE AND 18'X 25' REC ROOM W/ 1/2 BATH AND WET BAR. (DEMO PERMIT REQ'D FOR (E) GARAGE)	1,000.00	HOUSE
11010 20001 00722	2218 N NEUTRA PL	90039	Bldg-New	1 or 2 Family Dwelling	7/17/2012		8/21/2012	PC Info Complete	SUPPLEMENTAL PERMIT TO REVISE THE SIZE TO 38' X 27'-10" IRREG. SHAPED REC. ROOM(WITH HALF BATH) WITH ROOF DECK AND 24' X 5'-6" DECK AT 1ST FLOOR. SEE COMMENTS.	1,189.54	HOUSE
11014 20000 04335	5450 W HOLLYDALE DR	90039	Bldg-New	1 or 2 Family Dwelling	12/8/2011	4/20/2012	9/27/2012	CofO in Progress	(N)12'-8" X 19' GARAGE WITH 12'-8" X 15'-6" STORAGE; ALL WORK IS PER ENGINEERING.	437.12	HOUSE
12010 10000 00527	2275 W EWING ST	90039	Bldg-New	1 or 2 Family Dwelling	2/24/2012	7/19/2012	7/12/2013	CofO Issued	CONSTRUCT NEW SECOND DWELLING UNIT AT REAR OF LOT PER ZA MOMERANDUM 120. SEE COMMENTS.	0	HOUSE
12010 10000 01574	2671 N GLENDALE BLVD	90039	Bldg-New	1 or 2 Family Dwelling	7/9/2012	7/23/2012	7/23/2012	Issued	OPEN PATIO 11' X 18'; DETACHED PATIO CITY STANDARD	198	HOUSE
12010 10000 01655	3717 W MONON ST	90027	Bldg-New	1 or 2 Family Dwelling	7/20/2012		12/17/2013	Verifications in Progress	PROPOSED 2-STORY CONDOMINIUM DUPLEX WITH ATTACHED GARAGE. (BLDG #1) SEE PERMITS 12020-10000-01468 FOR SITE WALLS AND 12030-10000-03384 FOR GRADING WORK.	1600	HOUSE
12010 10000 01656	3717 W MONON ST	90027	Bldg-New	1 or 2 Family Dwelling	7/20/2012		12/17/2013	Verifications in Progress	PROPOSED 3-STORY CONDOMINIUM DUPLEX WITH ATTACHED GARAGE. (BLDG #2) SEE PERMITS 12020-10000-01468 FOR SITE WALLS AND 12030-10000-03384 FOR GRADING WORK.	2,400.00	HOUSE
12010 10000 01763	3752 W VALLEYBRINK ROAD	90039	Bldg-New	1 or 2 Family Dwelling	8/8/2012		8/8/2012	Corrections Issued	PROPOSED ONE STORY 20'-0" X 20'-0" DETACHED GARAGE. COMSTRUCTION PER CITY WOOD PRESCRIPTIVE PROVISIONS.	400.00	HOUSE
12010 10000 02015	2211 N GLENDALE BLVD	90039	Bldg-New	1 or 2 Family Dwelling	9/7/2012		3/21/2013	PC Info Complete	3-STORY SINGLE FAMILY DWELLING/GARAGE; 2,400 SF	2,400.00	HOUSE
12010 10000 02016	2211 N GLENDALE BLVD	90039	Bldg-New	1 or 2 Family Dwelling	9/7/2012		3/20/2013	PC Approved		0.00	HOUSE
12010 10000 02017	2217 N GLENDALE BLVD	90039	Bldg-New	1 or 2 Family Dwelling	9/7/2012		3/21/2013	PC Info Complete	NEW SINGLE FAMILY DWELLING WITH ATTACHED GARAGE.	2,000.00	HOUSE
12010 10000 02105	2503 N SILVER LAKE TER	90039	Bldg-New	1 or 2 Family Dwelling	9/19/2012	1/11/2013	11/14/2013	CofO Issued	PROPOSED NEW ACCESSORY LIVING QUARTERS WITH ATTACHED DECK OVER SLOPE, ALONG REAR PORTION OF THE LOT. SEE COMMENTS.	0.00	HOUSE
12010 10000 02164	4787 W GLENFELIZ BLVD	90039	Bldg-New	1 or 2 Family Dwelling	10/11/2012	10/11/2012	10/11/2012	Issued	(N) 1-CAR GARAGE DETACHED 11' X 19'	209.00	HOUSE
12010 10000 02721	2451 N CLAREMONT AVE	90027	Bldg-New	1 or 2 Family Dwelling	11/29/2012	5/1/2013	5/1/2013	Issued	NEW SINGLE FAMILY DWELLING	2,000.00	HOUSE
12010 10000 02722	2451 N CLAREMONT AVE	90027	Bldg-New	1 or 2 Family Dwelling	11/29/2012	5/1/2013	5/1/2013	Issued	NEW DETACHED GARAGE.	324.00	HOUSE
12010 10000 03015	2331 W EWING ST	90039	Bldg-New	1 or 2 Family Dwelling	12/31/2012	8/30/2013	8/30/2013	Issued	CONSTRUCT NEW 3-STORY SINGLE FAMILY DWELLING WITH ATTACHED 2-CAR GARAGE.	2,400.00	VACANT LOT
12010 20000 02057	3837 W BRUNSWICK AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/13/2012	9/24/2012	6/10/2013	CofO Issued	(N)11'-3" X 12' STORAGE BLDG.	135.00	HOUSE
12010 20000 02115	5138 N GLENMANOR PL	90039	Bldg-New	1 or 2 Family Dwelling	8/17/2012	10/3/2012	6/12/2013	CofO Issued	NEW 20' X 20' DETACHED CARPORT	400.00	HOUSE
12010 20000 02387	1922-1924 N ROSALIA ROAD	90027	Bldg-New	1 or 2 Family Dwelling	10/23/2012	3/8/2013	1/3/2014	CofO Issued	NEW 2-STORY DUPLEX (LIVING AREA: 3798 SQ. FT., TWO COVERED PORCHES 60 SQ. FT., COVERED BALCONIES & COVERED IN FRONT OF GARAGE 336 SQ. FT.) WITH ATTACHED TWO (2); 2-CAR GARAGES TO ACCOMODATE FOUR (4) CARS (940 SQ. FT.)	5,134.00	HOUSE

Residential Dwelling

12010 20002 02164	4787 W GLENFELIZ BLVD	90039	Bldg-New	1 or 2 Family Dwelling	5/29/2013	6/4/2013	6/4/2013	Issued	CHANGE THE ROOF FRAMING AND ROOF DRAINAGE OF THE 1 CAR GARAGE UNDER 12010-10000-02164 AND ADD TWO SKYLIGHTS. ADD 6 FAUX BEAMS (4X6) PER SHEET A2.1	0.00	HOUSE
12010 30000 02547	2223 N MEADOW VALLEY TER	90039	Bldg-New	1 or 2 Family Dwelling	11/8/2012	11/15/2012	11/15/2012	Issued	NEW 6' 8" X 16' DETACHED TRELLIS PER INFORMATION BULLETIN P/BC-2011-023.	106.72	HOUSE
12014 20000 00623	3129 W HOLLYDALE DR	90039	Bldg-New	1 or 2 Family Dwelling	2/28/2012	7/16/2012	12/16/2013	CofO Issued	(N) 30' X 67'6" 2 STORY SPRINKLERED SFD W/ ATTACHED GARAGE.	2,025.00	HOUSE
13010 10000 00993	3439 W GARDEN AVE	90039	Bldg-New	1 or 2 Family Dwelling	4/4/2013	12/2/2013	12/2/2013	Issued	NEW TWO CAR GARAGE/STORAGE/BATH.	380.00	HOUSE
13010 10000 01555	3019 W WINDSOR AVE	90039	Bldg-New	1 or 2 Family Dwelling	5/30/2013		7/30/2013	Reviewed by Supervisor	NEW 2-STORY SINGLE FAMILY DWEELING	1,600.00	VACANT LOT
13010 10000 01557	3019 W WINDSOR AVE	90039	Bldg-New	1 or 2 Family Dwelling	5/30/2013		7/30/2013	Reviewed by Supervisor	NEW DETACHED 2-CAR GARAGE	380.00	VACANT LOT
13010 10000 02238	3907 W DE LONGPRE AVE	90027	Bldg-New	1 or 2 Family Dwelling	7/26/2013	9/19/2013	9/19/2013	Issued	PROPOSE 18.1' X 28' (TOTAL 1236 SF RFA) IRREGULAR SHAPE 3 STORIES SFD WITH ATTACHED BASEMENT GARAGE ON ASCENDING SLOPE PARCEL. SEE COMMENT.	1,236.00	HOUSE
13010 10000 02663	2920-2930 W ROWENA AVE	90039	Bldg-New	1 or 2 Family Dwelling	9/4/2013		11/21/2013	Verifications in Progress	NEW 3 STORY DUPLEX BUILDING WITH ROOF DECK & FIRST FLOOR PARKING GARAGE . (BUILDING #5)	3,600.00	BUILDING
13010 10000 02742	2722 N AUBURN ST Lot #1	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013		1/23/2014	PC Approved	PROPOSE 27' X 42' IRREGULAR SHAPE 2-STORY SFD OVER ATTACHED SUBTERRANEAN 2 CAR GARAGE AND RECREATION ROOM PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #1) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	1,134.00	HOUSE
13010 10000 02743	2722 N AUBURN ST Lot# 2	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013	1/27/2014	1/27/2014	Issued	PROPOSE 31' X 26' IRREGULAR SHAPE 3-STORY SFD WITH ATTACHED 2 CAR GARAGE PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #2) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	806.00	HOUSE
13010 10000 02744	2722 N AUBURN ST Lot# 3	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013	1/27/2014	1/27/2014	Issued	PROPOSE 31' X 26' IRREGULAR SHAPE 3-STORY SFD WITH ATTACHED 2 CAR GARAGE PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #3) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	806.00	HOUSE
13010 10000 02745	2722 N AUBURN ST Lot# 4	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013	1/27/2014	1/27/2014	Issued	PROPOSE 27' X 42' IRREGULAR SHAPE 3-STORY SFD WITH ATTACHED 2 CAR GARAGE PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #4) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	1,134.00	HOUSE
13010 10000 02746	2722 N AUBURN ST Lot # 5	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013	1/27/2014	1/27/2014	Issued	PROPOSE 31' X 26' IRREGULAR SHAPE 3-STORY SFD WITH ATTACHED 2 CAR GARAGE PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #5) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	806.00	HOUSE
13010 10000 02747	2722 N AUBURN ST Lot# 6	90039	Bldg-New	1 or 2 Family Dwelling	9/6/2013	1/27/2014	1/27/2014	Issued	PROPOSE 31' X 29' IRREGULAR SHAPE 3-STORY SFD WITH ATTACHED 2 CAR GARAGE PER ZA-2012-1010-ZV-ZAA. SEE COMMENT. PLAN A (LOT #6) SMALL LOT SUBDIVISION PER ORDINANCE 176354 TRACT VTT-71872-SL	899.00	HOUSE
13010 10000 03328	3728 W BRUNSWICK AVE	90039	Bldg-New	1 or 2 Family Dwelling	10/28/2013		10/28/2013	Corrections Issued	(N) 2-CAR DETACHED GARAGE	380.00	HOUSE
13010 10000 03332	2728 W BRUNSWICK AVE	90039	Bldg-New	1 or 2 Family Dwelling	10/28/2013		11/12/2013	Corrections Issued	NEW DETACHED 2 CAR GARAGE (19'X20'), PER WFPP.	380.00	HOUSE
13010 10000 04518	3223 N ETTRICK ST	90027	Bldg-New	1 or 2 Family Dwelling	12/27/2013		2/18/2014	Submitted for Sprvsr Rvw	NEW DETACHED RECREATION ROOM.	273.00	HOUSE
13010 10000 04519	3223 N ETTRICK ST	90027	Bldg-New	1 or 2 Family Dwelling	12/27/2013		2/18/2014	Submitted for Sprvsr Rvw	NEW ONE-CAR CARPORT.	162.00	HOUSE
13010 10000 04578	3843 W EVANS ST	90027	Bldg-New	1 or 2 Family Dwelling	12/30/2013		2/20/2014	Reviewed by Supervisor	NEW 2-STORY SFD WITH ROOF DECK	1,600.00	VACANT LOT
13010 10000 04579	3843 W EVANS ST	90027	Bldg-New	1 or 2 Family Dwelling	12/30/2013		2/20/2014	Reviewed by Supervisor	NEW 2-STORY SFD WITH ROOF DECK	1,600.00	VACANT LOT
13010 10000 04605	2388 N LYRIC AVE	90027	Bldg-New	1 or 2 Family Dwelling	12/31/2013		2/21/2014	Submitted for Sprvsr Rvw	2 STORY SINGLE FAMILY WITH ATTACHED GARAGE AND DECK.	1,600.00	HOUSE
13010 20000 00019	2307 N MICHELTORENA ST	90039	Bldg-New	1 or 2 Family Dwelling	1/7/2013		1/25/2013	Reviewed by Supervisor	PROPOSED REC. ROOM (8.5'X32.17') WITH 1/2 BATH.	273.00	HOUSE
13010 20000 03674	2038 N MICHELTORENA ST	90039	Bldg-New	1 or 2 Family Dwelling	12/2/2013		12/13/2013	Reviewed by Supervisor	FULLY SPRINKLERED 19' X 19' BASEMENT TWO CAR GARAGE WITH DECK ABOVE	361.00	HOUSE
13010 70000 02366	2433 N PANORAMA TER	90039	Bldg-New	1 or 2 Family Dwelling	8/9/2013	9/4/2013	9/4/2013	Issued	NEW 1-CAR CARPORT PER CITY STANDARD DETAILS.	162.00	HOUSE
14010 10000 00386	3959 W CLAYTON AVE	90027	Bldg-New	1 or 2 Family Dwelling	2/13/2014		2/13/2014	Submitted	NEW SHADE SAIL AT FRONT OF S.F.D.	0.00	HOUSE

Technical Memorandum No. 2

To:	City of Los Angeles Bureau of Engineering
From:	Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE
cc:	Anissa Voyiatzes, PE
Date:	April 23, 2014
Re:	**Glendale-Hyperion Bridge Complex** **Preliminary Assessment of Posted, Operating and Design Speeds**

Executive Summary

Speed is an integral aspect of the design, operation and safety elements associated with any roadway project. There are three commonly used terms related to speed in engineering studies namely Design, Posted and Operating speeds. This technical memorandum elaborates and describes the relationship between each of these speed types and presents recommendations for the project.

Psomas conducted a speed survey that revealed that operating vehicular speeds are higher than both the posted and design speeds. Based on the *California Manual on Uniform Traffic Control Devices* (CA MUTCD), the operating speed should relate closely to the posted speed limit. In this case, the pedestrian and bicycle activity in the area, as well as some of the design features of the roadway make increasing the posted speed limit problematic. As a result, the memorandum discusses several engineering, education and enforcement measures aimed at reducing operating speeds so that they are more consistent with the posted speed limit.

Objectives

The objectives of this Technical Memorandum are to:

- Define the various types of speeds to be considered in the evaluation of roadway facilities.
- Summarize findings related to the operating, design and posted speeds on the Glendale-Hyperion complex of bridges.
- Establish relationship between the different types of speed according to the CA MUTCD and other prevailing standards.
- Recommend measures to improve the consistency between the posted speed limit and operating speeds.

Study Area

This memorandum focuses on the segment of Hyperion Avenue/Glendale Boulevard between Rowena Avenue and Glenfeliz Boulevard.

Definitions and Applicable Regulations

The Hyperion Avenue is part of the National Highway System (NHS). For roadways in the NHS, the Federal Highway Administration (FHWA) has adopted *A Policy on Geometric Design of Highways and Streets* (2004) by AASHTO as the primary design standard. Therefore, the speed definitions from the AASHTO Policy are presented below:

- ***Design speed*** *is a selected speed used to determine the various geometric design features of the roadway. The selected design speed should be a logical one with respect to the anticipated operating speed, topography, the adjacent land use, and the functional classification of the highway.*
- ***Operating speed*** *is the speed at which drivers are observed operating their vehicles during free-flow conditions. The 85th percentile of the distribution of observed speeds is the most frequently used measure of the operating speed associated with a particular location or geometric feature.*

By way of clarification, 85th percentile speed means that 85% of all drivers travel at speeds equal or below to that speed. In other words, only 15% of drivers travel at speeds in excess of the 85th percentile speed.

The *CA MUTCD* (2012) regulates posted speed limits and the relationship of those speed limits to operating speeds. Some key provisions in Section 2B.13 of the *CA MUTCD* include:

- ***Posted Speed****—the speed limit determined by law and shown on Speed Limit signs. When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85th-percentile speed of free-flowing traffic, except as shown in the two Options below.*

  Options:

  1. *The posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85th-percentile speed, in compliance with CVC Sections 627 and 22358.5. See Standard below for documentation requirements.*

  2. *For cases in which the nearest 5 mph increment of the 85th-percentile speed would require a rounding up, then the speed limit may be rounded down to the nearest 5 mph increment below the 85th percentile speed, if no further reduction is used. Refer to CVC Section 21400(f).*

Speed Analysis

A. Design Speed

As previously discussed, Design Speed is defined as a speed used to determine the various geometric design features of the roadway. In the case of the Hyperion Avenue bridge, the most 'restricting' geometric features are a horizontal curve on the bridge alignment over the I-5 freeway, a horizontal curve near Waverly Drive, and a vertical curve also near Waverly Drive (see Figure 1). The design speed of each of those features is evaluated below in relation to the requirements in AASHTO's Policy of Geometric Design for Highways and Streets (2004). The horizontal curves are evaluated against Exhibit 3-16 – Minimum Radii and Superelevation for Low-Speed Urban Streets, while the vertical curve is

evaluated using Exhibit 3-72 – Design Controls for Stopping Sight Distance and for Crest Vertical Curves.

Hyperion horizontal curve over I-5

- Centerline radius: 471 ft
- Radius to the center of inner lane: 452 ft
- Superelevation: 2%
- Design Speed: 35 mph (408 ft minimum radius required for 35 mph, 593 ft radius for 40 mph)

Hyperion horizontal curve near Waverly Drive

- Centerline radius: 400 ft
- Radius to the center of inner lane: 381 ft
- Superelevation: 2%
- Design Speed: 30 mph (273 ft minimum radius required for 30 mph, 408 ft radius for 35 mph)

Hyperion vertical curve near Waverly Drive

- Rate of Vertical Curvature (K): 26.76 ft per percent grade
- Design Speed: 30 mph (Kmin=19 for 30 mph, Kmin=29 for 35 mph)



Figure 1. Design Speed Constraints

As presented above, the area near Waverly Drive has both a horizontal and a vertical curve with features designed for 30 mph. In addition, the retaining walls for the overpass structure further limit sight distance on the horizontal curve. However, all these constraints are at one location, and therefore can be handled (as is currently the case) with warning signs that incorporate warning speed plaques of 30 mph.

Overall, the recommended design speed for the project is 35 mph, which matches the design speed of the horizontal curve on the bridge over I-5. Using 30 mph for the entire segment (instead of using warning signage near Waverly Drive) could force artificially low speed limits, and using design speeds of 40 mph or more would create problems as several roadway features in various areas would have lower design speeds.

B. Posted Speed Limit

The existing posted speed limit on the Hyperion Avenue bridge and Glendale Boulevard (within the study area) is 35 mph. There is an advisory speed plaque of 30 mph in the southbound direction approaching the Waverly Drive overpass to warn drivers of a horizontal curve on Hyperion Avenue as shown in the figures below.



Figure 2. Posted Speed Limit (Northbound) near Waverly Drive



Figure 3. Warning Sign with Speed Plaque (Southbound) near Waverly Drive

C. Operating Speed

A speed survey was conducted at four locations in the study area on February 13, 2014. The free-flowing speeds of 50 vehicles were measured at each location using an inconspicuous radar to avoid influencing travel speeds.



Figure 4. Warning Sign with Speed Plaque (Southbound) near Waverly Drive

As previously discussed, the 85th percentile speed defines the operating speed for a roadway. As shown in Table 1, the 85th percentile speeds in the study area range from 44 to 46 mph.

Table 1. 85th Percentile Speeds within Project Study Limits

No.	Locations	85th Percentile Speed
1	Northbound Hyperion Avenue	46 mph
2	Soutbound Hyperion Avenue	46 mph
3	Northbound Glendale Boulevard	44 mph
4	Southbound Glendale Boulevard	45 mph

Referring back to Section 2B.13 of the CA MUTCD, the nearest 5 mph increment of all 85th percentile speeds is 45 mph. Therefore, as it currently stands, there is a 10 mph difference between the operating speed (45 mph) and the posted speed limit (35 mph).

Given the language contained in the CA MUTCD ("*When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85th-percentile speed of free-flowing traffic…"),* the City of Los Angeles would typically be required to increase the posted speed limit to 45 mph. However, the CA MUTCD does allow a couple of options to reduce the posted speed. Specifically, Option 1 allows the posted speed to be reduced 5 mph from the nearest 5 mph increment of the 85th-percentile speed (in this case 45 mph) if certain requirements such as prevailing speeds, collision records and roadside conditions not readily apparent to the driver are documented in an Engineering and Traffic Survey (E&TS). If this option was pursued, the posted speed could be set at 40 mph, which is still higher than the current 35 mph posted speed limit.

Based on the preceding discussion, the 35 mph posted speed is too low for the existing operating conditions on Hyperion Avenue. However, it is anticipated that operating speeds will adapt downwards with some of the proposed cross-sectional adjustments proposed as part of the upcoming improvement project, which among other things includes the addition of bicycle lanes and other pedestrian facilities (such as sidewalks and crosswalks).

Overall, an increase from the current 35 mph speed limit to either 40 or 45 mph could be problematic for the following reasons:

- As previously discussed, some geometric features of the roadway such as curves have design speeds of 35 mph or less.
- There is significant weaving and merging activity at the north side of the Hyperion Avenue bridge that could be exacerbated with increased speeds.
- The addition of bike lanes and pedestrian crosswalks would be more compatible with 35 mph speeds rather than with higher speeds. Moreover, as documented in Technical Memorandum No. 1 (Existing and Future Traffic Demand, April 14, 2014), there is a significant number of children and teenagers that use the bridge to walk to schools in the area.
- From a land use and zoning perspective, this is an urban area with relatively high-density residential uses in the vicinity. Lower speeds are better suited within that context.

Based on those considerations, it is recommended that instead of increasing the posted speed limit to match the operating speed, measures be taken as part of the proposed bridge improvement project to reduce operating speeds to more closely reflect the posted speed limit.

The case of having operating speeds that are more consistent with the surrounding environment is discussed at length in *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* by the Institute of Transportation Engineers (ITE, 2010). FHWA "*encourages flexibility and a context-sensitive approach which considers the full range of project needs and the impacts to the community and natural and human environment*" (http://www.fhwa.dot.gov/design/standards/qa.cfm).

Findings and Recommendations

This evaluation found that operating speeds in the study area are approximately 10 mph higher than the posted speed limit. Absent additional considerations, and based on the *CA MUTCD*, the City would be required to increase the posted speed limit to either 40 or 45 mph (40 mph could be allowed if supported by an Engineering and Traffic Survey – E&TS).

However, as mentioned earlier, we anticipate that operating speeds on the bridge will change as a result of the proposed multi-modal and cross-sectional changes proposed as part of the bridge improvement project. In addition, there are several constraints and limitations associated with the existing bridge geometric, traffic operations and context of the project, that make an increase in posted speed limits problematic. Therefore, Psomas recommends the following in regards to posted speed limits:

1. Following the bridge improvement project, use a posted speed limit of 35 mph and implement measures (described below) to lower operating speeds to a point that is consistent with the posted speed limit and the design speed of the bridge.

2. Within one year of the completion of the bridge improvement project, conduct an Engineering and Traffic Survey as required by the CA MUTCD to evaluate if any speed adjustment is needed.

3. Some potential measures to be considered to reduce operating speeds include:

    a. **Installation of Radar Feedback Signs -** Installation of a solar-powered Radar Feedback signs can be considered for north and southbound traffic on the Hyperion Avenue bridge. The photo below shows a radar feedback sign in San Anselmo, California



Figure 5. Typical installation of a radar feedback sign

A study completed by the Western Transportation Institute of Montana State University in December 2010 compiled results from deployment on six roads in Orange County, California. Results indicated statistically significant reductions in 85th percentile speeds, as well as an average speed reduction of 4 mph at all sites. An FHWA reference (*Engineering Countermeasures for Reducing Speeds: A Desktop Reference of Potential Effectiveness, 2009)* also cites various studies that found speed reductions associated with speed feedback signs.

b. Narrower Lanes - n an effort to accommodate sidewalk and bike lanes, several cross-sectional alternatives being considered include narrower travel lanes (ranging from 10.5 to 11 ft). In *Relationship between Lane Width and Speed,* a study conducted by Parsons Transportation Group in 2003 and sponsored by the National Association of City Transportation Officials (NACTO), several literatures reveal varying degrees of relationships between lane width and speed differences. A few studies have shown speed reductions ranging from **1** to **3 mph** per foot of lane narrowing. ITE's *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* (2010) also supports the use of 10-11 ft lanes as an effective means of speed management.

c. Signal Timing – Traffic signal synchronization can be adjusted to provide progression bands consistent with a desired speed limit.

d. Raised Crosswalks and/or Speed Table – As part of crosswalk design consideration, a speed table or raised crosswalk can be proposed as a traffic calming measure. Raised pedestrian crosswalks serve as traffic calming measures by extending sidewalk across the road and bringing vehicles to the pedestrian levels making pedestrian more visible to approaching motorists with generally slower approaching speed.

This measure is discussed here as a discussion item but is **not recommended** for arterial streets because of concerns associated with emergency vehicle response times, and driver expectancy (drivers expect these on local streets but not on arterial roadways) that could lead to operational or safety concerns.

e. Education and Enforcement - Education and enforcement are key to reducing operating speeds. The community, neighborhood organizers and law enforcement agency need to work together to raise awareness on the importance of speed reduction and respecting posted speed limit. Nearby schools such as the John Marshall High School can be used as a venue to administer community outreach for such a purpose. In addition, periodic enforcement from LAPD would help ensure compliance with posted speed limits.

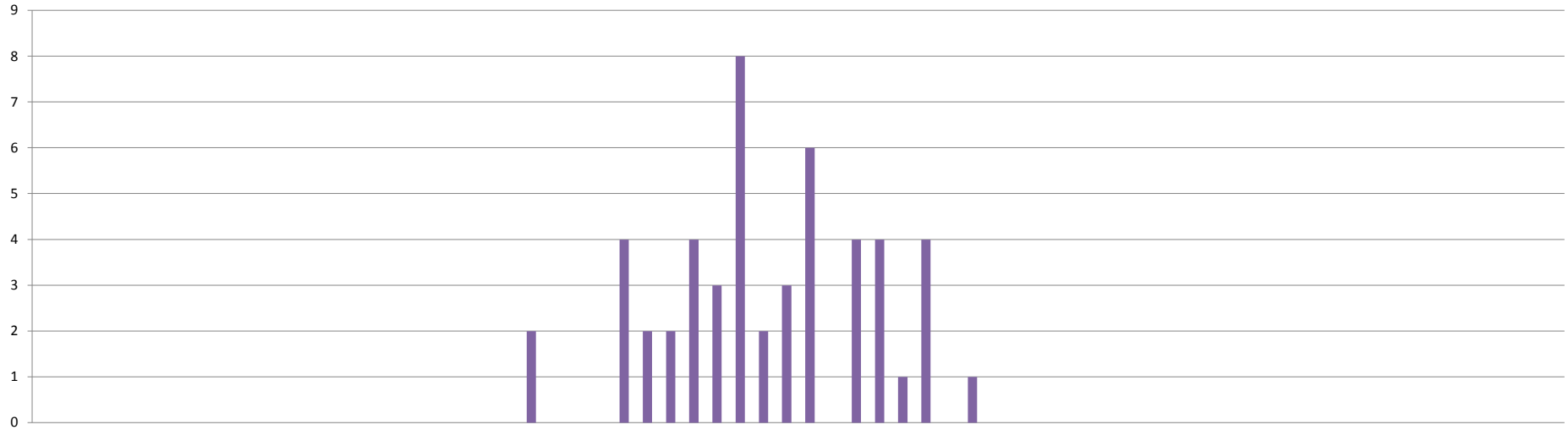
Appendix

Speed Survey Data

RADAR SPEED STUDY

Northbound Hyperion Avenue between Greenswald Road & Etrick Street - NORTHBOUND

LOCATION	Northbound Hyperion Avenue between Greenswald Road & Etrick Street	PROJECT #	2014124
VICINITY	Los Angeles, CA	LOCATION #	008
TIME RANGE	12:00	DATE OF STUDY	Thursday, February 13, 2014



MPH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75+
COUNT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	2	2	4	3	8	2	3	6	0	4	4	1	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% OF TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	8%	4%	4%	8%	6%	16%	4%	6%	12%	0%	8%	8%	2%	8%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CUMILATIVE %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	4%	4%	4%	12%	16%	20%	28%	34%	50%	54%	60%	72%	72%	80%	88%	90%	98%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

NOTES / STATISTICS

SAMPLE SIZE	50	15th PERCENTILE	36 MPH	10 MPH PACE	37 - 46
AVERAGE SPEED (MPH)	41.12	50th PERCENTILE	40 MPH	NUMBER IN PACE	36
SPEED RANGE (MPH)	31 - 50	85th PERCENTILE	46 MPH	PERCENT IN PACE	72%

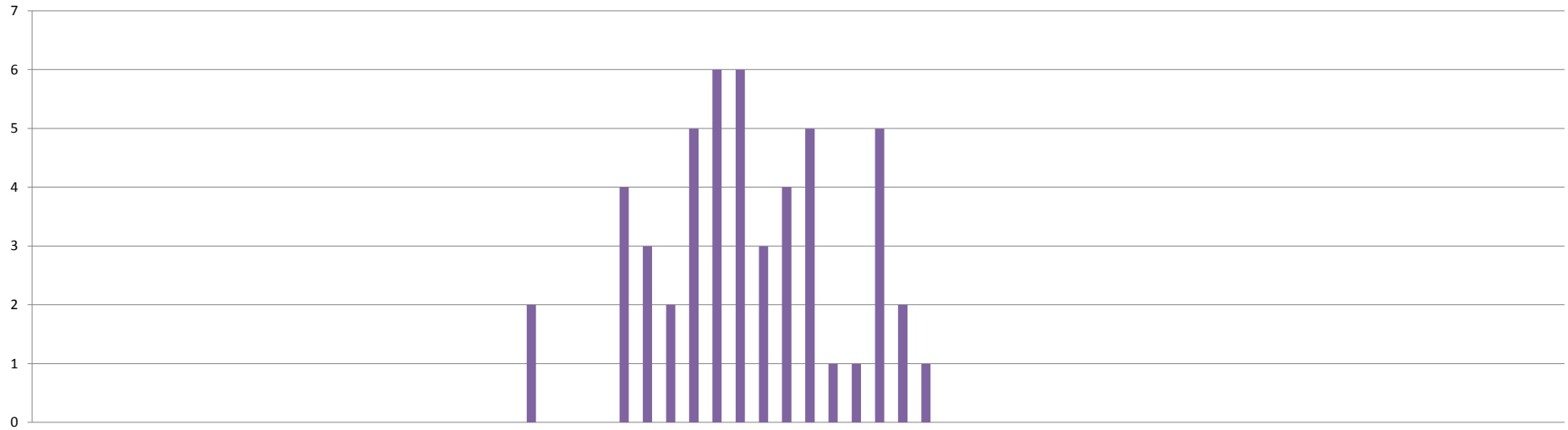
TRAFFIC CONDITIONS:	Normal	**WEATHER CONDITIONS:**	Sunny	**ROAD CONDITIONS:**	Normal	**POSTED SPEED LIMIT:**	35 MPH

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

RADAR SPEED STUDY

Southbound Hyperion Avenue between Greenswald Road & Etrick Street - SOUTHBOUND

LOCATION	Southbound Hyperion Avenue between Greenswald Road & Etrick Street	PROJECT #	2014124
VICINITY	Los Angeles, CA	LOCATION #	009
TIME RANGE	12:30	DATE OF STUDY	Thursday, February 13, 2014



MPH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75+
COUNT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	3	2	5	6	6	3	4	5	1	1	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% OF TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	8%	6%	4%	10%	12%	12%	6%	8%	10%	2%	2%	10%	4%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CUMILATIVE %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	4%	4%	4%	12%	18%	22%	32%	44%	56%	62%	70%	80%	82%	84%	94%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

NOTES / STATISTICS

SAMPLE SIZE	50	15th PERCENTILE	36 MPH	10 MPH PACE	35 - 44
AVERAGE SPEED (MPH)	40.30	50th PERCENTILE	40 MPH	NUMBER IN PACE	39
SPEED RANGE (MPH)	31 - 48	85th PERCENTILE	46 MPH	PERCENT IN PACE	78%

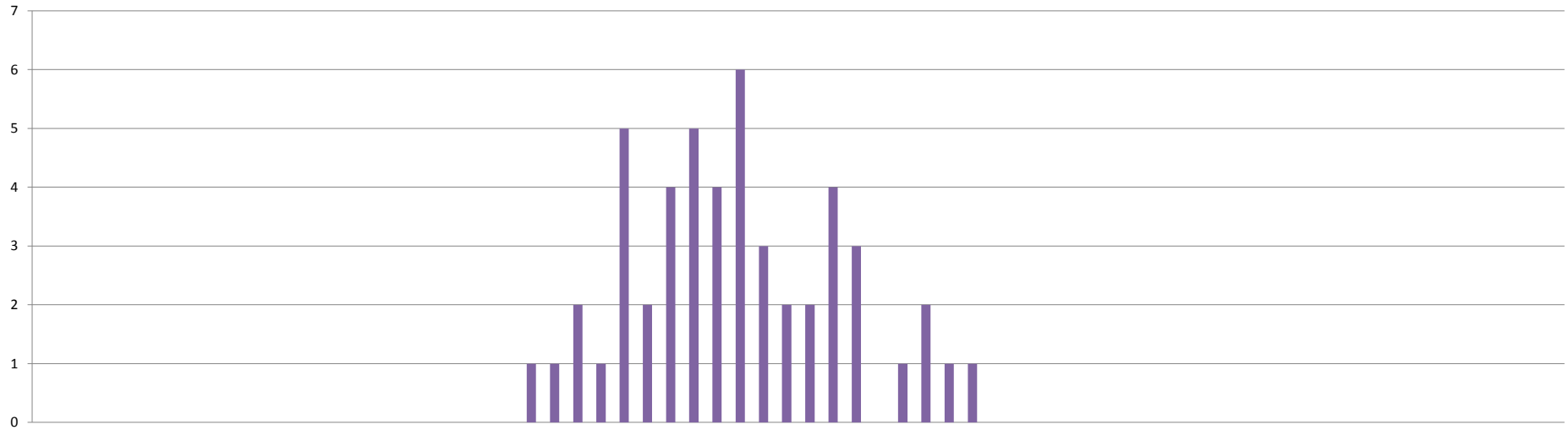
TRAFFIC CONDITIONS: Normal **WEATHER CONDITIONS:** Sunny **ROAD CONDITIONS:** Normal **POSTED SPEED LIMIT:** 35 MPH

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

RADAR SPEED STUDY

Southbound Glendale Boulevard between I-5 Northbound On-Ramp & Valleybrink Road - SOUTHBOUND

LOCATION	bound Glendale Boulevard between I-5 Northbound On-Ramp & Valleybrink	PROJECT #	2014124
VICINITY	Los Angeles, CA	LOCATION #	010
TIME RANGE	10:30	DATE OF STUDY	Thursday, February 13, 2014

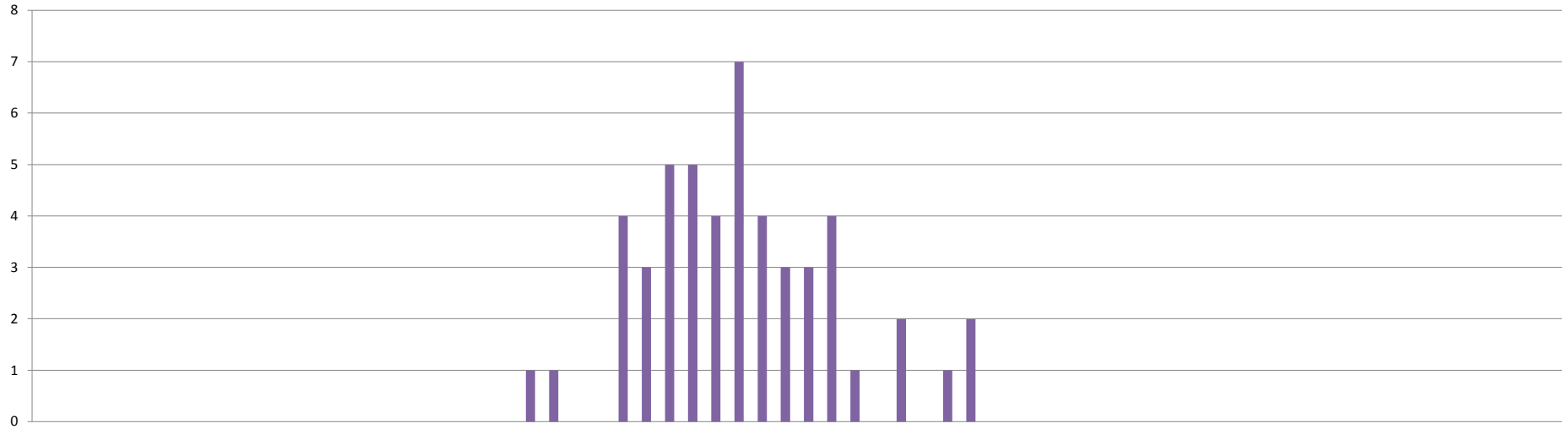


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RADAR SPEED STUDY

Northbound Glendale Boulevard between I-5 Northbound Off-Ramp & Greensward Road - NORTHBOUND

LOCATION	ound Glendale Boulevard between I-5 Northbound Off-Ramp & Greensward	PROJECT #	2014124
VICINITY	Los Angeles, CA	LOCATION #	011
TIME RANGE	10:00	DATE OF STUDY	Thursday, February 13, 2014



MPH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75+
COUNT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	3	5	5	4	7	4	3	3	4	1	0	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% OF TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%	8%	6%	10%	10%	8%	14%	8%	6%	6%	8%	2%	0%	4%	0%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CUMILATIVE %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%	4%	4%	12%	18%	28%	38%	46%	60%	68%	74%	80%	88%	90%	90%	94%	94%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

NOTES / STATISTICS

SAMPLE SIZE	50	15th PERCENTILE	36 MPH	10 MPH PACE	35 - 44
AVERAGE SPEED (MPH)	40.10	50th PERCENTILE	40 MPH	NUMBER IN PACE	42
SPEED RANGE (MPH)	31 - 50	85th PERCENTILE	44 MPH	PERCENT IN PACE	84%

TRAFFIC CONDITIONS:	Normal	**WEATHER CONDITIONS:**	Sunny	**ROAD CONDITIONS:**	Normal	**POSTED SPEED LIMIT:**	35 MPH

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

Technical Memorandum No. 3

To:	City of Los Angeles Bureau of Engineering
From:	Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE
cc:	Anissa Voyiatzes, PE
Date:	May 31, 2014
	Glendale-Hyperion Bridge Complex
Re:	**Hyperion Bridge Median Treatment Need Assessment and Countermeasures**

Executive Summary

This memorandum examines the need for a median barrier on the Hyperion Avenue bridge and provides recommendations on median treatment countermeasures that could be pursued to ensure safe traffic operation on the bridge. A Draft Project Report developed and signed in August 2013 recommends replacing the existing striped buffer along the Hyperion Avenue bridge with a median barrier to separate opposing traffic.

Crash records found that there have been eight cross-median collisions along the Hyperion Avenue bridge over the past 11 years, four of them over the past 5 years. Speeding has been the primary cause of six of the eight crashes. An evaluation of the Collision Study Warrant used by Caltrans to evaluate the need for a median barrier found that, based on the crash history, a median barrier is warranted. However, the Caltrans guidelines allow consideration of treatments less impactful than barriers to mitigate cross-median collisions such as raised medians or widening the median buffer. The memorandum addresses the benefits and issues associated with both median barriers and raised medians. Other safety countermeasures such as centerline rumble strips and flexible delineators are also discussed.

Objectives

The objectives of this Technical Memorandum are to:

- Summarize and evaluate the head-on collision history on the Hyperion Avenue bridge

- Evaluate whether a median barrier is currently warranted between opposing directions of travel on Hyperion Avenue.
- Present potential treatments that could be implemented as safety countermeasures.

Study Area

This memorandum focuses specifically on the area of the Hyperion Bridge that is being considered for installation of median barrier. The area in question is from the south end of the Waverly Drive overpass to the point where a historic barrier begins on the north side of the bridge near the area where Hyperion Avenue and Glendale Boulevard merge (approximately 100 ft from the east bank of the LA River). The study area is approximately 1,900 ft in length and is shaded in green in Figure 1. In this area, Hyperion Avenue is a 4-lane roadway with a 6-foot paved buffer between opposing directions of travel, but without any vertical curb or other physical barrier separating opposing traffic.



Figure 1. Study Area

Median barrier is not being considered from the Waverly underpass to Rowena Avenue because there are left turn lanes into side streets such as Ettrick Street and La Paz Drive, and several driveway accesses. In addition to turning movements, sight distance would be affected if a median were placed in that area.

Definitions and Applicable Documents

The following studies, guidelines and policies are relevant in evaluating the need for a median barrier within the study areas. Key definitions or sections of those references are also presented. It should be

noted that most of the evaluation methodologies focus on high-speed, fully access-controlled facilities (freeways). However, some guidelines such as those in the Caltrans Traffic Manual can be applied to low-speed arterial roadways such as Hyperion Avenue.

A. *A Policy on Geometric Design of Highways and Streets* (2004), AASHTO

Hyperion Avenue is part of the National Highway System (NHS). For roadways in the NHS, the Federal Highway Administration (FHWA) has adopted *A Policy on Geometric Design of Highways and Streets* as the primary design standard. The following items discussed under the section for median barriers (pages 334-335) explain the potential increase in total crashes as a result of the installation of a median barrier, and the potential issues associated with median barriers on areas with driveways and side streets (such as the area south of Waverly Drive):

- *"Although cross-median collisions may be reduced by median barriers, total crash frequency will generally increase because the space available for return-to-the road maneuvers is decreased."*
- *"Careful consideration should be given to the installation of median barriers on multilane expressways or other highways with partial control of access."…"Consequently, an evaluation of the number of median openings, crash history, alignment, sight distance, design speed, traffic volumes and median width should be conducted prior to installation of median barriers on non-freeway facilities".*
- *"For additional data on median barrier types, refer to the AASHTO Roadside Design Guide."*

B. *Roadside Design Guide* (2011), AASHTO

The following excerpts are found under Section 6.2, Guidelines for Median Barrier Application. The same section also includes a procedure for determining the need for a median barrier on High-Speed (design speed greater than 45 mph), fully access-controlled- roadways (freeways).

- *"Median barriers sometimes are used on high-volume facilities that do not have full-access control* (arterial roadways like Hyperion). *As indicated in Figure 6-1, these median barrier guidelines were developed for use on high-speed, fully access controlled roadways. The use of these guidelines on roadways that do not have full access control should include engineering analyses and judgment that take into consideration such items as right-of-way constraints, property access needs, number of intersections and driveway openings, adjacent commercial development, sight distance at intersections, and barrier end termination. Therefore, trying to apply these guidelines to roadways that do not have full access control can be rather complex in many locations."*

- *"Each transportation agency has the flexibility to develop its particular median barrier guidelines"…"California uses a crash study warrant to identify sections of freeways that may need the installation of median barrier".*

C. Chapter 7 of the *Caltrans Traffic Manual* (2012)

Topic 7-04, Median Barrier, of this reference provides the most detailed process for evaluating the need for a median barrier on conventional highways (such as Hyperion Avenue). This section of the Caltrans Traffic Manual is available online at the following URL http://www.dot.ca.gov/hq/traffops/engineering/safety-devices/docs/Median-Barrier.pdf.

- **Definition of cross-median collision:** *"A cross-median collision is strictly defined as one in which an errant vehicle crosses the median of a highway with four or more lanes and strikes, or is struck, by a vehicle from the opposite direction."*
- *"While median barriers are capable of preventing nearly all cross-median collisions, they are a fixed object and their installation can result in collisions that might not otherwise occur."*
- **Collision Study Warrant: "***The following collision study warrants are applicable to freeways, expressways, and conventional highways with four or more lanes:*
    - *A collision study warrant for any severity is met if a location has three or more cross-median collisions **and** a total cross-median collision rate of at least 0.5 collisions per mile per year in a five year period, **or***
    - *The Fatal collision study warrant is met if a location has three fatal collisions or more **and** a fatal cross-median collision rate of at least 0.12 collisions per mile per year in a five year period.*

  Highway locations with four or more lanes satisfying either of the above collision warrants should be studied. The collision warrant for two or three-lane highways is based on the above fatal study warrant criteria only."
- *"Median barriers may be an appropriate solution to cross-median or cross-centerline collisions on multilane conventional highways. Multilane conventional highway locations are to be studied when the collision study warrant is met."*
- *"Access openings on expressways, multilane conventional highways and two-lane and three-lane conventional highway facilities present sight distance issues with respect to installation of a median barrier. All access openings must be studied to maintain both corner sight distance at approach intersections and stopping sight distance on the specific facility types themselves"*

Head-on Collision History

Crash records from 1/1/2000 to 3/31/2011 were provided to Psomas by LADOT. The crash records were evaluated to filter the head-on collisions, as those are the crashes that could be mitigated with a median barrier. It should be noted that some cross-median crashes were also coded by Police as sideswipe or broadside collisions. Police reports were requested for the head-on collisions to better understand the collisions leading to the crashes. In April, LADOT provided police reports for the some of the head-on collisions, but the rest of the reports could not located.

Table 1 summarizes cross-median collisions in the general vicinity of the project. Crashes shown as No. 1 through 8 were deemed to be cross-median collisions, and therefore correctable with a median barrier. Crashes in the bottom part of the table (Crashes No. 9 to 14) were outside the study area and/or are not correctable with a median barrier. The location of each crash is shown graphically on Figure 2.

Table 1. Head-on Collisions in the Vicinity of the project (01/2000-03/2011)

CRASHES IN STUDY AREA

Crash #	LADOT Report #	Date	Time	Location			Dir. of Travel Veh. 1	Movement 1	Dir. of Travel Veh. 2	Movement 2	Primary Collision Factor (PCF)	Injuries	Fatalities	Police Report	Remarks
				Cross-streets	Dist. (ft)	Direction									
1	194201051 917353291	5/19/2001	17:35	Hyperion/ Glendale	470	W	E	Straight	W	Straight	Unsafe Speed	5	0	Y	Correctable with Barrier
2	0323752	3/28/2002	20:30	Hyperion/ Glendale	1800	S	S	Straight	N	Crossed to Opposing	Unsafe Speed	2	0	N	Correctable with Barrier
3	1160942	11/1/2003	4:20	Glendale/ Valleybrink	1184	S	S	Crossed to Opposing	N	Straight	Unsafe Speed	3	1	N	Correctable with Barrier
4	2027256	5/5/2005	6:40	Glendale/G reensward	450	S	N	Crossed to Opposing	S	Straight	Unsafe Speed	2	0	N	Correctable with Barrier - overturned vehicle on Northbound lanes 10 min earlier
5	3539493	11/30/2007	19:15	Hyperion/ Waverly	200	N	N	Straight	S	Straight	Unsafe Speed	3	0	Y	Correctable with Barrier
6	3839539	6/15/2008	5:10	Hyperion/ Waverly	0	In Int	S	Straight	N	Straight	Wrong Side of Road	0	0	N	Corectable with Barrier (if on Hyperion, not Waverly)
7	3943225	8/9/2008	4:30	Hyperion/ Ettrick	210	N	S	Crossed to Opposing	N	Straight	N/A	2	0	Y	Correctable with Barrier
8	4945718	10/5/2010	10:30	Hyperion/ Ettrick	1640	N	N	Straight	S	Straight	Unsafe Speed	3	0	N	Correctable with Barrier
											TOTAL	20	1		

CRASHES OUTSIDE THE STUDY AREA

Crash #	LADOT Report #	Date	Time	Location			Dir. of Travel Veh. 1	Movement 1	Dir. of Travel Veh. 2	Movement 2	Primary Collision Factor (PCF)	Injuries	Fatalities	Police Report	Remarks
				Cross-streets	Dist. (ft)	Direction									
9	194200041 211003297	4/12/2000	11:00	Hyperion/ Ettrick	0	Int	W	Crossed to Opposing	E	Straight	DUI	1	0	Y	Outside potential barrier area - there is a two-way left turn lane in this area
10	194200082 600303426	8/26/2000	0:30	Hyperion/ Ettrick	50	N	S	straight	N	Straight	DUI	2	0	Y	Outside potential barrier area - there is a two-way left turn lane in this area
11	1251754	12/10/2003	8:15	Hyperion/Ri verside	0	In Int	N	Crossed to Opposing	S	Straight	Wrong side of road	2	0	N	Crash is on Riverside under Hyperion bridge
12	1632245	9/21/2004	9:21	Glendale/ Glenfeliz	1000	S	N	straight	S	Straight	Wrong side of road	1	0	Y	Crash was on the Southbound Glendale bridge
13	2638077	3/28/2006	10:15	Glendale/ Valleybrink	350	S	N	Crossed to Opposing	S	Straight	Unsafe Speed	1	0	N	Too far north - this area already has a raised median/barrier
14	4712654	4/12/2010	9:55	Glendale/ Valleybrink	600	S	N	Wrong-way	S	Straight	Wrong side of road	3	0	N	Crash was most likely on the southbound Glendale bridge
											TOTAL	10	0		



Figure 2. Location of Head-on Collisions

Some observations from the crash history include:

- As shown in the Table, there were a total of 8 cross-median collisions over an 11 year period that could be avoided with a median barrier.
- Over the past 11 years 20 people were injured as a result of cross-median collisions in the study area. There was also 1 fatality. In the most recent 5 year period there were 8 injuries and no fatalities.
- Six of the eight cross-median collisions were caused by drivers traveling at unsafe speeds. Technical memorandum No.2 addressed travel speeds and recommendations for reducing speeds in the area.
- There were two cross-median collisions near Ettrick St (towards the south end of the Study area) attributable to Driving Under the Influence (DUI).

Evaluation of Collision Study Warrant for a Median Barrier

As previously discussed, Caltrans recommends that a decision on whether or not to install a median barrier on a four-lane conventional highway (such as Hyperion Avenue) be made based on meeting a certain threshold in collision history. Table 2 below, summarizes the results of applying the warrant to the Hyperion collision records for the most recent 5-year period.

Table 2. Evaluation of Collision Study Warrant for Median Barrier (04/2006-03/2011)

Criterion	Condition	Hyperion Avenue History	Condition met?	Criterion met (must meet conditions a AND b)?
1. Collisions of any severity in 5-year period	a. 3 or more collisions	4 collisions	Y	Y
	b. 0.5 collisions/mile/year	2.2 coll/mi/yr	Y	
2. Fatal collisions in a 5-year period	a. 3 or more fatal collisions	0 fatal collisions	N	N
	b. 0.12 fatal collisions/mile/year	0 fatal coll/mi/yr	N	

As shown in the table above, the collision study warrant is met for Hyperion Avenue. In addition, if the collision warrant had been applied to the previous 5-year period (2001-2006), the conclusion would have been the same, as there were 4 cross-median collisions over that time; one of them fatal.

Findings and Recommendations

The evaluation of collisions in the area found that there have been 8 cross-median collisions in the segment being studied of Hyperion Avenue. The most common cause of the crashes has been speeding, with evidence of DUI in some of the other crashes.

An evaluation of Caltrans' collision Study Warrant for the installation of Median Barrier found that the crash history satisfies the warrant for installation of a barrier. However, the Caltrans median barrier guidelines do not require that a barrier be installed on multi-lane conventional highways (such as Hyperion Avenue) if the warrant is met. Instead it states that "*Multi-lane conventional highway locations are to be studied when the collision study warrant is met*", and mentions that "*Installation of a median barrier on multi-lane conventional highways may not be feasible*" due to issues such as sight distance, emergency vehicle access, and the need for crash attenuators at barrier end points.

Overall, a concrete median barrier would be the most effective measure to eliminate cross-median collisions on Hyperion Avenue, and as such should be considered by the project owner. However, installation of a median barrier would also have the following impacts on Hyperion Avenue:

- Potential increase in crash frequency, as median barriers are an obstruction that can result in collisions that might not otherwise occur.
- Potential impact to emergency response times, as emergency vehicles would not be able to cross the median barrier to attend to incidents on the opposite side of the road.
- Need for crash cushions or other impact attenuators at the end points of the median barrier.

- Potential for increased speeding as drivers generally associate median barriers with high speed facilities
- Visual impact, as median barriers do not blend well with the context of urban arterials.

Another alternative to mitigate cross-median crashes is to implement an incremental approach where a less intrusive treatment is used first, and the median barrier is used later only if the initial measure fails to resolve the crash problem. The Caltrans median barrier guideline acknowledges this and states *"The District Traffic Safety Engineer may consider installation of a raised median or buffer to reduce cross centerline collisions on urban or suburban facilities operating at 45 mph or less"*. In this case, widening the existing 6 ft buffer is impractical due to the constrained bridge width. However, the installation of a raised median would be feasible (and likely effective in reducing cross-median collisions), especially given the fact that the proposed improvements include narrower lanes, radar speed signs and other features aimed at reducing travel speeds on the bridge. Therefore, if the project owner and stakeholders decide to construct the Hyperion bridge improvements without a median barrier, other potential countermeasures could include the following:

A. **Raised Median with Vertical Curb**

Vertical curbs are not crash barriers and do not prevent high-speed traffic from crossing to the other side of the roadway. However, raised medians with vertical curb help delineate the roadway, discourage motorists from deliberately leaving the roadway, and provide a measure of physical separation between opposing travel directions. In addition, a raised median would blend in with the context of the project better than a concrete barrier, and could facilitate cross-median access for emergency vehicles. In this case, a raised median would be approximately 4 ft in width, with 6 to 8-inch tall vertical curbs, which are appropriate for low-speed roadways (design speed of 45 mph or less). If a median barrier is needed or desired at a later date, the raised median could be replaced with the barrier at a fairly low cost and without affecting other cross-sectional features such as the width of travel lanes, bike lanes, or sidewalks.

B. **Centerline Rumble Strips**

A rumble strip is a raised or grooved pattern placed on the pavement surface and are intended to provide motorists with a warning that their motor vehicles have partially or completely left the travel lane. Noise generated as the motor vehicle tires pass over the rumble strip provides

an audible warning to the motorist, while vibration induced in the motor vehicle by the rumble strips provides a tactile warning. Centerline rumble strips are designed primarily to mitigate head-on crashes and opposite-direction sideswipe crashes.



Figure 3. Centerline Rumble Strips (source: FHWA)

Although rumble strips have been installed on many urban multi-lane roadways across the country, most of the studies have focused on two-lane roadways. Still, detailed studies such as the one performed under the National Cooperative Highway Research Program (NCHRP, Report 641) conclude that "*Given their proven safety benefits for several roadway types, the likelihood that centerline rumble strips are effective on other roadway types, the low cost of installation, and relatively few concerns, centerline rumble strips are considered appropriate for installation along a range of roadway types including multilane undivided highways and two-lane roads in both rural and urban areas*."

The National Crash Modification Factors clearing house (an effort funded by FHWA to document the effects of safety countermeasures) shows that centerline rumble strips on two-lane urban roads reduce head-on and sideswipe collisions by 40% (in other words, have a Crash Modification Factor, CMF of 0.6). More importantly, centerline rumble strips reduce fatal and injury crashes by 64% (CMF=0.36).

Noise generated by rumble strips is sometimes a concern in residential areas. Although residential areas in this project are generally beyond the area considered for the median treatment (Waverly Drive to Glendale Blvd), NCHRP report 641 recommends that in

residential areas, rumble strip patterns should be designed to produce sound level differences in the range of 6 to 12 dBA in the passenger compartment.

Longitudinal Rumble strip marking guidelines are contained in Section 3J.01 of the 2012 edition of California Manual on Uniform Traffic Control Devices (CA MUTCD).

C. Flexible Delineators

Flexible delineators are guidance devices that provide drivers a visual cues as he negotiates critical locations, curves or merging features. Flexible delineators are mounted on springs that allow them to bounce back up after being hit, and can thus resist hundreds of impacts. Delineators typically range in height from 28 to 48 inches and come in both tubular and flat panel designs.

Flexible delineators can also be used in combination with plastic curb systems anchored to the pavement. Those curb systems are typically under 1 ft in width and range from 2 to 4 inches in height depending on the manufacturer. Figure 4 shows delineators used by themselves, in combination with a plastic curb system, and in combination with centerline rumble strips.



Figure 4. Various Applications of Flexible Delineators

Appendix

Crash Records

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	RIVERSIDE DRIVE
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012

Date Range Reported: 1/1/00 - 3/31/11

Total Number of Collisions: 71

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1942000208092526473	2/8/00	09:25	Riverside Drive & Glendale Boulevard	143'	West	Hit Object	Fixed Object	East	Proceeding Straight			Unsafe Speed	0	0	
1942000304184532921	3/4/00	18:45	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	2	0	
1942000723214027548	7/23/00	21:40	Riverside Drive & Glendale Boulevard	1584'	West	Hit Object	Fixed Object	West	Ran Off Road			Driving Under Influence	0	0	
1942001012083024801	10/12/00	08:30	Riverside Drive & Glendale Boulevard	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	
1942001019132534602	10/19/00	13:25	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	4	0	
1942010228200031324	2/28/01	20:00	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	4	0	
1942010330173021594	3/30/01	17:30	Glendale Boulevard & Riverside Drive	15'	North	Rear-End	Motor Vehicle on Other	East	Proceeding Straight	East	Proceeding Straight	Following Too Closely	2	0	
1942010625231534265	6/25/01	23:15	Glendale Boulevard & Riverside Drive	620'	North	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	2	0	
1942010727162033998	7/27/01	16:20	Glendale Boulevard & Riverside Drive	50'	East	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Proceeding Straight	Unsafe Lane Change	0	0	
1942011204222525115	12/4/01	22:25	Riverside Drive & Glendale Boulevard	69'	East	Broadside	Other Motor Vehicle	West	Making U Turn	East	Proceeding Straight	Improper Turning	2	1	
0383456	6/11/02	22:30	Glendale Boulevard & Riverside Drive	500'	North	Head-On	Other Motor Vehicle	North	Traveling Wrong Way	South	Proceeding Straight	Other Hazardous Movement	1	0	
0346229	7/12/02	12:30	Glendale Boulevard & Riverside Drive	0'	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0	
0658790	9/2/02	16:45	Riverside Drive & Glendale Boulevard	400'	North	Broadside	Other Motor Vehicle	West	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
0429271	9/17/02	20:00	Glendale Boulevard & Riverside Drive	185'	South	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Unsafe Lane Change	1	0	
0454623	9/19/02	11:15	Glendale Boulevard & Riverside Drive	15'	East	Rear-End	Bicycle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	1	0	
0721493	11/12/02	07:20	Riverside Drive & Glendale Boulevard	882'	Not Stated	Sideswipe	Other Motor Vehicle	East	Making Right Turn	South	Proceeding Straight	Auto R/W Violation	0	0	
0666830	1/31/03		Riverside Drive & Glendale Boulevard	151'	West	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Parked	Unsafe Speed	0	0	
0746071	2/11/03	17:45	Riverside Drive & Glendale Boulevard	320'	North	Broadside	Other Motor Vehicle	North	Entering Traffic	South	Proceeding Straight	Auto R/W Violation	1	0	
0754939	3/12/03	19:00	Riverside Drive & Glendale Boulevard	2000'	North	Broadside	Other Motor Vehicle	West	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0	
1000123	8/2/03	09:50	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	North	Crossed Into Opposing	South	Proceeding Straight	Wrong Side of Road	1	0	
1000835	8/31/03	19:00	Riverside Drive & Glendale Boulevard	900'	West	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Proceeding Straight	Unsafe Lane Change	0	0	
1160461	11/26/03	15:45	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	2	0	
1263216	12/16/03	09:15	Riverside Drive & Glendale Boulevard	50'	West	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Other Improper Driving	2	0	
1177570	12/20/03	07:00	Riverside Drive & Glendale Boulevard	271'	South	Head-On	Parked Motor Vehicle	North	Proceeding Straight	South	Parked	Wrong Side of Road	1	0	
1262826	1/13/04	02:05	Glendale Boulevard & Riverside Drive	0'	In Int.	Hit Object	Fixed Object	South	Making Right Turn			Other Improper Driving	1	0	
1251712	1/30/04	07:00	Riverside Drive & Glendale Boulevard	678'	East	Head-On	Other Motor Vehicle	West	Proceeding Straight	East	Proceeding Straight	Unsafe Speed	4	0	
1313805	3/3/04	07:10	Riverside Drive & Glendale Boulevard	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0	
1375915	4/1/04	16:33	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	South	Stopped in Road	South	Proceeding Straight	Improper Turning	1	0	
1376050	4/12/04	10:05	Glendale Boulevard & Riverside Drive	400'	North	Hit Object	Other Object	South	Ran Off Road			Unsafe Speed	0	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1617712	7/1/04	09:35	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	2	0	
1880431	12/20/04	10:15	Riverside Drive & Glendale Boulevard	144'	West	Hit Object	Fixed Object	West	Proceeding Straight			Unsafe Speed	1	0	
1862031	1/15/05	21:40	Riverside Drive & Glendale Boulevard	75'	South	Broadside	Other Motor Vehicle	East	Making Right Turn	North	Stopped in Road	Unsafe Speed	0	0	
1945605	2/17/05	17:50	Riverside Drive & Glendale Boulevard	300'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Slowing/Stopping	Following Too Closely	1	0	
1909408	2/23/05	16:00	Glendale Boulevard & Riverside Drive	243'	South	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0	
2149915	7/4/05	04:00	Riverside Drive & Glendale Boulevard	580'	South	Hit Object	Fixed Object	North	Proceeding Straight			Not Stated	1	0	
2181770	7/26/05	15:15	Riverside Drive & Glendale Boulevard	12'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Following Too Closely	2	0	
2227107	8/25/05	07:45	Riverside Drive & Glendale Boulevard	450'	North	Broadside	Other Motor Vehicle	West	Making Left Turn	North	Proceeding Straight	Unknown	1	0	
2381362	9/21/05	15:50	Glendale Boulevard & Riverside Drive	600'	North	Rear-End	Other Motor Vehicle	West	Making Right Turn	West	Stopped in Road	Unsafe Speed	1	0	
2421872	11/13/05	17:30	Riverside Drive & Glendale Boulevard	600'	South	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Making U Turn	Improper Turning	2	0	
2378426	11/24/05	19:40	Riverside Drive & Glendale Boulevard	300'	West	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	2	0	
2432173	11/28/05	10:05	Riverside Drive & Glendale Boulevard	63'	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Starting or Backing	0	0	
2499937	12/16/05	20:15	Glendale Boulevard & Riverside Drive	6'	South	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	1	0	
2436575	12/22/05	15:45	Glendale Boulevard & Riverside Drive	950'	East	Sideswipe	Other Motor Vehicle	East	Merging	East	Proceeding Straight	Unsafe Lane Change	1	0	
2551034	1/4/06	21:25	Riverside Drive & Glendale Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	South	Proceeding Straight	Traffic Signals and Signs	0	0	
2564171	2/13/06	18:55	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	1	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
2595806	4/12/06	08:20	Riverside Drive & Glendale Boulevard	186'	East	Hit Object	Fixed Object	West	Ran Off Road			Wrong Side of Road	0	0	
2848735	9/30/06	10:30	Glendale Boulevard & Riverside Drive	400'	North	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	0	0	
2927500	11/24/06	14:55	Glendale Boulevard & Riverside Drive	572'	North	Overturned	Fixed Object	South	Proceeding Straight			Driving Under Influence	1	0	
3100447	1/15/07	13:10	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Stopped in Road	Traffic Signals and Signs	1	0	
3319908	4/26/07	13:40	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Improper Turning	1	0	
3613480	2/16/08	11:50	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	1	0	
3634129	2/24/08	16:15	Glendale Boulevard & Riverside Drive	10'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0	
3683696	3/31/08	18:00	Riverside Drive & Glendale Boulevard	8'	West	Rear-End	Other Motor Vehicle	Not State	Proceeding Straight	East	Stopped in Road	Following Too Closely	0	0	
3811364	5/20/08	17:00	Glendale Boulevard & Riverside Drive	1000'	East	Sideswipe	Other Motor Vehicle	East	Entering Traffic	East	Proceeding Straight	Auto R/W Violation	0	0	
3966637	8/11/08	06:50	Riverside Drive & Glendale Boulevard	12'	East	Broadside	Bicycle	East	Making Right Turn	South	Proceeding Straight	Auto R/W Violation	1	0	
3944892	10/13/08	17:25	Glendale Boulevard & Riverside Drive	95'	South	Hit Object	Fixed Object	East	Other Unsafe Turning			Unsafe Speed	1	0	
4009352	10/27/08	07:40	Riverside Drive & Glendale Boulevard	0'	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	1	0	
4008658	11/1/08	02:45	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Object	South	Making Left Turn			Unsafe Speed	1	0	
4021088	11/24/08	16:00	Riverside Drive & Glendale Boulevard	0'	In Int.	Hit Object	Fixed Object	East	Proceeding Straight			Unsafe Speed	0	0	
4065398	12/7/08	00:40	Riverside Drive & Glendale Boulevard	500'	West	Hit Object	Fixed Object	East	Ran Off Road			Improper Turning	0	0	
4146513	2/23/09	17:20	Glendale Boulevard & Riverside Drive	0'	In Int.	Head-On	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Auto R/W Violation	1	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
4465948	10/22/09	18:50	Riverside Drive & Glendale Boulevard	800'	North	Sideswipe	Bicycle	North	Making Right Turn	West	Proceeding Straight	Unsafe Lane Change	1	0	
4480899	10/28/09	15:05	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Other Motor Vehicle	South	Slowing/Stopping	West	Proceeding Straight	Traffic Signals and Signs	2	0	
4506617	11/28/09	19:30	Riverside Drive & Glendale Boulevard	1150'	West	Rear-End	Parked Motor Vehicle	West	Parking Maneuver	East	Parked	Unsafe Starting or Backing	0	0	
4817782	4/30/10	18:25	Riverside Drive & Glendale Boulevard	130'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	1	0	
4865132	7/19/10	08:25	Riverside Drive & Glendale Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	2	0	
4945759	9/23/10	08:50	Glendale Boulevard & Riverside Drive	0'	In Int.	Broadside	Bicycle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0	
4967046	10/22/10	11:00	Riverside Drive & Glendale Boulevard	1000'	South	Broadside	Other Motor Vehicle	North	Backing	East	Stopped in Road	Unsafe Starting or Backing	1	0	
5019257	12/1/10	09:35	Riverside Drive & Glendale Boulevard	540'	South	Sideswipe	Other Motor Vehicle	East	Entering Traffic	South	Proceeding Straight	Auto R/W Violation	0	0	
5043316	1/15/11	09:20	Glendale Boulevard & Riverside Drive	105'	South	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Unsafe Lane Change	1	0	
5086827	2/14/11	09:30	Riverside Drive & Glendale Boulevard	60'	East	Head-On	Motor Vehicle on Other	East	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	2	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	RT*
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/11
Total Number of Collisions: 4

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
2704893	6/14/06	02:45	Glendale Boulevard & Rt 2 N/B On	18'	North	Hit Object	Fixed Object	North	Ran Off Road			Driving Under Influence	0	0	
2848719	9/30/06	13:30	Glendale Boulevard & Rt 2 N/B On	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Proceeding Straight	Other Hazardous Movement	0	0	
3320368	7/22/07	20:20	Rt 5 N/B Off & Glendale Boulevard	50'	South	Rear-End	Other Motor Vehicle	North	Slowing/Stopping	North	Proceeding Straight	Unsafe Speed	0	0	
5043284	1/13/11	08:37	Glendale Boulevard & Rt 5 N/B Off	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	West	Making Right Turn	Unknown	2	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	HYPERION AVENUE (S)
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/11
Total Number of Collisions: 10

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1942000210225031583	2/10/00	22:50	Hyperion Avenue & Glendale Boulevard	450'	South	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	0	0	
1942010519173532915	5/19/01	17:35	Hyperion Avenue & Glendale Boulevard	470'	West	Head-On	Other Motor Vehicle	East	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	5	0	
0323752	3/28/02	20:30	Glendale Boulevard & Hyperion Avenue (S)	1800'	South	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	North	Crossed Into Opposing	Unsafe Speed	2	0	
0680936	2/13/03	08:10	Hyperion Avenue & Glendale Boulevard	300'	South	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	0	0	
0792482	4/14/03	08:30	Hyperion Avenue & Glendale Boulevard	390'	North	Rear-End	Other Motor Vehicle	South	Changing Lanes	South	Changing Lanes	Unsafe Lane Change	2	0	
1890451	12/25/04	13:45	Hyperion Avenue & Glendale Boulevard	75'	South	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	1	0	
3808109	7/2/08	23:35	Glendale Boulevard & Hyperion Avenue (N)	152'	North	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	North	Parked	Driving Under Influence	2	0	
4329904	7/17/09	09:25	Hyperion Avenue & Glendale Boulevard	2000'	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Following Too Closely	0	0	
4340700	7/30/09	23:55	Glendale Boulevard & Hyperion Avenue (N)	10'	East	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Lane Change	0	0	
4919541	5/30/10	13:40	Hyperion Avenue & Glendale Boulevard	940'	West	Rear-End	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	VALLEYBRINK ROAD
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/11
Total Number of Collisions: 14

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
19420011042235329996	11/4/00	22:35	Glendale Boulevard & Valleybrink Road	673'	South	Broadside	Other Motor Vehicle	South	Making U Turn	North	Proceeding Straight	Wrong Side of Road	2	0	
0323827	3/24/02	23:45	Glendale Boulevard & Valleybrink Road	494'	South	Hit Object	Fixed Object	South	Proceeding Straight			Unknown	3	0	
0533471	11/19/02	01:10	Glendale Boulevard & Valleybrink Road	160'	South	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	1	0	
1160942	11/1/03	04:20	Glendale Boulevard & Valleybrink Road	1184'	South	Head-On	Other Motor Vehicle	South	Crossed Into Opposing	North	Proceeding Straight	Unsafe Speed	3	1	
1120802	11/10/03	03:00	Glendale Boulevard & Valleybrink Road	500'	West	Hit Object	Fixed Object	West	Proceeding Straight			Unsafe Speed	0	0	
1230275	12/13/03	21:00	Glendale Boulevard & Valleybrink Road	300'	South	Hit Object	Fixed Object	South	Proceeding Straight			Other Than Driver or Ped	0	0	
1230108	12/14/03	15:00	Glendale Boulevard & Valleybrink Road	685'	West	Overturned	Fixed Object	East	Proceeding Straight			Unsafe Speed	1	0	
1811069	12/5/04	02:00	Glendale Boulevard & Valleybrink Road	500'	South	Hit Object	Fixed Object	South	Making Left Turn			Unsafe Speed	1	0	
2393525	12/14/05	00:35	Glendale Boulevard & Valleybrink Road	530'	South	Hit Object	Fixed Object	North	Ran Off Road			Driving Under Influence	1	0	
2638077	3/28/06	10:15	Glendale Boulevard & Valleybrink Road	350'	South	Head-On	Other Motor Vehicle	North	Crossed Into Opposing	South	Proceeding Straight	Unsafe Speed	1	0	
3469005	10/7/07	00:50	Glendale Boulevard & Valleybrink Road	200'	South	Rear-End	Parked Motor Vehicle	South	Proceeding Straight	South	Parked	Driving Under Influence	0	0	
3613121	1/13/08	17:40	Glendale Boulevard & Valleybrink Road	1000'	South	Hit Object	Fixed Object	South	Ran Off Road			Driving Under Influence	0	0	
4506561	11/25/09	08:10	Valleybrink Road & Glendale Boulevard	22'	West	Rear-End	Other Motor Vehicle	East	Stopped in Road	West	Backing	Unsafe Starting or Backing	0	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
4712654	4/12/10	09:55	Glendale Boulevard & Valleybrink Road	600'	South	Head-On	Other Motor Vehicle	North	Traveling Wrong Way	South	Proceeding Straight	Wrong Side of Road	3	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	EDENHURST AVENUE
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 6

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1942001004100023962	10/4/00	10:00	Edenhurst Avenue & Glendale Boulevard	140'	West	Hit Object	Fixed Object	North	Making Right Turn			Improper Turning	0	0	
0202565	4/19/02	22:10	Edenhurst Avenue & Glendale Boulevard	95'	West	Head-On	Other Motor Vehicle	East	Proceeding Straight	West	Parked	Driving Under Influence	0	0	
1117997	11/4/03	21:45	Edenhurst Avenue & Glendale Boulevard	47'	West	Head-On	Other Motor Vehicle	East	Proceeding Straight	West	Proceeding Straight	Wrong Side of Road	0	0	
2589956	2/13/06	19:00	Edenhurst Avenue & Glendale Boulevard	105'	West	Rear-End	Other Motor Vehicle	West	Backing	East	Stopped in Road	Improper Turning	0	0	
3613488	2/21/08	15:30	Edenhurst Avenue & Glendale Boulevard	35'	West	Rear-End	Parked Motor Vehicle	Not State	Backing	Not Stat	Parked	Unknown	0	0	
3845117	7/19/08	12:55	Glendale Boulevard & Edenhurst Avenue	108'	South	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	East	Not Applicable -	Other Improper Driving	1	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	GLENFELIZ BOULEVARD
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/11
Total Number of Collisions: 36

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194201011707303078 4	1/17/01	07:30	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	
194201021117303122 8	2/11/01	17:30	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0	
194201022608102647 3	2/26/01	08:10	Glendale Boulevard & Glenfeliz Boulevard	1309'	West	Hit Object	Fixed Object	East	Proceeding Straight			Unsafe Speed	0	0	
194201062916003375 7	6/29/01	16:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Hit Object	Fixed Object	West	Proceeding Straight			Unsafe Speed	0	0	
194201072310003076 3	7/23/01	10:00	Glendale Boulevard & Glenfeliz Boulevard	10'	South	Hit Object	Fixed Object	North	Making Left Turn			Improper Turning	0	0	
194201082517003583 5	8/25/01	17:00	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Head-On	Other Motor Vehicle	South	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	
194201100110003230 9	10/1/01	10:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Hit Object	Fixed Object	North	Making U Turn			Improper Turning	0	0	
194201111614003561 8	11/16/01	14:00	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Sideswipe	Other Motor Vehicle	East	Making Right Turn	East	Stopped in Road	Improper Turning	0	0	
194201112920503397 0	11/29/01	20:50	Glenfeliz Boulevard & Glendale Boulevard	141'	West	Other	Parked Motor Vehicle	South	Backing	East	Parked	Unsafe Starting or Backing	0	0	
0323837	3/26/02	18:35	Glendale Boulevard & Glenfeliz Boulevard	7'	South	Broadside	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Traffic Signals and Signs	0	0	
0454523	9/3/02	16:00	Glendale Boulevard & Glenfeliz Boulevard	50'	North	Sideswipe	Bicycle	South	Proceeding Straight	North	Proceeding Straight	Not Stated	1	0	
0474930	10/18/02	18:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Following Too Closely	1	0	
0721481	11/9/02	20:45	Glendale Boulevard & Glenfeliz Boulevard	174'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
0542568	11/24/02	13:15	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0	
1265394	1/27/04		Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Hit Object	Fixed Object	North	Making U Turn			Other Improper Driving	0	0	
1300616	2/23/04	15:10	Glendale Boulevard & Glenfeliz Boulevard	2'	South	Hit Object	Fixed Object	Not State	Making U Turn			Wrong Side of Road	0	0	
1632245	9/21/04	09:21	Glendale Boulevard & Glenfeliz Boulevard	1000'	South	Head-On	Other Motor Vehicle	North	Proceeding Straight	South	Proceeding Straight	Wrong Side of Road	1	0	
1807241	12/27/04	10:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Stopped in Road	North	Making Left Turn	Unknown	0	0	
1917820	2/4/05	19:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Sideswipe	Other Motor Vehicle	Not State	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	0	0	
1973798	3/10/05	12:10	Glendale Boulevard & Glenfeliz Boulevard	144'	North	Rear-End	Other Motor Vehicle	South	Slowing/Stopping	South	Stopped in Road	Other Improper Driving	0	0	
2160631	7/23/05	13:45	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	1	0	
2191625	8/14/05	18:15	Glendale Boulevard & Glenfeliz Boulevard	300'	West	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Stopped in Road	Unsafe Lane Change	1	0	
2439390	11/16/05	10:00	Glendale Boulevard & Glenfeliz Boulevard	372'	North	Sideswipe	Other Motor Vehicle	South	Traveling Wrong Way	East	Making Right Turn	Wrong Side of Road	0	0	
2633300	2/26/06	20:45	Glendale Boulevard & Glenfeliz Boulevard	15'	South	Broadside	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Unsafe Speed	0	0	
3004329	12/3/06	22:00	Glendale Boulevard & Glenfeliz Boulevard	8'	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Not Stated	1	0	
3055552	12/30/06	19:00	Glendale Boulevard & Glenfeliz Boulevard	46'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0	
3134102	3/5/07	01:00	Glendale Boulevard & Glenfeliz Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0	
3380278	9/8/07	15:55	Glendale Boulevard & Glenfeliz Boulevard	220'	East	Hit Object	Fixed Object	West	Proceeding Straight			Unsafe Speed	0	0	
3534724	11/30/07	12:25	Glendale Boulevard & Glenfeliz Boulevard	10'	North	Broadside	Other Motor Vehicle	South	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
3536830	12/21/07	17:00	Glendale Boulevard & Glenfeliz Boulevard	100'	North	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	North	Backing	Other Improper Driving	0	0	
3565584	1/9/08	16:30	Glendale Boulevard & Glenfeliz Boulevard	15'	North	Vehicle - Pedestrian	Pedestrian	South	Proceeding Straight	East	Proceeding Straight	Ped R/W Violation	1	0	
3808807	6/17/08	04:40	Glendale Boulevard & Glenfeliz Boulevard	3'	South	Hit Object	Fixed Object	North	Making Left Turn			Improper Turning	0	0	
4029812	11/26/08	11:00	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0	
4220032	4/24/09	14:30	Glenfeliz Boulevard & Glendale Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Right Turn	North	Making Left Turn	Traffic Signals and Signs	1	0	
4311814	6/22/09	14:00	Glendale Boulevard & Glenfeliz Boulevard	306'	North	Rear-End	Motor Vehicle on Other	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0	
4642690	2/7/10		Glendale Boulevard & Glenfeliz Boulevard	2'	South	Hit Object	Fixed Object	North	Making Left Turn			Improper Turning	0	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	HOLLYDALE DRIVE (S)
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 8

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194201041014503379 2	4/10/01	14:50	Hollydale Drive & Glendale Boulevard	112'	East	Sideswipe	Parked Motor Vehicle	West	Other Unsafe Turning	West	Parked	Improper Turning	0	0	
194201100517453012 7	10/5/01	17:45	Glendale Boulevard & Hollydale Drive (N)	5'	East	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Entering Traffic	Unknown	1	0	
0456471	10/13/02	03:20	Glendale Boulevard & Hollydale Drive (N)	29'	North	Broadside	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Driving Under Influence	1	0	
0792499	4/27/03	02:15	Glendale Boulevard & Hollydale Drive (S)	400'	West	Overturned	Fixed Object	East	Ran Off Road			Unsafe Speed	1	0	
2802333	9/15/06	15:05	Glendale Boulevard & Hollydale Drive (N)	0'	In Int.	Vehicle - Pedestrian	Pedestrian	Not State	Proceeding Straight	North	Proceeding Straight	Ped R/W Violation	1	0	
3415792	7/6/07	19:30	Glendale Boulevard & Hollydale Drive (N)	40'	West	Vehicle - Pedestrian	Pedestrian	East	Proceeding Straight	North	Not Stated	Pedestrian Violation	1	0	
3616303	2/20/08	06:10	Glendale Boulevard & Hollydale Drive (N)	55'	North	Hit Object	Fixed Object	East	Making Left Turn			Driving Under Influence	0	0	
4308672	7/4/09	12:00	Glendale Boulevard & Hollydale Drive (N)	15'	South	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	0	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	GREENSWARD ROAD (E)
Starting Date	01/01/2000
Ending Date	03/31/20[illegible]
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 5

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194200032121303424 6	3/21/00	21:30	Greensward Road & Glendale Boulevard (E)	0'	In Int.	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0	
2042832	4/1/05	14:20	Glendale Boulevard & Greensward Road (E)	0'	In Int.	Hit Object	Fixed Object	East	Changing Lanes	West	Proceeding Straight	Unsafe Speed	3	0	
2027260	5/5/05	06:30	Glendale Boulevard & Greensward Road (E)	375'	South	Overturned	Fixed Object	North	Proceeding Straight			Not Stated	1	0	
2027256	5/5/05	06:40	Glendale Boulevard & Greensward Road (E)	450'	South	Broadside	Other Motor Vehicle	North	Crossed Into Opposing	South	Proceeding Straight	Unsafe Speed	2	0	
3140905	4/8/07	09:15	Glendale Boulevard & Greensward Road (E)	894'	South	Overturned	Fixed Object	North	Proceeding Straight			Unsafe Speed	0	1	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	FERNCROFT ROAD
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 3

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
0345876	6/7/02	15:15	Glendale Boulevard & Ferncroft Road	81'	North	Broadside	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Improper Turning	1	0	
0724226	11/29/02	09:40	Glendale Boulevard & Ferncroft Road	297'	South	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	1	0	
1837658	12/25/04	16:30	Glendale Boulevard & Ferncroft Road	600'	South	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Improper Turning	1	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	GLENHURST AVENUE
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 24

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1942000521105533854	5/21/00	10:55	Glendale Boulevard & Glenhurst Avenue	24'	South	Broadside	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	2	0	
1942000920113032947	9/20/00	11:30	Glendale Boulevard & Glenhurst Avenue	30'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Starting or Backing	1	0	
1942000920123032947	9/20/00	12:30	Glendale Boulevard & Glenhurst Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	North	Making Left Turn	Traffic Signals and Signs	1	0	
1942001122130032191	11/22/00	13:00	Glendale Boulevard & Glenhurst Avenue	1'	South	Head-On	Other Motor Vehicle	South	Traveling Wrong Way	North	Proceeding Straight	Driving Under Influence	2	0	
0695738	12/18/02	15:40	Glenhurst Avenue & Glendale Boulevard	113'	East	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0	
1027829	8/23/03	03:15	Glendale Boulevard & Glenhurst Avenue	500'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Unsafe Lane Change	0	0	
1022334	9/12/03	16:45	Glendale Boulevard & Glenhurst Avenue	25'	North	Rear-End	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Speed	0	0	
1297772	2/11/04	19:40	Glendale Boulevard & Glenhurst Avenue	100'	North	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	West	Proceeding Straight	Pedestrian Violation	1	0	
1566920	7/16/04	06:25	Glendale Boulevard & Glenhurst Avenue	10'	South	Hit Object	Fixed Object	North	Making Left Turn			Unsafe Speed	0	0	
1558198	7/27/04	17:00	Glendale Boulevard & Glenhurst Avenue	165'	South	Rear-End	Other Motor Vehicle	North	Stopped in Road	North	Proceeding Straight	Unsafe Starting or Backing	2	0	
1811049	12/2/04	22:30	Glendale Boulevard & Glenhurst Avenue	800'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Unsafe Speed	1	0	
1807265	12/25/04	16:20	Glendale Boulevard & Glenhurst Avenue	100'	South	Broadside	Parked Motor Vehicle	Not State	Changing Lanes	South	Parked	Not Stated	0	0	
1903657	2/19/05	02:00	Glendale Boulevard & Glenhurst Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	Not State	Proceeding Straight	Not Stat	Making Left Turn	Unknown	0	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
2465748	1/11/06	05:15	Glendale Boulevard & Glenhurst Avenue	16'	South	Hit Object	Fixed Object	East	Making Left Turn			Unsafe Starting or Backing	0	0	
3471470	9/8/07	16:10	Glendale Boulevard & Glenhurst Avenue	0'	In Int.	Rear-End	Bicycle	Not State	Proceeding Straight	North	Stopped in Road	Following Too Closely	1	0	
3547918	12/12/07	20:30	Glenhurst Avenue & Glendale Boulevard	375'	South	Sideswipe	Parked Motor Vehicle	North	Ran Off Road	South	Parked	Wrong Side of Road	0	0	
3598865	1/5/08	03:55	Glendale Boulevard & Glenhurst Avenue	20'	South	Hit Object	Fixed Object	South	Ran Off Road			Unsafe Speed	0	0	
3708758	4/14/08	09:40	Glenhurst Avenue & Glendale Boulevard	401'	East	Head-On	Other Motor Vehicle	East	Proceeding Straight	West	Stopped in Road	Wrong Side of Road	2	0	
3791874	4/30/08	13:45	Glenhurst Avenue & Glendale Boulevard	50'	East	Hit Object	Fixed Object	East	Ran Off Road			Driving Under Influence	0	0	
4224760	5/5/09	11:10	Glendale Boulevard & Glenhurst Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	1	0	
4311770	6/19/09	14:18	Glenhurst Avenue & Glendale Boulevard	25'	West	Sideswipe	Bicycle	Not State	Proceeding Straight	West	Entering Traffic	Unsafe Starting or Backing	1	0	
4781444	6/4/10	14:25	Glendale Boulevard & Glenhurst Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0	
4861513	8/13/10	07:55	Glenhurst Avenue & Glendale Boulevard	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Right Turn	North	Proceeding Straight	Improper Turning	0	0	
4967120	10/25/10	14:05	Glendale Boulevard & Glenhurst Avenue	120'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Slowing/Stopping	Unsafe Speed	0	0	

Settings Used For Query

Parameter	Setting
Street Name	GLENDALE BOULEVARD
Cross Street	MADERA AVENUE
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/11
Total Number of Collisions: 12

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
19420003240400342436	3/24/00	04:00	Glendale Boulevard & Madera Avenue	69'	North	Rear-End	Parked Motor Vehicle	North	Proceeding Straight	North	Parked	Fell Asleep	1	0	
0323782	3/27/02	19:05	Glendale Boulevard & Madera Avenue	9'	North	Vehicle - Pedestrian	Pedestrian	South	Proceeding Straight	West	Not Stated	Ped R/W Violation	1	0	
0289940	6/15/02	17:45	Glendale Boulevard & Madera Avenue	3'	North	Vehicle - Pedestrian	Pedestrian	South	Proceeding Straight	West	Not Stated	Ped R/W Violation	1	0	
0680916	1/8/03	11:05	Madera Avenue & Glendale Boulevard	295'	East	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	West	Parked	Unsafe Speed	0	0	
0816201	5/5/03	13:15	Glendale Boulevard & Madera Avenue	185'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Other Improper Driving	1	0	
0841273	5/28/03	19:35	Madera Avenue & Glendale Boulevard	0'	In Int.	Sideswipe	Parked Motor Vehicle	South	Proceeding Straight	South	Parked	Other Improper Driving	0	0	
0988040	7/20/03	18:50	Glendale Boulevard & Madera Avenue	8'	East	Broadside	Bicycle	East	Proceeding Straight	North	Proceeding Straight	Auto R/W Violation	1	0	
1565788	8/8/04	06:35	Glendale Boulevard & Madera Avenue	12'	East	Hit Object	Fixed Object	East	Proceeding Straight			Not Stated	1	0	
3139985	4/3/07	08:55	Glendale Boulevard & Madera Avenue	97'	North	Head-On	Parked Motor Vehicle	North	Parking Maneuver	North	Parked	Unsafe Starting or Backing	0	0	
3339626	8/21/07	23:35	Glendale Boulevard & Madera Avenue	30'	South	Hit Object	Fixed Object	North	Ran Off Road			Driving Under Influence	0	0	
4035936	2/2/09	15:30	Glendale Boulevard & Madera Avenue	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	
4331314	7/15/09	22:15	Madera Avenue & Glendale Boulevard	66'	East	Rear-End	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	RIVERSIDE DRIV*
Starting Date	01/01/2000
Ending Date	03/31/2011
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/26/2012

Date Range Reported: 1/1/00 - 3/31/11

Total Number of Collisions: 6

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194200013009400984 7	1/30/00	09:40	Hyperion Avenue & Riverside Drive (W)	500'	North	Sideswipe	Other Motor Vehicle	Not State	Changing Lanes	South	Proceeding Straight	Unsafe Lane Change	1	0	
0253797	4/24/02	12:00	Hyperion Avenue & Riverside Drive (W)	500'	North	Overturned	Fixed Object	North	Ran Off Road			Unsafe Speed	1	0	
0214778	4/24/02	13:10	Hyperion Avenue & Riverside Drive (W)	120'	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Slowing/Stoppi ng	Unsafe Speed	2	0	
1251754	12/10/03	08:15	Hyperion Avenue & Riverside Drive (W)	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Crossed Into Opposing	South	Proceeding Straight	Wrong Side of Road	2	0	
1297799	2/21/04	15:00	Hyperion Avenue & Riverside Drive (W)	500'	North	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	1	0	
3812718	5/20/08	12:30	Hyperion Avenue & Riverside Drive (W)	200'	South	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	1	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	WAVERLY DRIVE (3)
Starting Date	01/01/2000
Ending Date	03/31/20[illegible]
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012

Date Range Reported: 1/1/00 - 3/31/12

Total Number of Collisions: 1

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
3539493	11/30/07	19:15	Hyperion Avenue & Waverly Drive (3)	200'	North	Head-On	Other Motor Vehicle	North	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	3	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	WAVERLY DRIVE (1)
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 5

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
19420003100740301 27	3/10/00	07:40	Hyperion Avenue & Waverly Drive (1)	150'	East	Hit Object	Fixed Object	West	Proceeding Straight			Unsafe Speed	0	0	
0946641	7/21/03	13:30	Hyperion Avenue & Waverly Drive (1)	0'	In Int.	Sideswipe	Other Motor Vehicle	South	Stopped in Road	South	Proceeding Straight	Unknown	0	0	
1300646	2/21/04	13:30	Hyperion Avenue & Waverly Drive (1)	125'	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Other	Unknown	1	0	
3070523	2/25/07	00:15	Hyperion Avenue & Waverly Drive (1)	110'	East	Rear-End	Bicycle	East	Proceeding Straight	East	Proceeding Straight	Wrong Side of Road	1	0	
3839539	6/15/08	05:10	Hyperion Avenue & Waverly Drive (1)	0'	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	North	Proceeding Straight	Wrong Side of Road	0	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	ETTRICK STREET (S)
Starting Date	01/01/2000
Ending Date	03/31/20[illegible]
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 22

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
1942000412110032973	4/12/00	11:00	Hyperion Avenue & Ettrick Street (N)	0'	In Int.	Head-On	Other Motor Vehicle	West	Crossed Into Opposing	East	Proceeding Straight	Driving Under Influence	1	0	
1942000417104531794	4/17/00	10:45	Hyperion Avenue & Ettrick Street (N)	52'	East	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Lane Change	1	0	
1942000826003034265	8/26/00	00:30	Hyperion Avenue & Ettrick Street (N)	50'	North	Head-On	Other Motor Vehicle	South	Proceeding Straight	North	Proceeding Straight	Driving Under Influence	2	0	
1942010225103032191	2/25/01	10:30	Hyperion Avenue & Ettrick Street (N)	224'	North	Sideswipe	Other Motor Vehicle	South	Crossed Into Opposing	North	Proceeding Straight	Unsafe Speed	2	0	
1942011022195031324	10/22/01	19:50	Ettrick Street & Hyperion Avenue	91'	West	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	East	Parked	Wrong Side of Road	0	0	
0323818	3/29/02	03:20	Hyperion Avenue & Ettrick Street (N)	300'	East	Broadside	Other Motor Vehicle	Not State	Traveling Wrong Way	East	Making Left Turn	Wrong Side of Road	0	0	
0865744	6/17/03	10:10	Hyperion Avenue & Ettrick Street (N)	216'	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Following Too Closely	1	0	
1319681	3/10/04	14:05	Hyperion Avenue & Ettrick Street (N)	45'	South	Rear-End	Parked Motor Vehicle	South	Other Unsafe Turning	South	Parked	Unsafe Speed	2	0	
1397936	4/27/04	09:15	Hyperion Avenue & Ettrick Street (N)	50'	South	Hit Object	Fixed Object	South	Making Right Turn			Traffic Signals and Signs	0	0	
1407385	4/28/04	19:55	Hyperion Avenue & Ettrick Street (N)	1344'	North	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	1	0	
1654726	9/18/04	16:35	Hyperion Avenue & Ettrick Street (N)	50'	North	Broadside	Other Motor Vehicle	South	Making U Turn	South	Proceeding Straight	Improper Turning	1	0	
2607315	11/30/05	22:00	Hyperion Avenue & Ettrick Street (N)	0'	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	Not Stat	Proceeding Straight	Unknown	0	0	
2589947	2/21/06	07:30	Hyperion Avenue & Ettrick Street (N)	50'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0	

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
2677608	5/27/06	22:50	Hyperion Avenue & Ettrick Street (N)	300'	North	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Improper Turning	0	0	
2682354	6/7/06	15:45	Hyperion Avenue & Ettrick Street (N)	35'	East	Broadside	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Improper Turning	2	0	
3266856	3/29/07	18:10	Ettrick Street & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	2	0	
3943225	8/9/08	04:30	Hyperion Avenue & Ettrick Street (N)	210'	North	Head-On	Other Motor Vehicle	South	Crossed Into Opposing	North	Proceeding Straight	Not Stated	2	0	
3966605	8/15/08	16:00	Hyperion Avenue & Ettrick Street (N)	345'	North	Sideswipe	Bicycle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0	
4863065	8/7/10	19:00	Hyperion Avenue & Ettrick Street (N)	100'	North	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Changing Lanes	Unsafe Starting or Backing	0	0	
4925655	10/2/10	02:30	Ettrick Street & Hyperion Avenue	216'	West	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	East	Parked	Unsafe Speed	0	0	
4945718	10/5/10	10:30	Hyperion Avenue & Ettrick Street (N)	1640'	North	Broadside	Other Motor Vehicle	North	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	3	0	
4982789	11/25/10	15:20	Hyperion Avenue & Ettrick Street (N)	81'	South	Rear-End	Parked Motor Vehicle	South	Other Unsafe Turning	South	Parked	Driving Under Influence	1	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	LA PAZ DRIVE
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation

Collision Report Summary

07/25/2012

Date Range Reported: 1/1/00 - 3/31/12

Total Number of Collisions: 4

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194200110323003150	11/3/00	23:00	Hyperion Avenue & La Paz Drive	151'	North	Hit Object	Other Object	South	Proceeding Straight			Unsafe Speed	0	0	
1177915	11/28/03	03:00	Hyperion Avenue & La Paz Drive	55'	North	Rear-End	Parked Motor Vehicle	North	Proceeding Straight	North	Parked	Unsafe Speed	0	0	
2432209	12/29/05	15:35	Hyperion Avenue & La Paz Drive	25'	East	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Proceeding Straight	Unsafe Lane Change	0	0	
2877133	10/10/06	07:00	Hyperion Avenue & La Paz Drive	100'	North	Hit Object	Other Object	South	Ran Off Road			Wrong Side of Road	0	0	

Settings Used For Query

Parameter	Setting
Street Name	HYPERION AVENUE
Cross Street	ROWENA AVENUE
Starting Date	01/01/2000
Ending Date	03/31/2012
Distance from Intersection	>= 0' for non rear-end collisions
	>= 0' for rear-end collisions

City of Los Angeles
Department of Transportation
Collision Report Summary

07/25/2012
Date Range Reported: 1/1/00 - 3/31/12
Total Number of Collisions: 105

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.	Ver.
194200021400353088 1	2/14/00	00:35	Hyperion Avenue & Rowena Avenue	5280'	South	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Lane Change	0	0	
194200030215003132 4	3/2/00	15:00	Rowena Avenue & Hyperion Avenue	270'	East	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Other Than Driver or Ped	0	0	
194200030215013132 4	3/2/00	15:01	Rowena Avenue & Hyperion Avenue	129'	East	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Other Than Driver or Ped	0	0	
194200033020003375 7	3/30/00	20:00	Rowena Avenue & Hyperion Avenue	303'	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Making Left Turn	Following Too Closely	0	0	
194200060114103292 1	6/1/00	14:10	Rowena Avenue & Hyperion Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Proceeding Straight	Unsafe Lane Change	0	0	
194200082518553165 4	8/25/00	18:55	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
194200120120553294 7	12/1/00	20:55	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0	
194201020316403435 0	2/3/01	16:40	Hyperion Avenue & Rowena Avenue	18'	West	Vehicle - Pedestrian	Pedestrian	West	Making Left Turn	South	Not Stated	Pedestrian Violation	1	0	
194201033015503560 1	3/30/01	15:50	Rowena Avenue & Hyperion Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unknown	1	0	
194201040816153008 3	4/8/01	16:15	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	
194201042013203122 5	4/20/01	13:20	Hyperion Avenue & Rowena Avenue	12'	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Starting or Backing	1	0	
194201070905203382 5	7/9/01	05:20	Rowena Avenue & Hyperion Avenue	200'	East	Sideswipe	Other Motor Vehicle	West	Other	West	Proceeding Straight	Unsafe Lane Change	0	0	
194201072107002647 3	7/21/01	07:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0	

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1942010726172530710	7/26/01	17:25	Rowena Avenue & Hyperion Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	2	0	
1942010810130033985	8/10/01	13:00	Hyperion Avenue & Rowena Avenue	56'	South	Broadside	Other Motor Vehicle	East	Entering Traffic	South	Proceeding Straight	Auto R/W Violation	2	0	
1942010813174033757	8/13/01	17:40	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	West	Making Left Turn	Traffic Signals and Signs	1	0	
1942011205170031517	12/5/01	17:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Vehicle - Pedestrian	Pedestrian	West	Making Left Turn	West	Not Stated	Ped R/W Violation	1	0	
0308683	1/14/02	01:55	Rowena Avenue & Hyperion Avenue	200'	East	Rear-End	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	1	0	
0130256	1/30/02	06:30	Hyperion Avenue & Rowena Avenue	243'	South	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	1	0	
0080754	3/3/02	17:30	Rowena Avenue & Hyperion Avenue	90'	South	Broadside	Other Motor Vehicle	South	Making Right Turn	North	Stopped in Road	Wrong Side of Road	1	0	
0305138	3/3/02	18:30	Hyperion Avenue & Rowena Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Following Too Closely	1	0	
0454500	8/18/02	17:40	Rowena Avenue & Hyperion Avenue	38'	East	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Stopped in Road	Not Stated	0	0	
0654575	2/8/03	09:15	Rowena Avenue & Hyperion Avenue	0'	In Int.	Hit Object	Other Object	East	Proceeding Straight			Other Than Driver or Ped	0	0	
0710747	2/9/03	15:45	Rowena Avenue & Hyperion Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	5	0	
0764444	3/20/03	11:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Auto R/W Violation	1	0	
0738734	3/25/03	17:00	Hyperion Avenue & Rowena Avenue	422'	South	Broadside	Other Motor Vehicle	West	Entering Traffic	North	Proceeding Straight	Auto R/W Violation	2	0	
0876500	8/18/03	17:40	Rowena Avenue & Hyperion Avenue	38'	East	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Stopped in Road	Unsafe Lane Change	0	0	
1160868	10/31/03	15:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	South	Making Left Turn	Traffic Signals and Signs	1	0	
1211352	11/15/03	13:10	Hyperion Avenue & Rowena Avenue	778'	North	Hit Object	Fixed Object	South	Proceeding Straight			Traffic Signals and Signs	1	0	

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1263309	11/23/03	19:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	South	Making Left Turn	Auto R/W Violation	1	0	
1263306	12/26/03	09:30	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	2	0	
1263323	1/10/04	17:40	Rowena Avenue & Hyperion Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	1	0	
1263326	1/23/04	10:40	Hyperion Avenue & Rowena Avenue	182'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Making Right Turn	Following Too Closely	0	0	
1375879	4/5/04	19:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	1	0	
1422091	5/11/04	12:00	Hyperion Avenue & Rowena Avenue	15'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0	
1558277	7/21/04	20:55	Rowena Avenue & Hyperion Avenue	65'	East	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Lane Change	3	0	
1699877	7/29/04	07:30	Rowena Avenue & Hyperion Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Following Too Closely	0	0	
1613561	9/5/04	15:45	Rowena Avenue & Hyperion Avenue	35'	East	Rear-End	Other Motor Vehicle	West	Backing	West	Stopped in Road	Unsafe Starting or Backing	0	0	
1674379	10/2/04	18:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	West	Not Stated	Ped R/W Violation	1	0	
1880432	11/25/04	02:00	Hyperion Avenue & Rowena Avenue	400'	South	Rear-End	Parked Motor Vehicle	North	Proceeding Straight	North	Parked	Unsafe Speed	0	0	
1856174	1/19/05	16:30	Rowena Avenue & Hyperion Avenue	100'	West	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Not Stated	1	0	
1917792	1/27/05	21:30	Hyperion Avenue & Rowena Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0	
1946927	3/12/05	12:10	Rowena Avenue & Hyperion Avenue	275'	Not Stated	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Unsafe Speed	1	0	
2019453	5/4/05	09:45	Rowena Avenue & Hyperion Avenue	0'	In Int.	Vehicle - Pedestrian	Pedestrian	South	Making Right Turn	North	Proceeding Straight	Not Stated	1	0	
2064007	5/20/05	16:25	Rowena Avenue & Hyperion Avenue	110'	East	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Lane Change	0	0	

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2063928	5/25/05	06:30	Rowena Avenue & Hyperion Avenue	0'	In Int.	Hit Object	Fixed Object	West	Making Right Turn			Improper Turning	0	0	
2149844	7/13/05	18:05	Rowena Avenue & Hyperion Avenue	50'	West	Sideswipe	Other Motor Vehicle	West	Making Left Turn	West	Making Left Turn	Improper Turning	0	0	
2227111	8/28/05	20:35	Rowena Avenue & Hyperion Avenue	50'	East	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Improper Turning	0	0	
2378355	9/23/05	23:40	Rowena Avenue & Hyperion Avenue	0'	In Int.	Head-On	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
2378372	10/15/05	18:50	Rowena Avenue & Hyperion Avenue	120'	North	Head-On	Other Motor Vehicle	South	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	2	0	
2292928	10/17/05	11:40	Hyperion Avenue & Rowena Avenue	17'	North	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Stopped in Road	Unsafe Speed	0	0	
2378462	11/26/05	07:10	Hyperion Avenue & Rowena Avenue	0'	In Int.	Vehicle - Pedestrian	Pedestrian	North	Making Right Turn	North	Not Stated	Ped R/W Violation	1	0	
2633381	5/10/06	17:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	3	0	
2665735	5/19/06	12:50	Hyperion Avenue & Rowena Avenue	80'	South	Broadside	Bicycle	West	Entering Traffic	South	Traveling Wrong Way	Wrong Side of Road	1	0	
2731713	7/7/06	09:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	3	0	
9019570	8/21/06	15:15	Rowena Avenue & Hyperion Avenue	45'	East	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Proceeding Straight	Unsafe Lane Change	0	0	
2935374	11/25/06	19:50	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	Not State	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0	
3030002	1/10/07	19:00	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	1	0	
3056024	2/21/07	12:30	Hyperion Avenue & Rowena Avenue	420'	North	Sideswipe	Other Motor Vehicle	South	Other Unsafe Turning	South	Proceeding Straight	Improper Turning	0	0	
3083804	3/8/07	09:40	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	North	Proceeding Straight	Wrong Side of Road	3	0	
3262879	3/21/07	02:10	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0	

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3311840	4/20/07	17:00	Hyperion Avenue & Rowena Avenue	1000'	North	Broadside	Other Motor Vehicle	North	Crossed Into Opposing	South	Proceeding Straight	Unsafe Speed	2	0	
3262896	5/18/07	16:00	Hyperion Avenue & Rowena Avenue	10'	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unknown	2	0	
3456793	7/9/07	22:10	Hyperion Avenue & Rowena Avenue	12'	East	Broadside	Other Motor Vehicle	South	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	2	0	
3456787	9/17/07	06:30	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	2	0	
3433965	9/19/07	15:50	Rowena Avenue & Hyperion Avenue	50'	East	Overturned	Non-Collision	East	Proceeding Straight			Unsafe Speed	1	0	
3433941	9/22/07	07:55	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0	
3531174	11/24/07	01:15	Rowena Avenue & Hyperion Avenue	400'	West	Rear-End	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0	
3531661	11/24/07	01:30	Rowena Avenue & Hyperion Avenue	191'	North	Head-On	Parked Motor Vehicle	Not State	Ran Off Road	North	Parked	Unknown	0	0	
3531601	11/28/07	07:30	Hyperion Avenue & Rowena Avenue	3'	South	Head-On	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
3562484	12/17/07	21:20	Rowena Avenue & Hyperion Avenue	132'	South	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	0	0	
3622780	1/22/08	15:00	Hyperion Avenue & Rowena Avenue	1000'	North	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Not Stated	1	0	
3563626	1/24/08	12:05	Rowena Avenue & Hyperion Avenue	277'	West	Rear-End	Other Motor Vehicle	West	Backing	East	Stopped in Road	Unsafe Starting or Backing	0	0	
3631814	2/29/08	03:00	Hyperion Avenue & Rowena Avenue	110'	North	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Unsafe Lane Change	1	0	
3652901	3/7/08	13:30	Hyperion Avenue & Rowena Avenue	0'	In Int.	Sideswipe	Other Motor Vehicle	Not State	Proceeding Straight	North	Proceeding Straight	Unsafe Speed	0	0	
3696816	4/4/08	07:40	Rowena Avenue & Hyperion Avenue	10'	East	Sideswipe	Bicycle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	1	0	
3707325	4/16/08	08:45	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	2	0	

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3707207	4/21/08	01:50	Rowena Avenue & Hyperion Avenue	250'	Not Stated	Rear-End	Parked Motor Vehicle	South	Proceeding Straight	South	Parked	Driving Under Influence	0	0	
3809890	6/12/08	22:50	Hyperion Avenue & Rowena Avenue	0'	In Int.	Sideswipe	Parked Motor Vehicle	West	Stopped in Road	Not Stat	Parked	Unsafe Lane Change	1	0	
3812792	6/30/08	11:24	Hyperion Avenue & Rowena Avenue	2'	East	Hit Object	Fixed Object	West	Ran Off Road			Unsafe Speed	0	0	
3808281	7/7/08	08:30	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	3	0	
3966635	9/12/08	07:00	Rowena Avenue & Hyperion Avenue	160'	East	Broadside	Bicycle	North	Proceeding Straight	East	Proceeding Straight	Auto R/W Violation	1	0	
4009332	10/26/08	00:30	Rowena Avenue & Hyperion Avenue	0'	In Int.	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	West	Parked	Unsafe Speed	0	0	
4027611	11/21/08	10:05	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
4045936	1/10/09	09:15	Hyperion Avenue & Rowena Avenue	100'	North	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Unsafe Lane Change	0	0	
4097416	1/14/09	20:55	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	3	0	
4097281	1/15/09	18:25	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Right Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
4146509	2/23/09	09:40	Rowena Avenue & Hyperion Avenue	0'	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	1	0	
4159906	3/1/09	02:30	Rowena Avenue & Hyperion Avenue	80'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Unsafe Speed	0	0	
4230528	5/8/09	08:00	Hyperion Avenue & Rowena Avenue	300'	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	2	0	
4268469	6/4/09	17:05	Hyperion Avenue & Rowena Avenue	15'	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0	
4316066	7/10/09	21:00	Rowena Avenue & Hyperion Avenue	50'	East	Sideswipe	Other Motor Vehicle	East	Making Right Turn	West	Stopped in Road	Unsafe Speed	0	0	
4395402	9/4/09	12:30	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0	

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4426275	10/9/09	14:30	Rowena Avenue & Hyperion Avenue	90'	East	Broadside	Bicycle	Not State	Proceeding Straight	West	Making Left Turn	Unsafe Speed	1	0	
4442049	10/12/09	19:20	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
4550426	12/12/09	14:55	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	
4573264	1/7/10	06:15	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	2	0	
4573423	1/21/10	10:40	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0	
4850450	4/27/10	15:58	Rowena Avenue & Hyperion Avenue	0'	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Auto R/W Violation	4	0	
4807686	5/29/10	20:10	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0	
4945473	10/1/10	12:35	Rowena Avenue & Hyperion Avenue	111'	West	Broadside	Other Motor Vehicle	West	Making Left Turn	West	Proceeding Straight	Improper Turning	2	0	
4945469	10/4/10	18:20	Rowena Avenue & Hyperion Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	1	0	
4967096	10/27/10	16:15	Rowena Avenue & Hyperion Avenue	125'	East	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Slowing/Stopping	Unsafe Speed	0	0	
5043356	1/19/11	17:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	2	0	
5113905	2/27/11	21:00	Hyperion Avenue & Rowena Avenue	0'	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0	

Technical Memorandum No. 4

To:	City of Los Angeles Bureau of Engineering
From:	Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE
cc:	Anissa Voyiatzes, PE
Date:	June 26, 2014
Re:	**Glendale-Hyperion Bridge Complex Operational Analysis**

Executive Summary

As a follow-up to the previous three Technical Memorandums, Psomas performed a series of operational analysis on six scenarios for the study area. These scenarios involve existing and future traffic volumes that were developed and discussed in Technical Memorandum No. 1. The first two scenarios deal with existing and future conditions with no improvement assumed in the study area. The remaining four assumed reconfiguration and signalization of the I-5 northbound off-ramp, alternate number of travel lanes on Hyperion Avenue bridge and a few pedestrian crosswalk options. They are all described in more detail in the following paragraphs.

Operational analysis yields results that can be summarized as follows:

1. The intersections of Glendale/Glenhurst-Glenfeliz and Hyperion/Rowena will operate near or above capacity in future (2040) conditions, especially during morning peak hour unless capacity improvements are provided. The reconfiguration of I-5 northbound off-ramp will reduce the amount of U-turning vehicles that are currently using the Glendale/Glenhurst-Glenfeliz intersection.

2. A three-lane scenario on the Hyperion Avenue bridge (one northbound lane) could operate efficiently as long as traffic on the single northbound lane is not interrupted by a signalized crosswalk. Traffic flow interruptions (Scenario 6 includes a crosswalk across Hyperion Avenue) would result in queues and oversaturation in the northbound direction. Furthermore, the year 2040 PM peak hour condition will approach the capacity of the road even without the addition of a crosswalk across northbound Hyperion Avenue.

3. Proposed crosswalks aiding pedestrians to cross to and from the Hyperion Avenue bridge should be placed in such way that minimizes interruption to vehicular traffic flow.

Objectives

The objective of this Technical Memorandum is to analyze and present operational Level-of-Service (LOS), Queuing and Capacity at:

1. Glendale Boulevard/Glenfeliz Boulevard-Glenhurst Avenue
2. Hyperion Avenue/Rowena Avenue
3. I-5 Northbound Off-Ramp
4. Crosswalks at the junction of Glendale Boulevard and Hyperion Avenue (approximately located 800 feet south from the Glendale/Glenfeliz-Glenhurst intersection)
5. Hyperion Avenue bridge from Waverly Drive to Glendale Boulevard

In order to fulfill project goals, Psomas is providing these analysis for six (6) different scenarios as follow:

Scenario 1: Existing Traffic Demand in the morning (AM) and afternoon (PM) peak hours

Scenario 2: Horizon Year (2040) Traffic Demand in the morning (AM) and afternoon (PM) peak hours (Without Project)

Scenario 3: Horizon Year (2040) Traffic Demand in the morning (AM) and afternoon (PM) peak hours with 4-Lane Option on Hyperion Avenue and Crosswalk on Southbound Glendale Boulevard

Scenario 4: Horizon Year (2040) Traffic Demand in the morning (AM) and afternoon (PM) peak hours with 4-Lane Option on Hyperion Avenue and Crosswalks on Southbound Glendale Boulevard and Hyperion Avenue through Northbound Glendale Boulevard

Scenario 5: Horizon Year (2040) Traffic Demand in the morning (AM) and afternoon (PM) peak hours with 3-Lane Option on Hyperion Avenue and Crosswalks on Southbound and Northbound Glendale Boulevard

Scenario 6: Horizon Year (2040) Traffic Demand in the morning (AM) and afternoon (PM) peak hours with 3-Lane Option on Hyperion Avenue and Crosswalks on Southbound Glendale Boulevard, across Hyperion Avenue and Northbound Glendale Boulevard

The term "Without Project" represents configuration where no improvements nor reconfiguration of geometric alignments is being implemented to the Hyperion Avenue bridge and its adjoining roadways and ramps. However, Psomas assumes that signal timing at signalized intersections of Glendale Boulevard/Glenhurst Avenue-Glenfeliz Boulevard and Hyperion Avenue/Rowena Avenue will be optimized.

Study Area, Volume Development and Methodology

This memorandum focuses on operational analysis for the segment of Hyperion Avenue/Glendale Boulevard between Rowena Avenue and Glenfeliz Boulevard-Glenhurst Avenue based on existing volumes, growth rate and future volume in the year of 2040, herein called "Horizon Year".

Traffic Volume Exhibit, generated by Synchro, included in **Appendix A** shows traffic demand volumes that are used to perform operational analysis in this Technical Memorandum. Psomas assumes that the proposed reconfiguration of I-5 Northbound off-ramp will channelize some vehicles that currently make U-turn at the Glendale Boulevard/Glenfeliz-Glenhurst intersection heading to southbound Glendale Boulevard.

A network of the project study area was built within Synchro, a widely used operational traffic analysis software. The resulting model was then simulated by using a tool within the software called SimTraffic whereby performance results were retrieved and presented herein.

Definitions

The quality performance of traffic – how well traffic flows is commonly measured by a parameter known as Level of Service (LOS) which is defined as the extent or degree of service provided by a facility based on and related to the operational characteristic of that facility. At a scale of "A" to "F", LOS letter grades represent "free-flowing" to "congested" traffic conditions.

For signalized intersections and proposed crosswalk locations at the junction of Glendale Boulevard and Hyperion Avenue, LOS is measured by delay in seconds experienced by a vehicle, in accordance to the following chart.

Table 1: Level of Service Definition for A Signalized Intersection

LOS	Signalized Intersection Control Delay (sec/veh) *	Definition
A	<10	EXCELLENT. No vehicle wait is longer than one red light, and no approach phase is fully used.
B	>10 and <20	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles
C	>20 and <35	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>35 and <55	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>55 and <80	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>80 or a V/C ratio equal to greater than 1	FAILURE. Backups from nearby Facility Types or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays

* = Thresholds are applicable to automobiles

The intersection of I-5 Northbound Off-ramp is categorized as a "Two-way stop controlled" intersection where Level of Service (LOS) is also measured by seconds in delay experienced by each vehicle as shown below:

Table 2: Level of Service Definition for A Two-Way Stop Controlled Intersection

LOS	Two-Way Stop Controlled Intersections (sec/veh)*	Definition
A	<10	EXCELLENT.
B	>10 to 15	VERY GOOD.
C	>15 to 25	GOOD.
D	>26 to 35	FAIR.
E	>35 to 50	POOR.
F	>50	FAILURE.

* = Thresholds are applicable to automobiles

Given that there are no signals to interrupt traffic flow along the Hyperion Avenue bridge (Waverly Dr to Glendale Blvd), Hyperion Avenue currently functions as a multi-lane highway with an 85th percentile (operating) speed between 44 – 46 mph. As such, its performance can be evaluated as a function of density (pc/mi/ln).

Table 3: Level of Service Definition for a Multi-lane Highway facility

LOS	Density (pc/mi/ln)	Definition
A	> 0 – 11	EXCELLENT.
B	>11 – 18	VERY GOOD.
C	>18 – 26	GOOD.
D	>26 - 35	FAIR.
E	>35 - 45	POOR.
F	>45	FAILURE.

Based on the 2013 edition of Los Angeles Department of Transportation (LADOT) Traffic Study Policies and Procedures, LOS "E" and "F" are considered to represent congested conditions.

Operational Analysis

Under Scenario 1, Operational Analysis focuses on existing traffic conditions during morning and evening peak hours based on traffic survey and data collection conducted from February through April of 2014. Existing signal timing is used for signalized intersections.

SCENARIO 1: EXISTING TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS

Under this scenario, operational performance of existing conditions were evaluated with no modification or optimization of signal timing considered with the following results:

Table 4: Level of Service (LOS) and Delay (seconds) at Intersections

No.	Locations	Year 2014 Existing	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	E (76.9)	C (26.0)
2	Hyperion Avenue/Rowena Avenue	C (27.7)	C (24.5)
3	I-5 Northbound Off-Ramp at Glendale Blvd **	A (6.1)	A (9.9)

**= Stop-controlled intersection

The intersection of Glendale Boulevard/Glenfeliz-Glenhurst is shown to be experiencing congestion during morning (AM) peak hour.

SCENARIO 2: HORIZON YEAR (2040) TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS (WITHOUT PROJECT)

This scenario assumes no physical improvement is being implemented within the project study area. It assumes that the existing I-5 northbound off-ramp will be maintained at its current configuration. Signal timing at the intersections of Glendale/Glenfeliz-Glenhurst and Hyperion/Rowena, on the other hand, were optimized.

Table 5: Level of Service (LOS) / Delay (seconds) at Intersections

No.	Locations	Horizon Year 2040	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	F (125.1)	D (48.2)
2	Hyperion Avenue/Rowena Avenue	E (64.3)	E (56.6)
3	I-5 Northbound Off-Ramp at Glendale Blvd**	A (9.6)	C (22.4)

**= Stop-controlled intersection

The intersections of Glendale Boulevard/Glenfeliz-Glenhurst and Hyperion/Rowena Avenue could experience congestion during both morning (AM) and afternoon (PM) peak hours in 2040. In fact, analyses indicate that the intersection of Glendale Boulevard/Glenfeliz-Glenhurst would reach LOS F before the year 2020.

SCENARIO 3: HORIZON YEAR (2040) TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS WITH 4-LANE OPTION ON HYPERION AVENUE AND CROSSWALK ON SOUTHBOUND GLENDALE BOULEVARD

Under this scenario, the reconfiguration and signalization of I-5 northbound off-ramp according to the Draft Project Report signed in August 2013 is assumed and a proposed crosswalk was added on the southbound side of Glendale Boulevard to aid pedestrians who use the Hyperion Avenue bridge.

Figure 1: Crosswalk Location under Scenario 3 (± 800 feet south of Glendale/Glenfeliz-Glenhurst)



Table 6: Level of Service (LOS) / Delay (seconds) at Intersections

No.	Locations	Horizon Year 2040	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	F (112.9)	C (25.0)
2	Hyperion Avenue/Rowena Avenue	E (69.1)	E (60.6)
3	I-5 Northbound Off-Ramp at Glendale Blvd	A (9.9)	B (11.0)

Table 7: Queue at Crosswalk Location

No.	Intersections	AM		PM	
		Lane	Year 2040 Queue (ft)*	Lane	Year 2040 Queue (ft)*
1	At Southbound Glendale Crosswalk	SB Thru	133	SB Thru	202

*=95th percentile queue

Similarly, intersections of Glendale Boulevard/Glenfeliz-Glenhurst and Hyperion/Rowena Avenue could still experience congestion during 2040 morning (AM) and afternoon (PM) peak hours, even with the reconfiguration and signalization of I-5 northbound off-ramp.

SCENARIO 4: HORIZON YEAR (2040) TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS WITH 4-LANE OPTION ON HYPERION AVENUE AND CROSSWALKS ON SOUTHBOUND GLENDALE BOULEVARD AND HYPERION AVENUE THROUGH NORTHBOUND GLENDALE BOULEVARD

Similarly, this scenario assumes the reconfiguration of I-5 northbound off-ramp according to the Draft Project Report and a proposed crosswalk across all lanes of Hyperion Avenue and the northbound side of Glendale Boulevard, in addition to the crosswalk on the southbound side of Glendale Boulevard.

Figure 2: Crosswalk Locations under Scenario 4



Table 8: Level of Service (LOS) and Delay (seconds) at Intersections

No.	Locations	Horizon Year 2040	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	F (91.7)	C (34.0)
2	Hyperion Avenue/Rowena Avenue	E (79.3)	E (57.0)
3	I-5 Northbound Off-Ramp at Glendale Blvd	B (11.7)	B (12.5)

Table 9: Queue at Crosswalk Location

No.	Intersections	AM		PM	
		Lane	Year 2040 Queue (ft)*	Lane	Year 2040 Queue (ft)*
1	At SB Glendale Boulevard Crosswalk	SB Thru	361	SB Thru	213
2	At SB Hyperion Avenue Crosswalk	SB Thru	418	SB Thru	341
3	At NB Hyperion Avenue	NB Thru	307	NB Thru	435
4	At NB Glendale Boulevard Crosswalk	NB Thru	251	NB Thru	353

*=95th percentile queue

Longer vehicular queues could be expected with crosswalk being proposed on Hyperion Avenue.

SCENARIO 5: HORIZON YEAR (2040) TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS WITH 3-LANE OPTION ON HYPERION AVENUE AND CROSSWALKS ON SOUTHBOUND AND NORTHBOUND GLENDALE BOULEVARD

In addition to the reconfiguration of I-5 northbound off-ramp, this scenario assumes sidewalks are made available on both sides of the Hyperion Avenue bridge which enabled crossings to be added on the southbound and northbound sides of Glendale Boulevard. This was accomplished by partly by reducing the northbound travel to a single lane.

Figure 3: Crosswalk Locations under Scenario 5

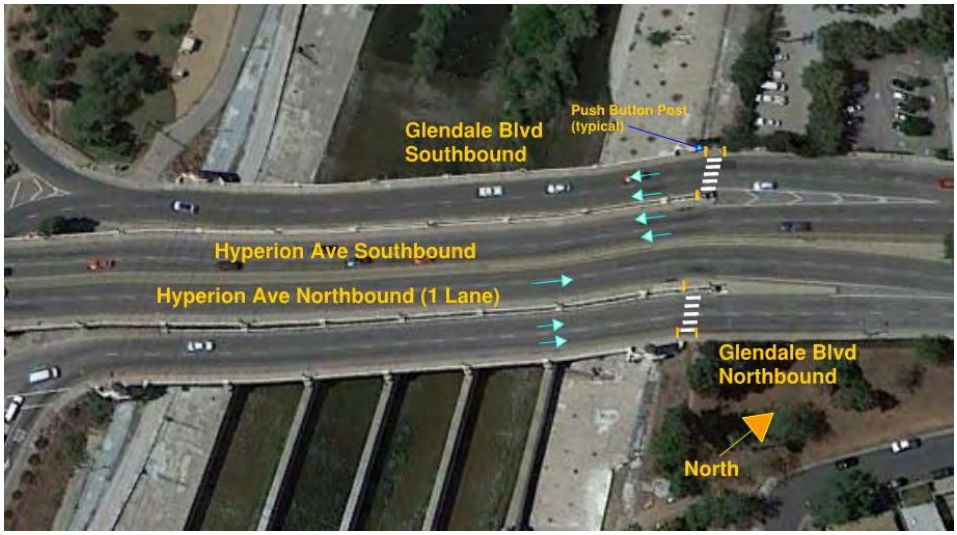


Table 10: Level of Service (LOS) and Delay (seconds) at Intersections

No.	Locations	Horizon Year 2040	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	F (100.5)	C (22.4)
2	Hyperion Avenue/Rowena Avenue	E (72.1)	E (58.5)
3	I-5 Northbound Off-Ramp at Glendale Blvd	B (11.0)	B (12.1)

Table 11: Queue at Crosswalk Locations

No.	Intersections	AM		PM	
		Lane	Year 2040 Queue (ft)*	Lane	Year 2040 Queue (ft)*
1	At Southbound Glendale Crosswalk	SB Thru	138	SB Thru	179
2	At Northbound Glendale Crosswalk	NB Thru	126	NB Thru	219

*=95th percentile queue

Shorter vehicular queues are observed with proposed crosswalks solely on Glendale Boulevard.

SCENARIO 6: HORIZON YEAR (2040) TRAFFIC DEMAND IN THE MORNING (AM) AND AFTERNOON (PM) PEAK HOURS WITH 3-LANE OPTION ON HYPERION AVENUE AND CROSSWALKS ON SOUTHBOUND GLENDALE BOULEVARD, ACROSS HYPERION AVENUE AND NORTHBOUND GLENDALE BOULEVARD

This scenario also considers the possibility of adding a crosswalk across Hyperion Avenue in addition to the crosswalks on the southbound and northbound sides of Glendale Boulevard. Again, a single northbound travel lane is assumed in this case and that pedestrians needing to cross the Hyperion Avenue – Glendale Boulevard junction will do so in 3 strages; across southbound Glendale Boulevard, Hyperion Avenue and finally northbound Glendale Boulevard as shown in the following figure:

Figure 4: Crosswalk Locations under Scenario 6

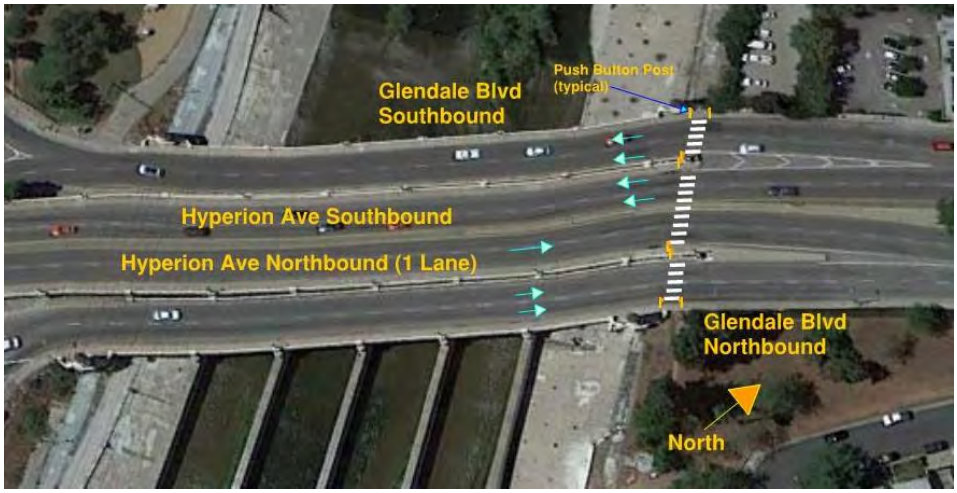


Table 12: Level of Service (LOS) and Delay (seconds) at Intersections

No.	Locations	Horizon Year 2040	
		AM	PM
1	Glendale Boulevard/Glenfeliz-Glenhurst	F (91.5)	C (24.3)
2	Hyperion Avenue/Rowena Avenue	E (68.5)	E (63.4)
3	I-5 Northbound Off-Ramp at Glendale Blvd	B (11.7)	B (11.9)

Table 13: Queue at Crosswalk Locations

No.	Intersections	AM		PM	
		Lane	Year 2040 Queue (ft)*	Lane	Year 2040 Queue (ft)*
1	At SB Glendale Boulevard Crosswalk	SB Thru	138	SB Thru	215
2	At SB Hyperion Avenue Crosswalk	SB Thru	292	SB Thru	292
3	At NB Hyperion Avenue Crosswalk	NB Thru	443	NB Thru	544
4	At NB Glendale Boulevard Crosswalk	NB Thru	138	NB Thru	200

*=95th percentile queue

Hyperion Avenue Performance Analysis

The results of Level of Service and operational performance analysis on Hyperion Avenue for Existing, 2040 "Without/No Project", as a four-lane and three-lane arterial facility are summarized as follow:

Table 14: AM Peak Hour Level of Service on Hyperion Avenue
Density (pc/mi/ln)

	AM						
	Northbound				Southbound		
HCM Multi-Lane Highway Methodology	Existing	2040 - No Project	2040 - With Project (2 NB Lanes)	2040 - With Project (1 NB Lane)	Existing	2040 - No Project	2040 - With Project (2 SB Lanes)
Volume, V (veh/hr)	737	955	955	955	1,235	1,600	1,549
% Trucks	8%	8%	8%	8%	9%	9%	9%
Free Flow Speed, FFS (mi/hr)	45	45	40	40	45	45	40
Peak Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Pass. Car Equiv. - Trucks, Et	1.5	1.5	1.5	1.5	2.5	2.5	2.5
Heavy Vehicle Factor fHV	0.96	0.96	0.96	0.96	0.88	0.88	0.88
Number of Lanes, N	2	2	2	1	2	2	2
Population factor fp	1	1	1	1	1	1	1
Demand Flow, Vp (pc/hr/ln)	416	540	540	1,079	764	990	959
Density (pc/mi/ln)	9	12	13	27	17	22	24
LOS	A	B	B	D	B	C	C

Table 15: PM Peak Hour Level of Service on Hyperion Avenue
Density (pc/mi/ln)

	PM						
	Northbound				Southbound		
HCM Multi-Lane Highway Methodology	Existing	2040 - No Project	2040 - With Project (2 NB Lanes)	2040 - With Project (1 NB Lane)	Existing	2040 - No Project	2040 - With Project (2 SB Lanes)
Volume, V (veh/hr)	1,012	1,311	1,311	1,311	887	1,149	1,053
% Trucks	8%	8%	8%	8%	9%	9%	9%
Free Flow Speed, FFS (mi/hr)	45	45	40	40	45	45	40
Peak Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Pass. Car Equiv. - Trucks, Et	1.5	1.5	1.5	1.5	2.5	2.5	2.5
Heavy Vehicle Factor fHV	0.96	0.96	0.96	0.96	0.88	0.88	0.88
Number of Lanes, N	2	2	2	1	2	2	2
Population factor fp	1	1	1	1	1	1	1
Demand Flow, Vp (pc/hr/ln)	572	741	741	1,482	549	711	652
Density (pc/mi/ln)	13	16	19	37	12	16	16
LOS	B	B	C	E	B	B	B

Conclusion

The following tables summarize operational performance between the six scenarios described earlier:

Table 16: Summary of Operational Performance

	AM					
	1. Existing	2. 2040 No Project	3. 2040 With Project, 4 Lanes and Crosswalk at SB Glendale	4. 2040 With Project, 4 Lanes and Crosswalks across Glendale AND Hyperion	5. 2040 With Project, 3 Lanes and Crosswalks at SB, NB Glendale	6. 2040 With Project, 3 Lanes and Crosswalks across Glendale AND Hyperion
Vehicles entering system during Simulation	2,559	3,184	3,301	3,310	3,295	3,382
Total system Delay (hrs)	60.4	151.5	132.4	137.4	130.8	130.7
System Delay per Vehicle (s)	85	171	144	149	143	139
Rowena Av/Hyperion Av Delay (s/veh)	C	E	E	E	E	E
Glendale Bl/Glenfeliz-Glenhurst Delay (s/veh)	E	F	F	F	F	F
I-5 Off Ramp/Glendale Bl Delay (s/veh)	A	A	A	B	B	B
Crosswalk Information						
Crosswalk Delay per Vehicle (s)	0	0	1	15	1	5
SB Glendale 95% queue	0	0	133	361	138	138
SB Hyperion Queue	0	0	0	418	0	292
NB Hyperion Queue	0	0	0	307	0	443
NB Glendale Queue	0	0	0	251	126	138
Hyperion Bridge Operations						
Hyperion Av. LOS (NB/SB)	A/B	B/C	B/C	B/C	D/C	D/C

Table 17: Summary of Operational Performance (PM Peak)

	PM					
	1. Existing	2. 2040 No Project	3. 2040 With Project, 4 Lanes and Crosswalk at SB Glendale	4. 2040 With Project, 4 Lanes and Crosswalks across Glendale AND Hyperion	5. 2040 With Project, 3 Lanes and Crosswalks at SB, NB Glendale	6. 2040 With Project, 3 Lanes and Crosswalks across Glendale AND Hyperion
Vehicles entering system during Simulation	2,955	3,585	3,811	3,750	3,813	3,788
Total system Delay (hrs)	33.9	115.1	109.9	130.5	108.4	136.4
System Delay per Vehicle (s)	41	116	104	125	102	130
Rowena Av/Hyperion Av Delay (s/veh)	C	E	E	E	E	E
Glendale Bl/Glenfeliz-Glenhurst Delay (s/veh)	C	D	C	C	C	C
I-5 Off Ramp/Glendale Bl Delay (s/veh)	A	C	B	B	B	B
Crosswalk Information						
Crosswalk Delay per Vehicle (s)	0	0	2	17	3	11
SB Glendale 95% queue	0	0	202	213	179	215
SB Hyperion Queue	0	0	0	341	0	292
NB Hyperion Queue	0	0	0	435	0	544
NB Glendale Queue	0	0	0	353	219	200
Hyperion Bridge Operations						
Hyperion Av. LOS (NB/SB)	B/B	B/B	C/B	C/B	E/B	E/B

In conclusion:

- Simulation and Level of Service analysis show that Hyperion Avenue could operate at an acceptable performance with a single northbound travel lane in the existing and future (2040) conditions. However, under the 2040 PM peak condition, the northbound direction would operate at LOS E with a single lane. This congested condition can quickly worsen and the bridge facility could become oversaturated should actual traffic volume exceed that which is estimated in this study. Another concern is that if a crosswalk is added across Hyperion Avenue (Scenario 6), flow would be interrupted, which would result in significantly degraded operations.

- Regardless of selected alternative, both Glendale Boulevard/Glenfeliz-Glenhurst and Hyperion/Rowena intersections will operate at LOS F and E respectively (congested conditions) during 2040 AM peak hour due to limited side street capacities. Capacity improvements, such as addition of turn lanes and other intersection improvement measures are needed to mitigate this potential future condition.

- The relocation, reconfiguration and signalization of I-5 northbound off ramp onto Glendale Boulevard will improve traffic operations at the Glendale Boulevard/Glenfeliz-Glenhurst intersection (especially during PM peak period) by reducing the amount of northbound u-turns vehicles. In general, drivers with destinations in the Silverlake or Los Feliz neighborhoods will have a shorter, more expeditious path of travel.

- Addition of signalized crosswalks across northbound or southbound Glendale Boulevard (relevant to Scenarios 3 and 5) is not disruptive to automobile movements. This is primarily because:

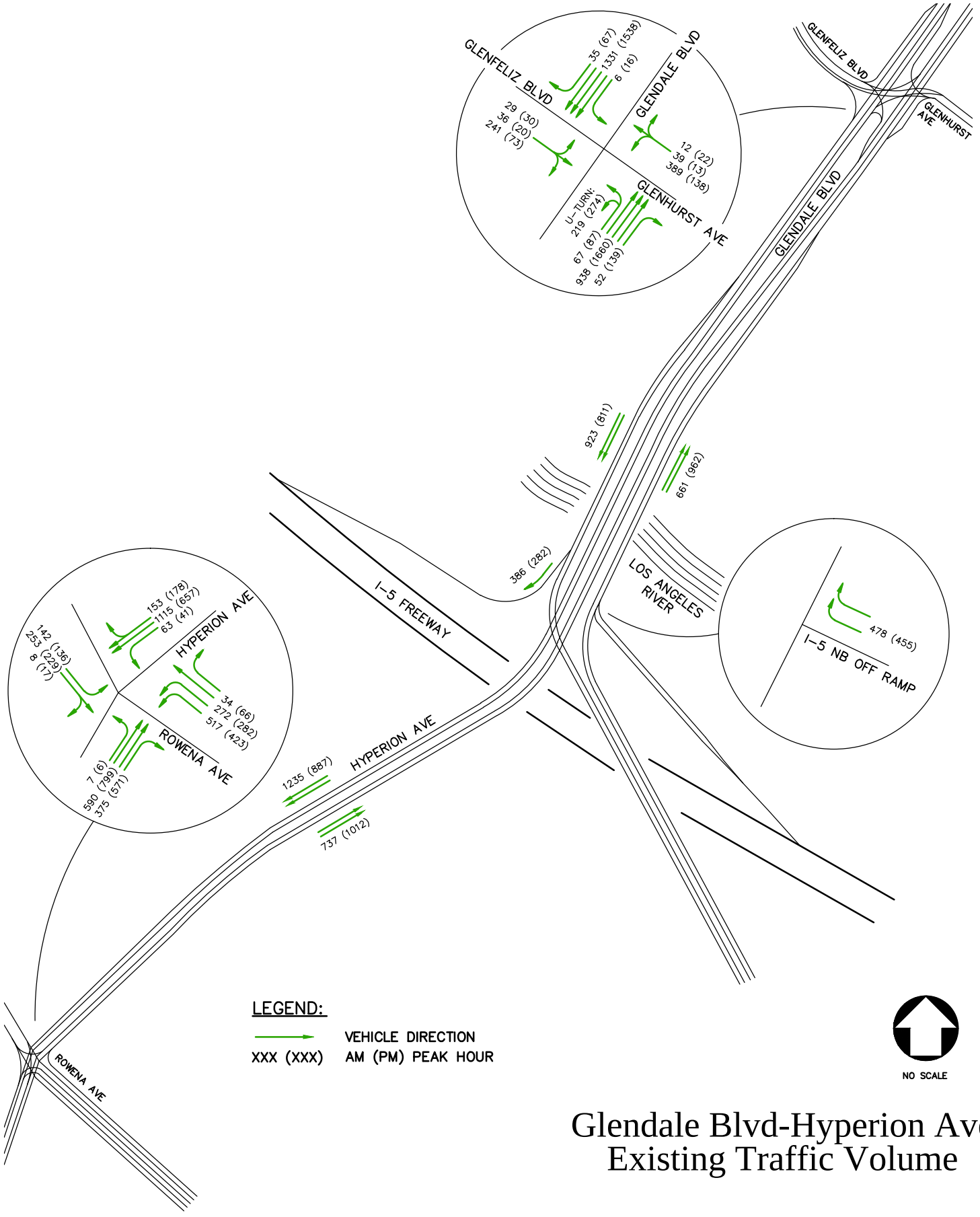
  1) Crossing distances are relatively short, resulting in limited signal time allocation for pedestrians. It is estimated that automobile traffic would have to stop for only 15- 20 seconds each time.

  2) The crossings only affect one direction of traffic (southbound or northbound Glendale) at a time, making it easier to coordinate with other vehicular signals.

- Addition of signalized crosswalks across Hyperion Avenue (relevant to Scenarios 4 and 6), on the other hand, would impact traffic operations in terms of both delays and queues more significantly. This is especially true in the PM peak period where pedestrian and vehicular volumes are higher than those in the AM. In both Scenarios 4 and 6, no pedestrian refuge is deemed feasible and is therefore not provided in the middle of the Hyperion bridge. As a result pedestrians will be required to go across both directions (southbound and northbound) traffic on Hyperion Avenue. In the case of Scenario 4, not only will both directions of Hyperion Avenue be impacted, northbound Glendale Boulevard will also be. A single pedestrian push button actuation is proposed to allow pedestrians to cross both Hyperion Avenue and northbound Glendale Boulevard stopping traffic in the process for up to 35 seconds. This would also produce queues in the northbound direction of close to 500 feet during the PM peak. Furthermore, pedestrian signals that stop bi-drectional traffic are significantly more difficult to coordinate with vehicular signals and could yield additional delays.

Appendix A

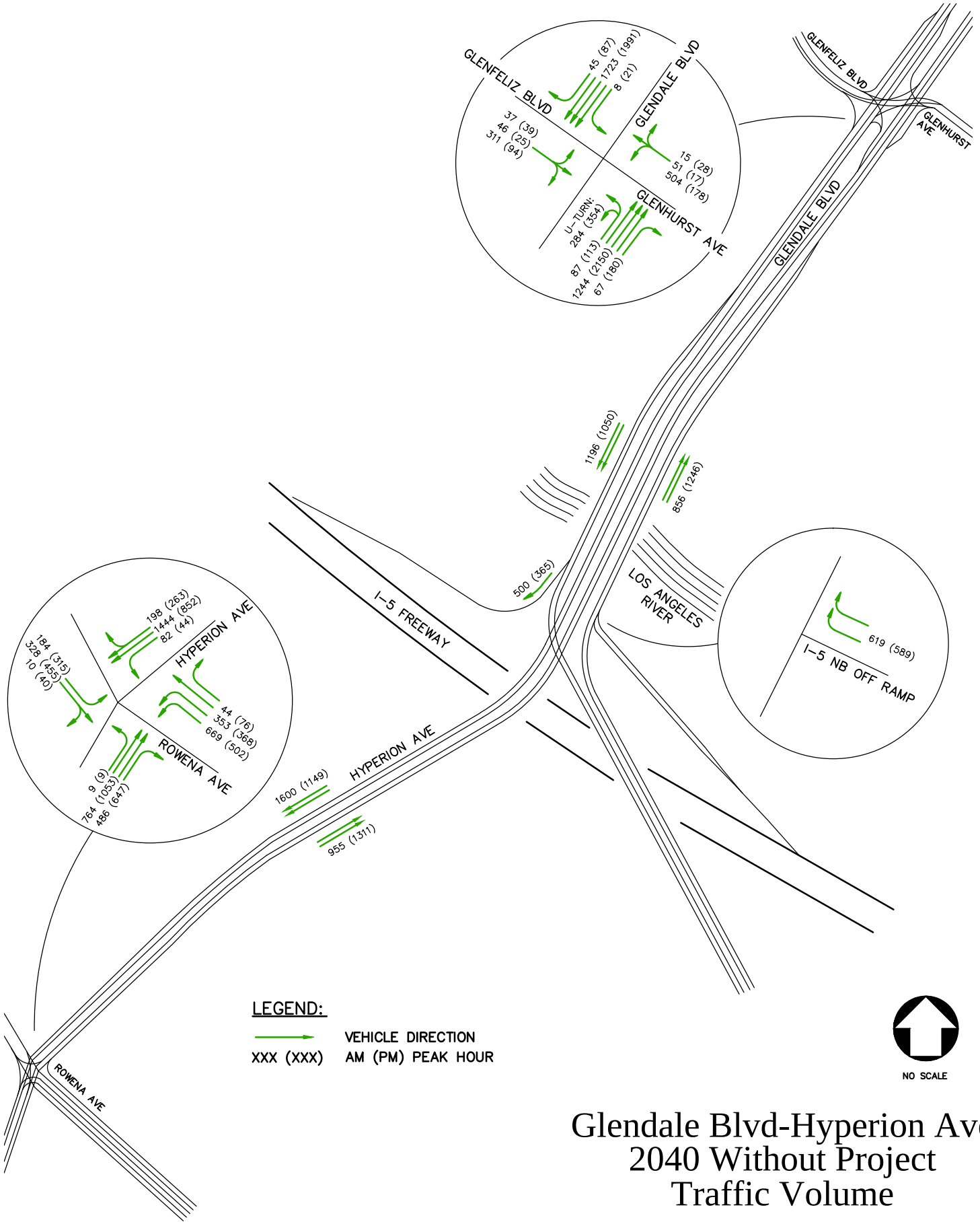
Synchro Volumes for All Scenarios



Glendale Blvd-Hyperion Ave Existing Traffic Volume

PSOMAS

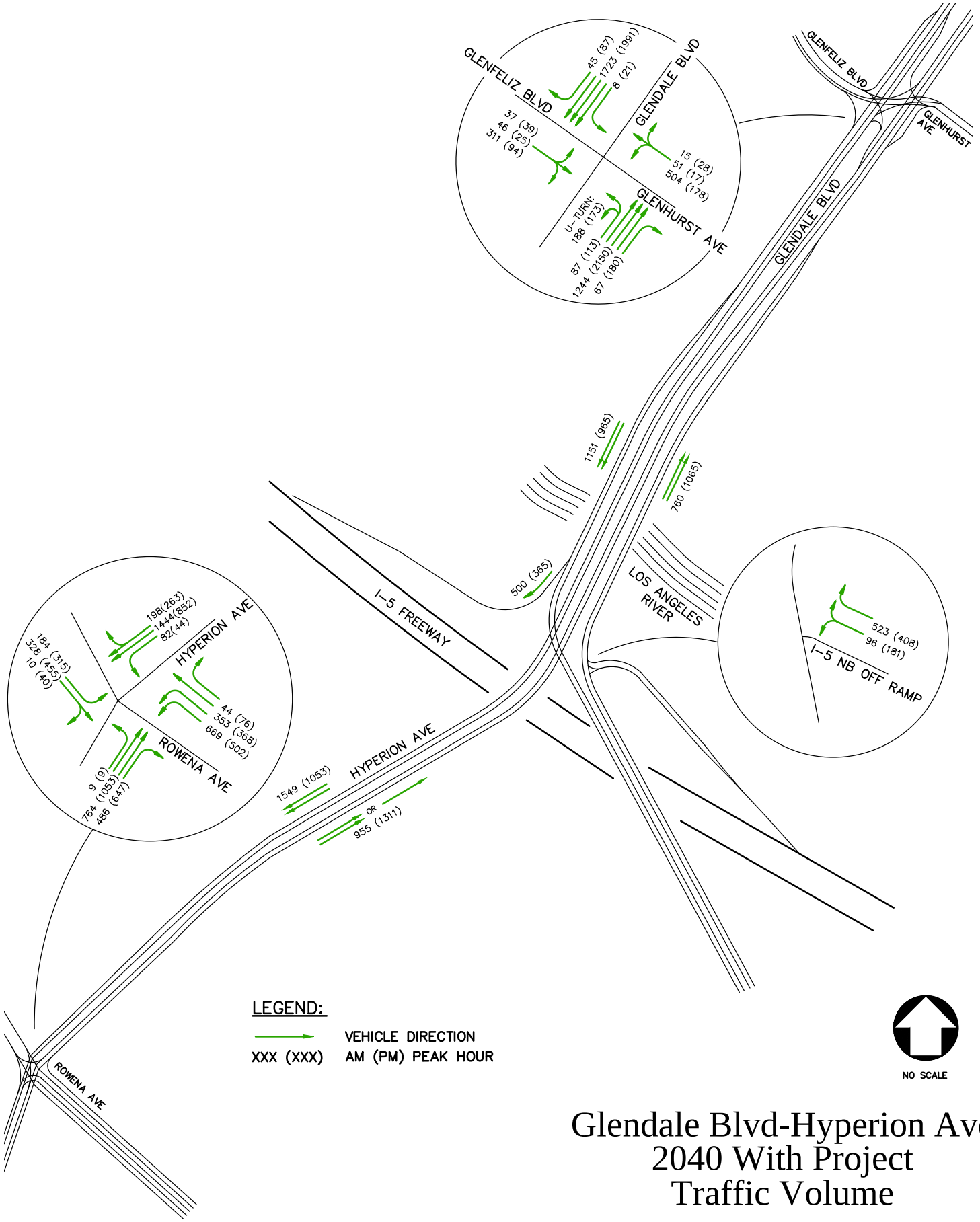
DATE: 05-16-14



Glendale Blvd-Hyperion Ave 2040 Without Project Traffic Volume

PSOMAS

DATE: 05-16-14



Glendale Blvd-Hyperion Ave 2040 With Project Traffic Volume

PSOMAS

DATE: 05-16-14

Technical Memorandum No. 5

To:	City of Los Angeles Bureau of Engineering
From:	Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE
cc:	Anissa Voyiatzes, PE
Date:	June 26, 2014
Re:	**Glendale-Hyperion Bridge Complex** **Pedestrian Crosswalk Alternatives and Treatments**

Executive Summary

This memorandum discusses the alternatives for location and traffic control configuration of a proposed crosswalk for the project. Traffic Control configurations considered include a midblock signal, a pedestrian hybrid beacon (HAWK) and Rectangular Rapid Flashing Beacons (RRFBs).

Given the existing pedestrian volumes, a midblock pedestrian signal is not warranted. However, a HAWK beacon could be installed across Hyperion Avenue and Glendale Boulevard. RRFBs are another viable solution that effectively facilitates pedestrian crossings for northbound and southbound Glendale Boulevard, but not ideal for a crossing on Hyperion Avenue due to the lack of median refuge area, which impacts the placement of the RRFBs.

The operational analysis found that crosswalks for northbound and southbound Glendale Boulevard would have minimal impact on traffic operations. Crosswalks across Hyperion Avenue would have a greater impact on vehicular delays and queues due to the length of the Hyperion portion of the crossing and the need to simultaneously stop both directions of traffic, as reflected in Technical Memorandum No. 4 on Operational Analysis.

Based on the analysis, the two feasible pedestrian traffic control treatments for the project are to either install a HAWK signal across both Glendale Boulevard and Hyperion Avenue, or to install RRFBs to allow pedestrians to cross Glendale Boulevard to/from the Hyperion Avenue bridge.

Objectives

The objectives of this Technical Memorandum are to:

- Define and discuss applicable guidelines and policies concerning midblock crosswalks.
- Determine feasible location(s) for midblock pedestrian crosswalks within the project study area.

- Present crossing traffic control configurations that promote pedestrian safety at midblock crosswalks, and evaluate the warrants/guidelines for installation of such treatments.

- Present the impact of each crosswalk alternative to vehicular operation on Hyperion Avenue and Glendale Boulevard within project study area.

Study Area

This memorandum focuses on the segment of Hyperion Avenue/Glendale Boulevard between The Los Angeles River and the Glendale Blvd/Glenfeliz Blvd intersection.

Midblock Crosswalk Traffic Control Configurations Considered

The increased need for and implementation of midblock pedestrian crossings has resulted in the preparation of several studies on the safety and effectiveness of various midblock crosswalk treatments.

A 2006 study by the National Cooperative Highway Research Program (NHCRP/TCRP 562, *Improving Pedestrian Safety At Unsignalized Crossings*, available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf) found that only two midblock treatments improved driver yielding to pedestrian to levels of more than 90%. Those treatments were midblock traffic signals, and Pedestrian Hybrid Beacons (which are commonly referred to as HAWK signals). According to *Safety Effects of the HAWK Pedestrian Crossing Treatment, FHWA-HRT-10-042, July 2010,* Pedestrian crashes were reduced by 69% with all crashes reportedly down 29% on pedestrian facilities equipped with the HAWK.

More recently, Rectangular Rapid Flashing Beacons (RRFB) were introduced and granted interim approval by the Federal Highway Administration (FHWA). An FHWA study on the effectiveness of RRFBs (Publication no. FHWA-HRT-11-039, *Evaluation of Pedestrian and Bicycle Engineering Countermeasures: Rectangular Rapid-Flashing Beacons, HAWKs, Sharrows, Crosswalk Markings, and the Development of an Evaluation Methods Report,* 2011, http://www.fhwa.dot.gov/publications/research/safety/pedbike/11039/11039.pdf) found that RRFBs also improve driver yielding behavior to close to 90%. The optional use of RRFBs was approved statewide in California by FHWA through an approval letter to the state dated August 10, 2011.

As a result of the previously discussed findings, midblock traffic signals, HAWK signals and RRFBs are the treatments most commonly used to control midblock crosswalks and improve driver yielding behavior and overall pedestrian safety. Therefore, this memorandum will focus on those three treatments. Other treatments such as in ground lights and overhead flashing beacons were also considered but not recommended because of their lower effectiveness (driver yielding under 70% for both treatments in the NCHRP report) .

The table below summarizes some of the key attributes of each of the three midblock crosswalk treatments:

Table 1. Comparison of Midblock Pedestrian Crossing Configurations

Traffic Control Configuration	Midblock Traffic Signal per LADOT Std S-101.0 *(Configuration A)*	Pedestrian Hybrid Beacon (HAWK) *(Configuration B)*	Rectangular Rapid Flashing Beacon (RRFB) *(Configuration C)*
Regulation	CA MUTCD Section 4C.5	CA MUTCD Chapter 4F	FHWA Interim Approval #11 (IA-11) http://mutcd.fhwa.dot.gov/resources/interim_approval/ia11/ia11_rrfb_iapmemo.pdf
Operation	Green to Yellow to Red like a traditional signal	Dark (no indication) to Flashing Yellow to Steady Yellow to Double Red when actuated	Dark (no indication) to irregular flashing back and forth similar to emergency flashers on police vehicles
Signal placement	Overhead	Overhead	Left and right side of traffic
Actuated with Push Button?	Yes	Yes	Yes
Power	Electricity	Electricity	Solar or Electricity
Cost Range	$75,000-$150,000	$75,000-$150,000	$10,000-$20,000
% of Drivers Yielding	>95%	>95%	88%
Minimum volume of pedestrians required	75 per hour for 4 hrs or 93 in highest hour (for roads with speeds >35 mph)	20 per hour	No requirement



Figure 1. Midblock Traffic Signal per LADOT Standard S-101.0



Figure 2. Pedestrian Hybrid Beacon (HAWK)



Figure 3. Rectangular Rapid Flashing Beacon (RRFB)

Proposed Crosswalk Location

The proposed crosswalk would be located at the eastern edge of the Hyperion bridge, where Hyperion Avenue and Glendale Boulevard merge, approximately 1,000 ft south of the Glendale Boulevard's intersection with Glenfeliz-Glenhurst. Locations further south are not feasible because of the difference in grade between Hyperion Avenue and Glendale Boulevard bridges and road approaches. These grade discrepancies would not allow pedestrians to reach Hyperion Avenue from Glendale Boulevard or vice versa. Likewise, locations further north are not recommended for the following reasons:

1. Grade differential between the Northbound and Southbound directions on Glendale Boulevard. This is also problematic from ADA accessibility standpoint.
2. Difficulty in getting driver's attention as they attempt to weave across lanes, and navigate merging or diverging maneuvers (especially in the northbound direction).
3. Proximity to the Glenfeliz-Glenhurst intersection with Glendale Boulevard.

Crosswalk Layout Alternatives

Alternative 1 – Crossing on Southbound Glendale Only: This alternative (Figure 4) would be applicable if a cross-section with one sidewalk (on the west side) is selected for the Hyperion Avenue bridge. In this case, pedestrians would be able to cross from sidewalk on the bridge to the west side of Glendale Boulevard, but would be forced to go all the way to Glendale/Glenfeliz-Glenhurst intersection to cross to the east side of Glendale Boulevard.

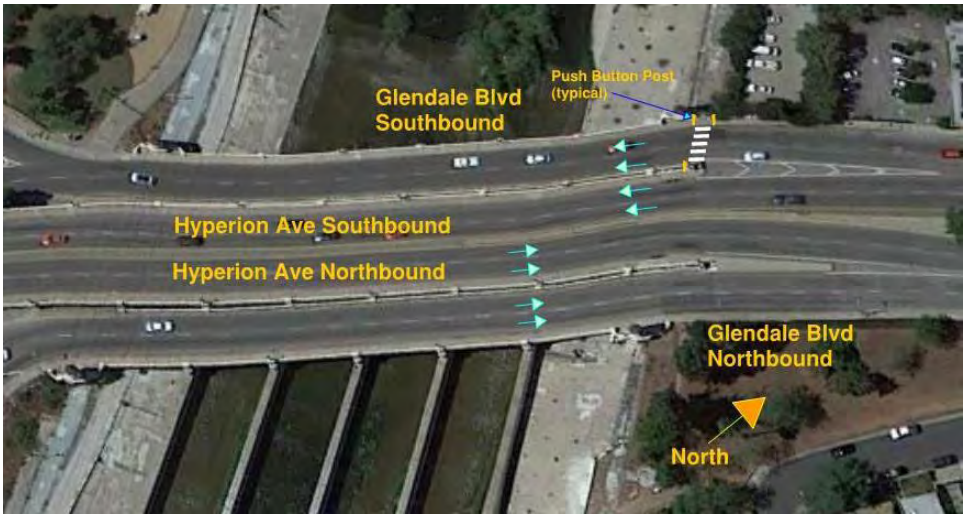


Figure 4. Alternative 1 – Crossing of Southbound Glendale Boulevard Only

Alternative 2 - Crossing on Southbound and Northbound Glendale: This alternative (Figure 5) would be applicable in a 3-lane cross-section scenario on Hyperion Avenue with sidewalks on both sides of the Hyperion Avenue bridge is selected. In this case, pedestrians would be able to cross from the west sidewalk on the Hyperion Avenue bridge to the west side of Glendale Boulevard and similarly from the east sidewalk on the bridge to the east side of Glendale Boulevard. However, crossing from one side of Glendale Boulevard to the other would once again take place at the Glendale/Glenfeliz-Glenhurst intersection.

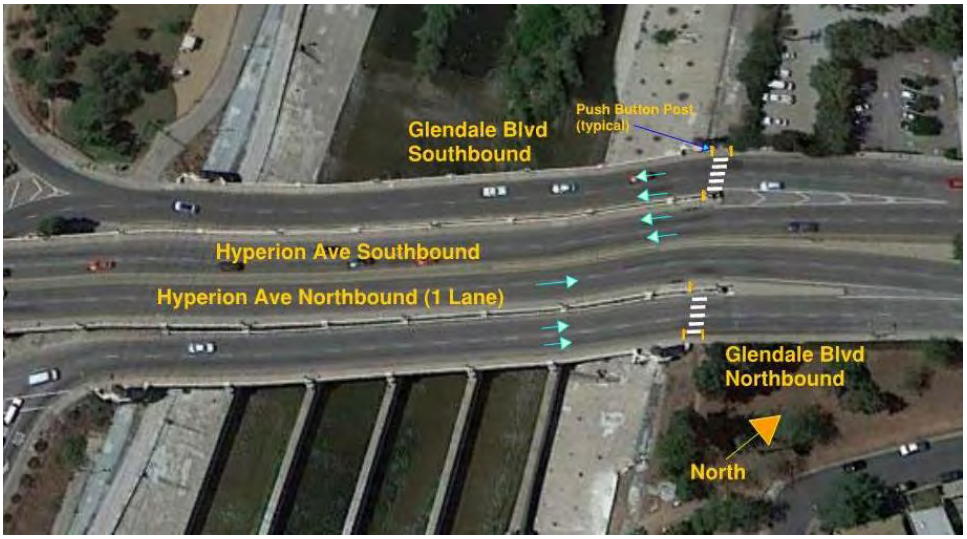


Figure 5. Alternative 2 – Crosswalk on Southbound and Northbound Glendale Boulevard

Alternative 3 – Two-stage Crossing of Glendale Boulevard and Hyperion Avenue: This alternative (Figure 6) would be applicable if a cross-section with one sidewalk (on the west side) is selected on the Hyperion Avenue bridge. In this case, pedestrians would be able to push a button to cross either southbound Glendale Boulevard, or both Hyperion Avenue and northbound Glendale Boulevard. Because no pedestrian refuge would be provided on the east side of Hyperion Avenue, a pedestrian crossing from the west sidewalk on the Hyperion Avenue bridge to the east side of Glendale Boulevard would have to do so without stopping, disrupting both directions of vehicular traffic on Hyperion Avenue and northbound Glendale Boulevard. A pedestrian desiring to cross from one side of Glendale Boulevard to the other would have to activate 2 push buttons (a two-stage crossing).

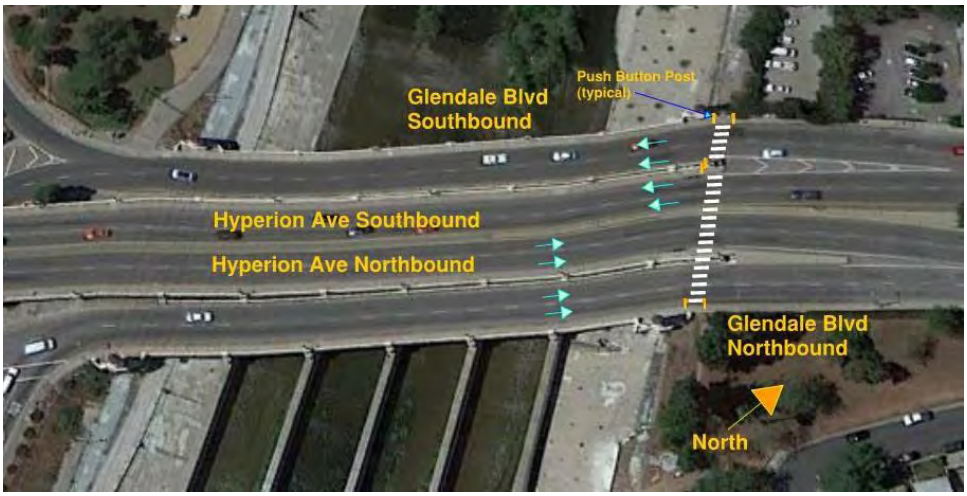


Figure 6. Alternative 3 – Two-stage Crossing of Glendale Boulevard and Hyperion Avenue

Alternative 4 – Three-stage Crossing of Glendale Boulevard and Hyperion Avenue: This alternative (Figure 7) would be applicable if a 3-lane cross-section scenario on Hyperion Avenue with sidewalks on both sides of the Hyperion Avenue bridge is selected. In this case, pedestrians would be able to push a button to cross southbound Glendale Boulevard, northbound Glendale Boulevard or Hyperion Avenue. A pedestrian desiring to cross from one side of Glendale Boulevard to the other would activate 3 push buttons (a three-stage crossing).

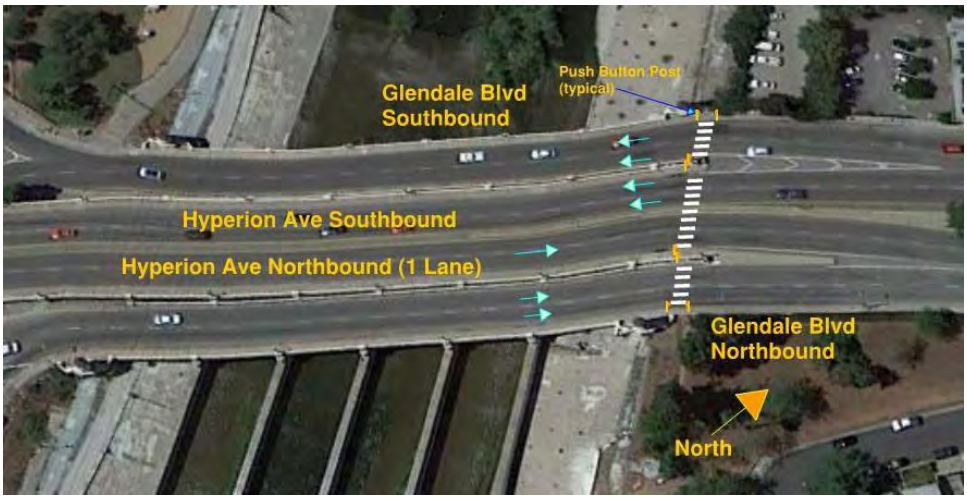


Figure 7. Alternative 4 – Three-stage Crossing of Glendale Boulevard and Hyperion Avenue

Pedestrian Crash History

Crash records obtained for the period between January 1, 2000 and March 31, 2011 show 3 crashes involving pedestrians in the vicinity of this proposed crossing. Although crash reports were not available for a detailed evaluation, the following can be observed from the crash records:

- One crash took place on the east side of Glendale Boulevard just north of the merge point between Glendale Boulevard and Hyperion Avenue. Driving Under the Influence (DUI) was the primary contributing factor to the crash
- The other two crashes took place also on the east side of Glendale Boulevard, but these collisions were at Hollydale Drive approximately 700 ft of the proposed crosswalk (where the main lanes from Glendale Blvd merge with the Glendale Blvd lane coming from the neighborhood). Pedestrian violations where the primary contributing factor to both crashes.
- The three crashes resulted in a total of 4 people injured.

Pedestrian and Vehicular Volumes

Pedestrian and vehicular volumes were evaluated to determine if the proposed crosswalk location and layout alternatives meet the requirements/warrants for the implementation of a midblock signalized crosswalk (Configuration A) and/or Pedestrian Hybrid Beacons (HAWK) (Configuration B) .

Table 2 summarizes relevant pedestrian and vehicular volumes based on vehicular and pedestrian counts collected earlier this year, as presented in Technical Memorandum No. 1.

Table 2. Pedestrian and Vehicular Volumes at Proposed Crosswalk Location

	Pedestrian Volumes - Hyperion Bridge					Vehicular Volumes			
	West Sidewalk		East Sidewalk		Glenfeliz	Southbound Glendale	Northbound Glendale	Hyperion	
Start Time	NB	SB	NB	SB	North Crosswalk			NB	SB
7:00	1	2	0	0	7	156	132	76	224
7:15	0	0	0	0	5	209	168	94	264
7:30	0	0	0	0	1	220	185	151	363
7:45	0	1	1	0	1	236	176	208	384
8:00	1	1	0	0	8	248	147	180	285
8:15	3	1	0	0	4	232	157	195	292
8:30	0	0	0	0	7	221	151	151	332
8:45	0	2	0	0	10	222	159	211	264
9:00	0	0	0	0		203	136	192	243
9:15	0	0	0	1		200	156	151	206
9:30	1	0	0	1		157	145	148	221
9:45	0	0	1	0		159	184	148	176
10:00	0	0	0	0		144	165	149	169
10:15	0	1	0	0		152	168	141	156
10:30	0	0	0	0		162	170	173	136
10:45	1	1	0	0		166	189	168	132
11:00	0	1	0	0		141	193	126	177
11:15	1	0	1	0		158	197	138	176
11:30	1	1	0	1		154	164	150	163
11:45	0	0	0	0		147	137	183	162
12:00	0	0	0	0		160	174	172	139
12:15	0	0	0	0		170	199	158	167
12:30	0	0	0	0		165	173	180	163
12:45	0	0	0	0		156	200	184	176
13:00	0	0	0	0		154	159	175	152
13:15	1	0	0	0		155	184	163	145
13:30	0	3	0	0		165	174	167	193
13:45	0	0	0	0		152	203	174	188
14:00	0	1	0	0		162	181	191	182
14:15	5	2	0	0		152	189	183	177
14:30	2	1	1	1		160	201	180	195
14:45	1	1	0	0		170	228	193	202
15:00	0	1	0	0		163	212	193	214
15:15	0	2	0	0		191	225	250	215
15:30	6	1	8	0		203	211	206	189
15:45	3	0	1	0		145	218	219	190
16:00	2	1	0	1	17	184	203	222	193
16:15	1	0	0	0	12	180	181	211	189
16:30	1	0	1	0	9	202	213	212	224
16:45	3	1	0	1	4	193	236	253	211
17:00	1	1	0	0	19	242	208	242	210
17:15	3	0	1	0	15	183	243	266	216
17:30	1	2	0	0	3	211	229	248	206
17:45	0	0	0	1	14	175	240	238	225
18:00	0	1	0	0		171	231	253	224
18:15	0	1	0	1		182	253	231	271
18:30	0	0	1	0		176	212	264	208
18:45	5	0	0	0		169	266	264	184
TOTAL	**44**	**30**	**16**	**8**	**136**	**8,578**	**9,125**	**9,025**	**9,973**

Evaluation of Midblock Signal Warrants

The 2012 *California Manual on Uniform Traffic Control Devices* (MUTCD) requires a minimum combination of conflicting pedestrians and vehicular volumes in order to determine if the installation of a midblock pedestrian signal (either a traditional midblock signal and/or a HAWK signal) is warranted.

There are no volume warrants needed to justify the installation of a RRFB.

In order to evaluate these warrants based on the California MUTCD, the following assumptions were made:

- Because of the increased severity of crashes at higher speeds, the CA MUTCD warrants for a midblock pedestrian traffic signal vary depending on whether vehicular speeds are over or under 35 mph. Although this project is expected to lower operating speeds, the measured 85th percentile speed was approximately 45 mph. Therefore, the analysis will assume that vehicular speeds will be greater than 35 mph.
- Given that Alternative 1 would be based on a configuration with only one sidewalk on the Hyperion bridge, the pedestrian volume for warrant evaluation purposes is assumed to be the sum of the pedestrian volumes using both existing sidewalks on the bridge.
- Because Alternative 2 would apply to a configuration with sidewalks on both sides of the bridge, the pedestrian volumes used for evaluating warrants are the existing volumes on each sidewalk.
- Alternatives 3 and 4 would allow crossing of both directions on Hyperion Avenue. It is assumed that the installation of such crossing would attract 50% of the pedestrian crossing demand at the Glendale Boulevard/Glenfeliz-Glenhurst intersection. Because there would be no refuge area in the middle of Hyperion Avenue under either alternative, the conflicting vehicular volume is the total two-way traffic on Hyperion Avenue.

The traffic volumes used for evaluation of the midblock traffic signal warrants are presented in Table 3.

Table 3. Pedestrian and Vehicular Volumes for Evaluation of Pedestrian Signal Warrants

		Alt. 1 Southbound Glendale only		Alt 2 Southbound Glendale		Alt 2 Northbound Glendale		Alts. 3 and 4 - Hyperion Avenue	
From	To	Peds.	Veh.	Peds.	Veh.	Peds.	Veh.	Peds.	Veh.
7:00 AM	8:00 AM	5	821	4	821	1	661	7	1764
7:15 AM	8:15 AM	4	913	3	913	1	676	8	1929
7:30 AM	8:30 AM	8	936	7	936	1	665	7	2058
7:45 AM	8:45 AM	8	937	7	937	1	631	10	2027
8:00 AM	9:00 AM	8	923	8	923	0	614	15	1910
8:15 AM	9:15 AM	6	878	6	878	0	603		
8:30 AM	9:30 AM	3	846	2	846	1	602		
8:45 AM	9:45 AM	5	782	3	782	2	596		
9:00 AM	10:00 AM	4	719	1	719	3	621		
9:15 AM	10:15 AM	4	660	1	660	3	650		
9:30 AM	10:30 AM	4	612	2	612	2	662		
9:45 AM	10:45 AM	2	617	1	617	1	687		
10:00 AM	11:00 AM	3	624	3	624	0	692		
10:15 AM	11:15 AM	4	621	4	621	0	720		
10:30 AM	11:30 AM	5	627	4	627	1	749		
10:45 AM	11:45 AM	8	619	6	619	2	743		
11:00 AM	12:00 PM	6	600	4	600	2	691		
11:15 AM	12:15 PM	5	619	3	619	2	672		
11:30 AM	12:30 PM	3	631	2	631	1	674		
11:45 AM	12:45 PM	0	642	0	642	0	683		
12:00 PM	1:00 PM	0	651	0	651	0	746		
12:15 PM	1:15 PM	0	645	0	645	0	731		
12:30 PM	1:30 PM	1	630	1	630	0	716		
12:45 PM	1:45 PM	4	630	4	630	0	717		
1:00 PM	2:00 PM	4	626	4	626	0	720		
1:15 PM	2:15 PM	5	634	5	634	0	742		
1:30 PM	2:30 PM	11	631	11	631	0	747		
1:45 PM	2:45 PM	13	626	11	626	2	774		
2:00 PM	3:00 PM	15	644	13	644	2	799		
2:15 PM	3:15 PM	15	645	13	645	2	830		
2:30 PM	3:30 PM	10	684	8	684	2	866		
2:45 PM	3:45 PM	20	727	12	727	8	876		
3:00 PM	4:00 PM	22	702	13	702	9	866		
3:15 PM	4:15 PM	**25**	**723**	**15**	**723**	**10**	**857**		
3:30 PM	4:30 PM	24	712	14	712	10	813		
3:45 PM	4:45 PM	11	711	8	711	3	815		
4:00 PM	5:00 PM	12	759	9	759	3	833	21	1715
4:15 PM	5:15 PM	10	817	8	817	2	838	22	1752
4:30 PM	5:30 PM	13	820	10	820	3	900	**24**	**1834**
4:45 PM	5:45 PM	14	829	12	829	2	916	21	1852
5:00 PM	6:00 PM	10	811	8	811	2	920		
5:15 PM	6:15 PM	9	740	7	740	2	943		
5:30 PM	6:30 PM	7	739	5	739	2	953		
5:45 PM	6:45 PM	5	704	2	704	3	936		
6:00 PM	7:00 PM	9	698	7	698	2	962		

Configuration A – Midblock Traffic Signal:

Section 4C-5 of the California MUTCD determines the volume requirements for the installation of a traditional midblock signal based on pedestrian volumes. The CA MUTCD includes warrants for both a 4-hour period and a 1-hour period. Figure 8 shows the pedestrian and vehicular volumes for each alternative in relationship to the 1-hour warrant. In order for a traffic signal to be warranted, the combination of vehicular and pedestrian volumes have to fall above the warrant line. As shown, all existing volumes fall significantly below the warrant line. The same is the case with the 4-hour warrant, which requires sustained pedestrian volumes of at least 75 pedestrians per hour for 4 hours. Therefore, a midblock traditional traffic signal is not warrant based on the CA MUTCD criteria.

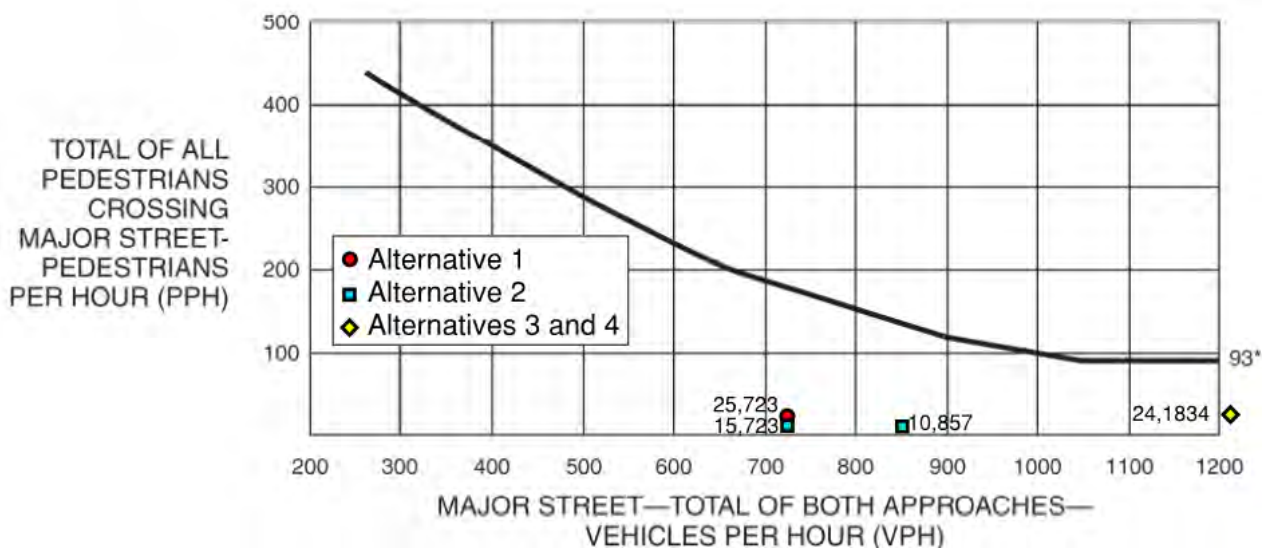


Figure 8. CA MUTCD Peak 1-Hour Pedestrian Signal Warrant (CA MUTCD Figure 4C-8)

Configuration B – Pedestrian Hybrid Beacon (HAWK):

Chapter 4F of the California MUTCD sets volume requirements for the installation of a Pedestrian Hybrid Beacon (HAWK) based on the peak one-hour pedestrian volume. The volume required to meet the warrant is a function of length of the proposed crosswalk. The proposed crosswalk lengths across the Glendale Boulevard bridges (alternatives 1 and 2) would be 34 ft each, while the crosswalk across the Hyperion bridge (alternatives 3 and 4) would be 58 ft.

Figure 9 shows pedestrian and vehicular volumes for each alternative in relationship to the warrant. In order for a HAWK signal to be warranted, the combination of vehicular and pedestrian volumes must fall above the warrant line. As shown, volumes for alternatives 1 and 2 fall below the warrant line for crosswalks with a length of 34 ft. On the other hand, volumes for alternatives 3 and 4 fall above the warrant line. Therefore, a Pedestrian Hybrid Beacon (HAWK) signal could be installed across Hyperion Avenue. Furthermore, because a crossing on the Hyperion Avenue bridge would not serve any purpose without crosswalks being provided on Glendale Boulevard, a HAWK could be installed to serve the entire crossing from one side of Glendale Boulevard to the other. However, it should be noted that The City of Los Angeles Department of Transportation (LADOT) has a policy that allows the installation of mid-block traffic signals if the requirements for a HAWK signal are met.

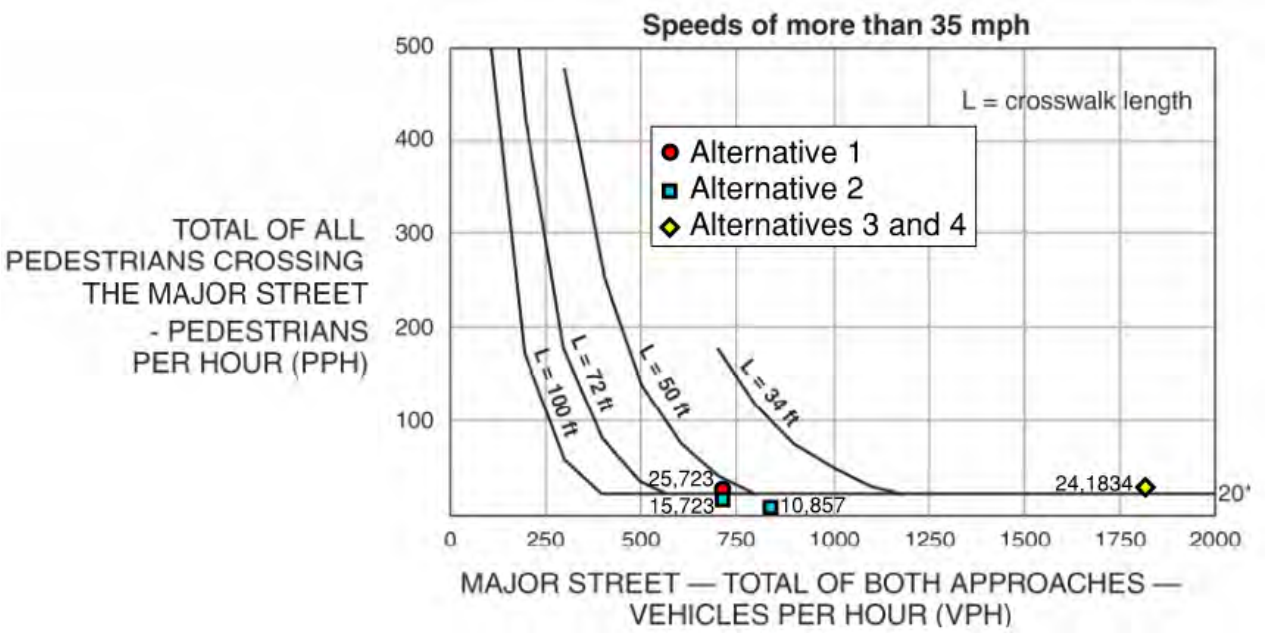


Figure 9. Guideline for Installation of a HAWK Signal (CA MUTCD Figure 4F-2)

Configuration C – Rectangular Rapid Flashing Beacon (RRFB):

As previously mentioned, there are no volume requirements for the installation of RRFBs. RRFBs are not part of the MUTCD yet; therefore, approval for their installation is required from the FHWA. However, the State of California already has statewide authorizations to use RRFBs from FHWA. Therefore, RRFBs could be installed at this location if desired.

It should be noted that RRFBs are mounted on the side of the road. In the case of 4-lane roadways without a median refuge they will not be as visible as overhead signals because the RRFB on the left side is mounted farther from traffic and may be obstructed by vehicles in the queue. Therefore, the RRFB is not an ideal treatment for crossing Hyperion Avenue (Alternatives 3 and 4). On the other hand, RRFBs could be an effective solution for crossing northbound and southbound Glendale Boulevard (Alternatives 1 and 2) because beacons could be mounted adjacent to each of the two lanes of traffic, on the left and right sides.

Vehicular Traffic Impacts of Signalized Crosswalk

The impacts of the various crosswalk alternatives on vehicular traffic are shown in Table 4. Additional details can be found in Technical Memorandum No. 4.

As shown on the table, the addition of signalized crosswalks across northbound or southbound Glendale Boulevard (alternatives 1 and 2) is not disruptive to vehicular traffic. This is primarily because crossing distances are relatively short and affect only one direction of traffic at a time. On the other hand, proposed crosswalks across Hyperion Avenue (Alternatives 3 and 4), would impact traffic operations in terms of both delays and queues more significantly because they would disrupt both directions of traffic on Hyperion Avenue at the same time, which could produce long queues on Hyperion Avenue.

Table 4. Vehicular Impacts by Crosswalk Alternative

	Alt 1 - Year 2040 With Project, 4 Lanes and Crosswalk at SB Glendale	Alt 2 – Year 2040 With Project, 3 Lanes and Crosswalks at SB, NB Glendale	Alt 3- Year 2040 With Project, 4 Lanes and Crosswalks across Glendale AND Hyperion	Alt 4- Year 2040 With Project, 3 Lanes and Crosswalks across Glendale AND Hyperion
	AM Peak Hour			
Crosswalk Delay per Vehicle (s)	1	1	15	5
SB Glendale 95% queue (ft)	133	138	361	138
SB Hyperion 95% Queue (ft)	0	0	418	292
NB Hyperion 95% Queue (ft)	0	0	307	443
NB Glendale 95% Queue (ft)	0	126	251	138
	PM Peak Hour			
Crosswalk Delay per Vehicle (s)	2	3	27	11
SB Glendale 95% queue (ft)	202	179	435	215
SB Hyperion 95% Queue (ft)	0	0	350	292
NB Hyperion 95% Queue (ft)	0	0	455	544
NB Glendale 95% Queue (ft)	0	219	372	200

Findings and Recommendations

This Technical Memorandum discusses alternatives for location and configuration of a proposed controlled midblock crosswalk for the project. Configurations considered included a midblock signal, a pedestrian hybrid beacon (HAWK) and Rectangular Rapid Flashing Beacons (RRFBs).

Existing pedestrian volumes do not warrant a traditional midblock pedestrian traffic signal. However, a HAWK beacon could be installed across Hyperion Avenue and Glendale Boulevard in order to allow pedestrians to cross from one side of Glendale Boulevard to the other. RRFBs are another viable traffic control option that can be deployed to facilitate safe pedestrian crossings on northbound and southbound Glendale Boulevard (Alternatives 1 and 2). However, RRFBs are not recommended to be used for a crossing of Hyperion Avenue due to the lack of median refuge area which impacts the placement of the RRFBs, and the potential sight obstructions caused by vehicular queues.

The Operational analysis detailed in Technical Memorandum No. 4 found that crosswalks for Alternatives 1 and 2 (northbound and southbound Glendale Boulevard) would have minimal impact on vehicular traffic operations. Crosswalks layout in Alternatives 3 and 4 would have a greater impact on vehicular delays and queues due to the length of the Hyperion portion of the crossing, and the fact that both directions of traffic will have to stop at once.

Based on these findings, there are two potential solutions to provide safe pedestrian crossing from the Hyperion Avenue bridge onto Glendale Boulevard and vice versa:

1. Install a Pedestrian Hybrid Beacon (HAWK) across both Glendale Boulevard (northbound and southbound) and Hyperion Avenue (Alternatives 3 or 4). This would be the most desirable solution from a pedestrian perspective as it would allow movements across all roadways in the area. However, this would also cause the most significant impact to vehicular traffic. Although a HAWK is the recommended solution, it should be noted that LADOT has a policy that allows the installation of mid-block traffic signals if the requirements for a HAWK signal are met.

2. Install RRFBs across southbound Glendale Boulevard (Alternative 1), or across both northbound and southbound Glendale (Alternative 2). This solution would minimize impacts to traffic while improving pedestrian safety. It is also a low-cost, scalable solution because the RRFBs could later be replaced with a HAWK beacon or a midblock traffic signal once pedestrian volumes increase and warrants are met (which is likely to happen with the construction of the crosswalk improvements, as there is probably latent pedestrian demand – a demand for additional pedestrian travel that would become reality as better, safer sidewalks and crosswalks are constructed with the project). On the other hand, this solution is not as convenient from a pedestrian perspective because people would not be able to cross Hyperion Avenue to get to the other side of Glendale Boulevard.

Technical Memorandum No. 6

To: City of Los Angeles Bureau of Engineering

From: Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE

cc: Anissa Voyiatzes, PE

Date: June 5, 2014

Re: **Glendale-Hyperion Bridge Complex**
Assessment of cross-sectional elements

Executive Summary

This Technical Memorandum summarizes the roadway design standards applicable to the following cross-sectional elements of the proposed Hyperion Avenue improvements: vehicular travel lanes, bike lanes, median and sidewalks, as well as placement of curb relative to the travel lanes.

An evaluation of three cross-sectional alternatives presented at the January 23, 2014 Citizens Advisory Committee indicates that the proposed Hyperion Avenue bridge cross-sections meet the required standards. However, various substandard features were identified for the Hyperion Avenue cross-sections under Waverly Drive, particularly in the case of Exhibit 1 (the four lane alternative). Recommendations are presented to mitigate those issues.

Objectives

The objectives of this Technical Memorandum are to:

- Present design standards applicable to cross-sectional elements on Hyperion Avenue consisting of vehicular travel lane, bike lane, median, shoulder and sidewalk width.
- Evaluate the adequacy and compliance with relevant design standards of the three cross-sectional alternatives presented at the January 23, 2014 Citizens Advisory Committee (http://www.glendalehyperion.com/wp-content/uploads/2014/03/Exhibits-1-3.pdf).

Study Area

This memorandum focuses on the segment of Hyperion Avenue between Ettrick Street and its junction with Glendale Blvd in the north.

Definitions and Applicable Documents

Hyperion Avenue is part of the National Highway System (NHS) and are classified as "MAP-21 Arterials". All projects on roadways and highways included in the National Highway System must comply with design standards adopted by the Federal Highway Administration (FHWA). The primary standard adopted by FHWA is the 2001 edition of *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO). If a design element such as lane width does not meet the design requirements, the project owner can request a design exception from FHWA.

Although the current standard is the 2001 edition of AASHTO's *A Policy on Geometric Design of Highways and Streets* (commonly referred to as the Green book) is the current design standard, FHWA encourages divisions to not require formal design exceptions if States choose to use values from the 2011 Green Book that are less conservative than in the 2001 edition. In addition, FHWA supports using additional design guides for the development of bicycle and pedestrian elements (http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/design_flexibility.cfm). Specifically, those guides include:

- *Guide for the Development of Bicycle Facilities,* AASHTO, 2012
- *Urban Bikeway Design Guide*, National Association of City Transportation Officials (NACTO), 2013
- *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach,* Institute of Transportation Engineers (ITE), 2010
- *ADA Standards for Accessible Design*, Department of Justice, 2010

In addition, Caltrans standards from its 2012 *Highway Design Manual* are listed for reference purposes.

Design Standards

This section presents the design standards relevant to the critical cross-sectional elements on Hyperion Avenue within the study area.

A. Travel Lane Width

Table 1 lists the lane width standards from applicable references.

Table 1. Travel Lane Width Design Standards

	AASHTO Green Book, 2011	A Context Sensitive Approach, ITE, 2010	Highway Design Manual, 2012, Caltrans
Section/ Chapter	7.3.3.	Chapter 9 (p136-138)	301.1
Min. Width	10	10	11
Std. Width	12	12	12
Additional Provisions	Lane widths of 10 ft may be used in more constrained areas where truck and bus volumes are relatively low and speeds are less than 35 mph. Lane widths of 11 ft are used quite extensively for urban arterial street designs	While it may be advantageous to use minimum dimensions under certain circumstances, avoid combining minimum dimensions on adjacent elements to reduce street width where it could affect the safety of users. For example, avoid combining minimum-width travel lanes adjacent to a minimum-width parking/bicycle	11 ft lanes are allowed in urban conventional highways with speed limits of 40 mph or less with low truck volumes. For highways, ramps, and roads with curve radii of 300 feet or less, widening due to off tracking in order to minimize bicycle and vehicle conflicts must be considered

B. Bike Lane Width

Table 2 lists the bike lane width standards from applicable references.

Table 2. Bike Lane Width Design Standards (Class II Lanes)

	AASHTO Green Book, 2011	Guide for the Development of Bicycle Facilities, AASHTO, 2012	A Context Sensitive Approach, ITE, 2010	Highway Design Manual, 2012, Caltrans	Urban Bikeway Design Guide, 2013, NACTO
Section/ Chapter	7.3.9	4.6.4	Chapter 9 (p155-157)	301.2	Conventional Bike Lanes
Min. Width (ft)	N/A	4	5	4	5
Std. Width (ft)	N/A	5	6	5	6
Additional Provisions	Refer to AASHTO Guide for the Development of Bicycle Facilities	5 ft is the recommended width, 4 ft is only allowed under extremely constrained conditions on low speed roadways where travel lanes have been reduced to their minimum dimensions	At least 3 ft of ridable surface required outside of the gutter pan	6 ft is minimum for roads with speed limit of 45 mph or higher. At least 3 ft of ridable surface required outside of the gutter pan	3 ft minimum ridable surface. The desirable bike lane width adjacent to a guardrail or other physical barrier is 2 ft wider than otherwise in order to provide a minimum shy distance from the barrier.

C. Sidewalk Width

In addition to the standard design references, the design of sidewalks is governed by the Department of Justice's *ADA Standards for Accessible Design*, 2010. Table 3 lists the sidewalk width standards from applicable references.

Table 3. Sidewalk Width Design Standards

	ADA Standards for Accessible design, 2010	AASHTO Green Book, 2011	A Context Sensitive Approach, ITE, 2010	Highway Design Manual, 2012, Caltrans
Section/Chapter	Chapter 4 - Accessible Routes	4.17.1	Chapter 8 (p123-124)	208.4
Min. Width (ft)	5	4	5	6
Std. Width (ft)	N/A	N/A	8	8
Additional Provisions	3 ft sidewalks are allowed but require 5 ft passing spaces at 200 ft intervals	Sidewalks adjacent to curb should be 2 ft wider than the minimum		The 6 ft minimum is specific to sidewalks on bridges. Otherwise 6 ft min adjacent to curb, 5 ft if separated by a planting strip

D. Median Width

Median width requirements vary widely depending on the purpose of the median installation. Medians used for control of access only are typically narrower than medians intended to provide pedestrian refuge or the addition of left turn lanes at intersections.

Furthermore, most median width standards should be regarded as guidelines and recommendations rather than absolute requirements. As an example, AASHTO states *"If right-of-way is restricted, a wide median may not be justified if provided at the expense of narrowed border areas… …Space should be provided on the borders for sidewalks, highway signs, utility lines, parking, drainage channels, structures, proper slopes, clear recovery zones, and any retained native growth. Narrowing the border areas may create obstacles and hindrances similar to those that the median is designed to avoid."*

Table 4 lists the median width standards from applicable references.

Table 4. Median Width Design Standards

	AASHTO Green Book, 2011	A Context Sensitive Approach, ITE, 2010	Highway Design Manual, 2012, Caltrans
Section/Chapter	4.11	Chapter 9 (p138-141)	305.1
Min. Width (ft)	4	4	18
Std. Width (ft)	10-30	22	N/A
Additional Provisions	A median 4 ft wide is normally better than none. 4 ft min with is a recommendation, not requirement	4 ft minimum is applicable to medians intended for access control	Under restrictive conditions, median widths should be consistent with requirements for two-way left-turn lanes or the need to construct median barriers , but may be reduced or eliminated entirely in extreme situations

E. Shoulder Width

Table 5 lists the shoulder width standards from applicable references.

Table 5. Shoulder Width Design Standards

	AASHTO Green Book, 2011	Highway Design Manual, 2012, Caltrans
Section/Chapter	4.4.2, 7.3.3	302.1, 208.1
Min. Width (ft)	4	4
Std. Width (ft)	10	8
Additional Provisions	Despite the advantages of shoulders on arterial streets, their use is generally limited by restricted right-of-way. Where bicyclists and pedestrians are to be accommodated on the shoulders, a minimum usable shoulder width (i.e., clear of rumble strips) of 4 ft should be considered.	4 ft minimum is specific to bridges. Bike lane, if present is part of the shoulder

F. Offset to Median Curb

Technical Memorandum #3 *Hyperion Bridge Median Treatment Need Assessment and Countermeasur*es discussed the possibility of using vertical curb in the median as an intermediate solution between having a painted median and installing a median barrier. The standards presented in Table 6 specify the space required from the inside edge of the inner travel lane to the face of median curb.

Table 6. Offset to Median Curb Design Standards

	AASHTO Green Book, 2011	Highway Design Manual, 2012, Caltrans
Section/Chapter	4.7.3	303.5
Min. Offset from Traveled Way (ft)	0	0
Max. Offset from Traveled Way (ft)	2	N/A
Additional Provisions	For low-speed urban street conditions, curbs may be placed at the edge of the traveled way, although it is preferable that the curbs be offset 1 to 2 ft.	When the posted speed is less than or equal to 35 miles per hour, no median curb offset is required if there is no gutter pan.

Findings and Recommendations

The previous section presented applicable standards for the various cross-sectional elements applicable to the Glendale-Hyperion project. In this section, those standards are compared to the three cross-sectional alternatives presented at the January 23, 2014 Citizens Advisory Committee. The cross-sectional alternatives are included in the appendix.

1. *Hyperion Avenue Bridge*

The vehicular travel lane, sidewalk, bike lane and median widths on Hyperion Avenue meet the standards specified by AASHTO and are combined in a manner that distributes available space effectively among the various modes of transportation. However, the following recommendations are made for consideration by project stakeholders:

- Instead of using a flush paved median, consider using vertical curb to improve delineation, or the installation of a concrete barrier to provide enhanced separation between opposing travel directions. For a detailed discussion on this issue please refer to technical Memorandum #3, *Hyperion Bridge Median Treatment Need Assessment and Countermeasures.*
- In Exhibit 2 (a three lane alternative with one sidewalk) consider widening the bike lanes to 6 feet by reducing the buffer to 2 feet.

2. *Hyperion Avenue under Waverly Drive*

The combination of limited clear width with tight horizontal curvature and a vertical grade make this location particularly challenging in terms of providing safe accommodation for all road users. The following substandard features are noted on the proposed alternatives:

- All three exhibits show the use of a gutter pan in the bike lane. Bike lane standards require at least 3 ft of ridable surface outside the gutter pan. Under Exhibits 1 and 2 the ridable surface is only 2 feet and is adjacent to narrow lanes, which could pose a safety concern.
- Exhibit 1 - Although most cross-sectional elements meet the minimum standard, the combination of minimum width elements is not desirable and could result in safety issues. In this case there are very narrow bike lanes adjacent to narrow travel lanes, which in turn are adjacent to a median of substandard width. ITE's *A Context Sensitive Approach* (2010) states *"While it may be advantageous to use minimum dimensions under certain circumstances, avoid combining minimum dimensions on adjacent elements to reduce street width where it could affect the safety of users. For example, avoid combining minimum-width travel lanes adjacent to a minimum-width parking/bicycle".*
- Exhibit 1 – The issue with narrow cross-sectional elements is compounded by the alignment of Hyperion Avenue at this location. Sight distance in the northbound direction is restricted by the retaining wall shown in Figure 1. Furthermore, because of the downhill grade, the required stopping sight distance is greater. Because of this, northbound drivers in the outside lane would at certain locations be unable to see bicyclists in the northbound bike lane. In addition, off tracking from northbound trucks negotiating the curve may encroach into the bike lane.

Figure 1. Sight Distance on Northbound Hyperion Avenue at Waverly Drive



Based on the preceding discussion on cross-sectional elements of Hyperion Avenue at Waverly Drive, the following recommendations are made for consideration:

- Exhibit 1 – If four lanes of travel are selected as the preferred alternative, consider using a Class III bike lane for northbound Hyperion Avenue from Rowena Avenue to a point north of the Waverly Drive underpass. Introduce a northbound Class II bike lane north of the underpass and carry it through the Hyperion Avenue bridge as shown in Exhibit 1. This alternative provides the following benefits: 1) it improves sight distance and overall visibility of bicycles, 2) since the road is in a downhill grade bicyclists can maintain higher speeds, 3) it allows redistribution of road width to other cross-sectional elements. For example, the southbound Class II bike lane (which would remain) could be widened to 5 ft, the travel lanes could be widened to 11 ft and the median could be widened to 3 ft.
- Exhibits 1, 2 and 3 – consider removing the gutter pan from the bike lane (and instead use a vertical curb without gutter), especially in the southbound direction where the road cross-section is super elevated; eliminating the need to convey drainage on the west edge of the road.
- Exhibit 2 – Widen the southbound travel lanes to 11 ft and both bike lanes to 5 or 6 feet (6 ft preferred if the gutter pan is to remain) by narrowing the median to 4 ft and reducing the bike lane buffers.
- Exhibit 3 – Widen the travel lanes to 11 ft by eliminating the bike lane buffers. As previously discussed, excessively narrow travel lanes are not desirable at this location because larger vehicles negotiating the tight horizontal curve could encroach into other lanes, including the proposed bike lane.
- Instead of using a flush paved median, consider using vertical curb to improve delineation, or the installation of a concrete barrier to provide enhanced separation between opposing travel directions. For a detailed discussion on this issue please refer to technical Memorandum #3, *Hyperion Bridge Median Treatment Need Assessment and Countermeasures.*

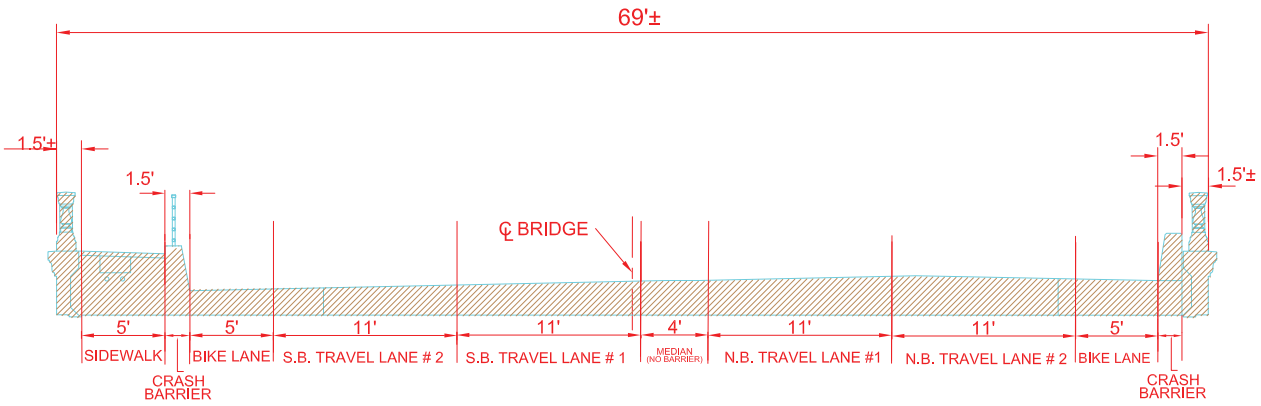
Appendix

Exhibits of Cross-Sectional Alternatives Presented to the CAC

EXHIBIT 1

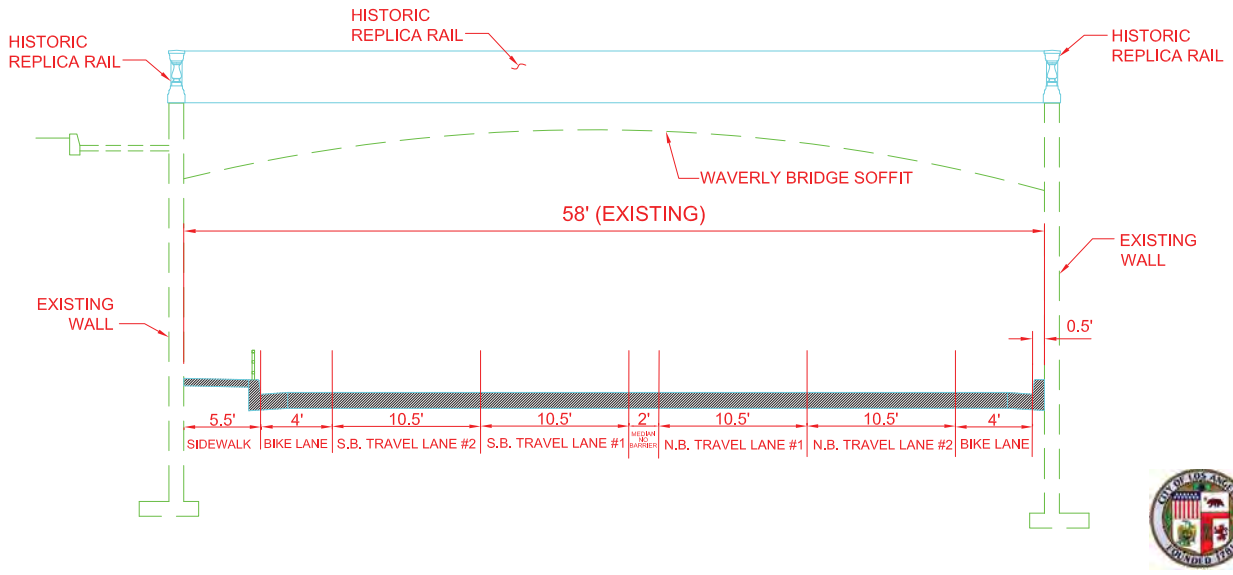
HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

1) FOUR - 11 FT. LANES
2) SIDEWALK ON ONE SIDE
3) 4 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

1) FOUR- 10.5 FT LANES
2) SIDEWALK ON ONE SIDE
3) 2 FT. MEDIAN (NO BARRIER)

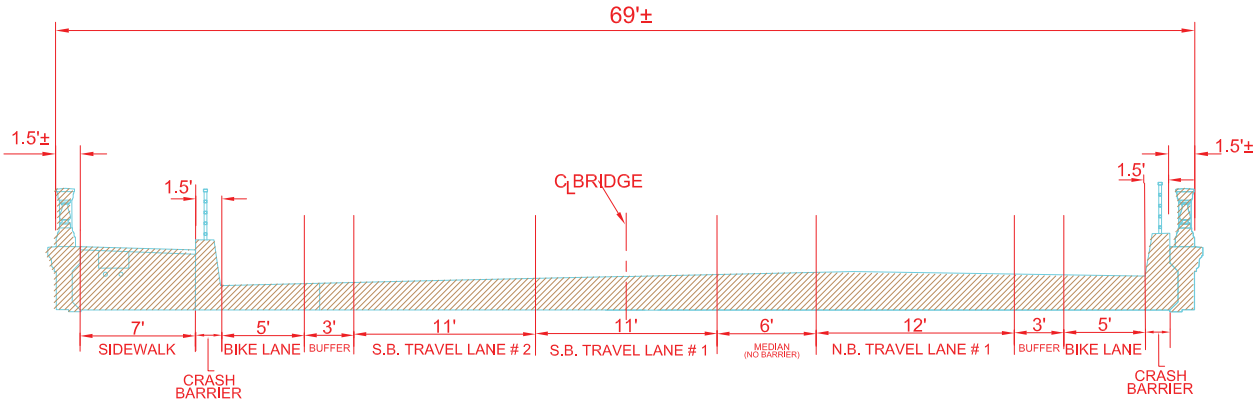


This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.

EXHIBIT 2

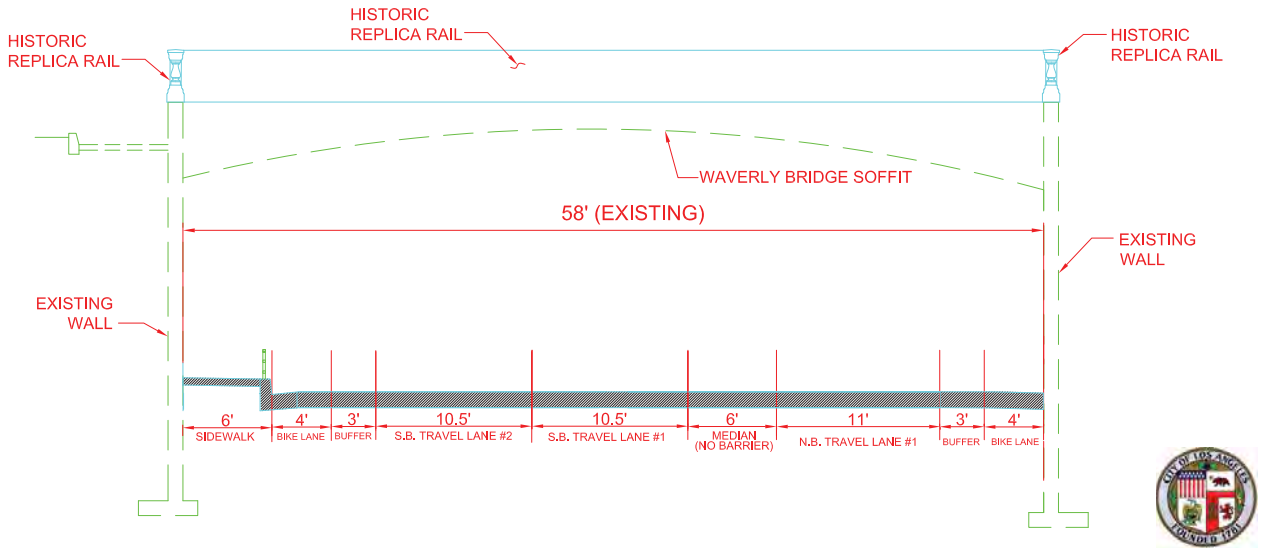
HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

1) THREE LANES (ONE LANE DOWNHILL; TWO LANES UPHILL)
2) SIDEWALK ON ONE SIDE
3) 6 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

1) THREE LANES (ONE LANE DOWNHILL ; TWO LANES UPHILL)
2) SIDEWALK ON ONE SIDE
3) 6 FT. MEDIAN (NO BARRIER)

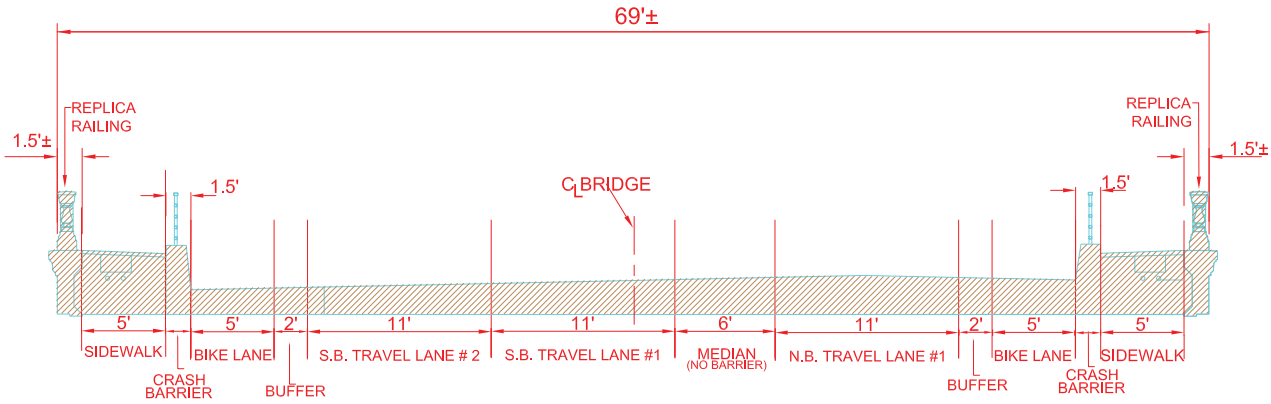


This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.

EXHIBIT 3

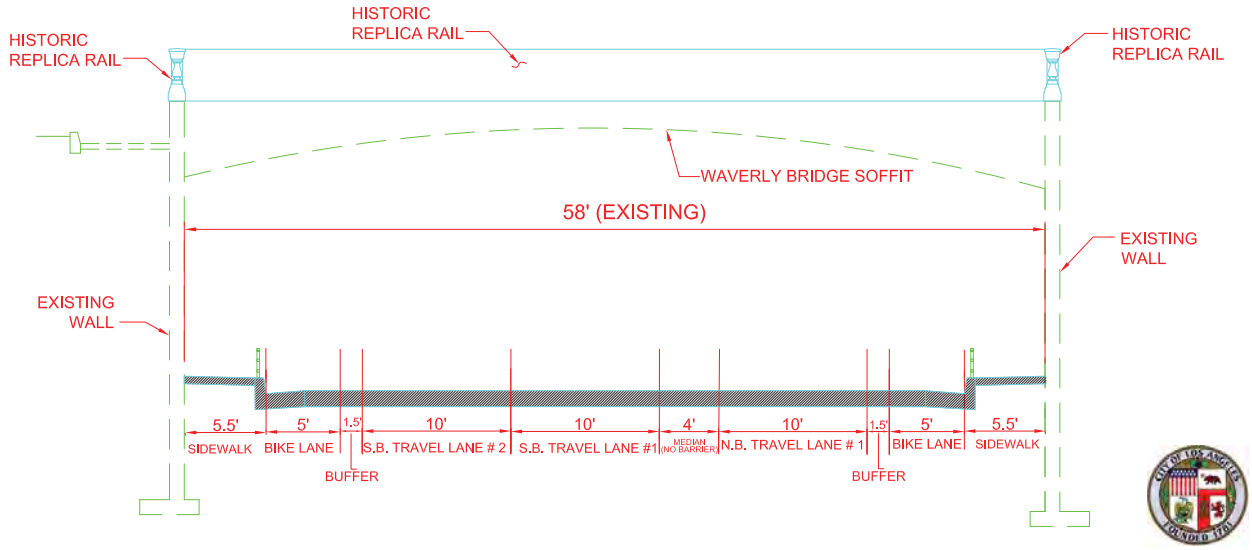
HYPERION AVENUE BRIDGE OVER I-5, RIVERSIDE DRIVE AND LA RIVER (LOOKING NORTH)

1) THREE-11 FT. LANES (ONE LANE DOWNHILL; TWO LANES UPHILL)
2) SIDEWALK AND BUFFER ON BOTH SIDES
3) 6 FT. MEDIAN (NO BARRIER)



HYPERION AVENUE AT WAVERLY DRIVE (LOOKING NORTH)

1) THREE-10 FT. LANES (ONE LANE DOWNHILL ; TWO LANES UPHILL)
2) SIDEWALK AND BUFFER ON BOTH SIDES
3) 4 FT. MEDIAN (NO BARRIER)



This Exhibit is strictly a preliminary design alternative under consideration, and does not represent the final design of the bridge.